

APENDIX SHOWING IMPORTANT SCHEDULES

1. NAME OF WORK : Interior Furnishing, Electrical & AC work at Narela Branch, New Delhi.
2. SIGNING THE AGREEMENT : Within 07 Days of the issue of letter of intent / order.
3. DATE OF COMMENCEMENT OF WORK : Within 07 Days of issue of letter of intent / order or the day on which site is handed over to contractor.
4. PERIOD OF COMPLETION : 30 DAYS from the tender date of commencement of work.
5. LIQUIDATED DAMAGES : 2% of the contract amount per week of delay subject to the max. of 10% of the accepted contracted sum.
6. PAYMENT SCHEDULE : Minimum value of running/adhoc bills shall be not less than Rs.9.0 lacs. Bill can be raised by the contractor once in 15 days. Final bill must be raised by the contractor within 30 days of completion of work. Payment for the final bill will be cleared by the department within 21 days of receipt of the architect certificate.
7. INCOME TAX DEDUCTION : As the prevailing rate from each bill.
8. DEFECTS LIABILITY PERIOD : **12 Months** after completion of work.
9. PERIOD OF FINAL MEASUREMENT : Within 1.0 calendar month from the date of final bill by the contractor.
10. RETENTION MONEY : 5% will be retained from each bill.
11. MSME EXEMPTION : Contractor carrying a valid MSME certificate will be exempted from submitting EMD. However if the contractor becomes L1 and work is offered to them, he/they will have to submit the required EMD with their acceptance of work in the prescribed time.

MSME contractor will not be exempted from tender fees.
The tender fee of Rs.1,000/- is mandatory for all the bidders.



SECTION – 2
INSTRUCTION TO TENDERS.

INSTRUCTION TO TENDERS.

2.1 The tender shall examine carefully all the tender documents consisting of:–

- Invitation to Tenders.
- Instruction to Tenders.
- Form of Agreement.
- General Conditions of Contract.
- Schedule of Quantities.

These shall form part of the Agreement.

The tender is advised to visit and inspect the site at his own cost and responsibility and to secure all necessary information which may be required for completing the tender. Ignorance of site conditions cannot be an excuse for non-performance of the contract. All costs, charges and expenses that may be incurred by the tender in connections with the preparation of his tender shall bear by him and the employer / architect does not accept any liability whatsoever in this regard.

2.2 Time is the essence of the contract and the tenders are required to complete the work in all respect within the stipulated time of completion and handover the same, complete in all respects to the satisfaction of the architect.

2.3 The tender should contain not only the rates but also the value of each item of work entered in the prescribed column of the B.O.Q. and all the item should be totaled up in order to show the aggregate value of the entire tender. The rates quoted by the tenders should be expressed accurately both in words and figures so that there is no discrepancy. All corrections in the tender shall be duly attested by initials of the tender, corrections, if not attested may entail rejection of tender. The rates quoted by the tenders in word in item rate tender will be the basis (and not the amounts in case of discrepancies) in finalizing the tender.

2.4 It shall be clearly understood that the rates quoted in the tender are to be, for complete work at site, as per instructions to Tenders, conditions of contract, specifications and drawings, addenda referred to therein and also for all such works as are necessary for the proper completion of the contract, although specifications thereof may not have been made in the specifications or drawings or tender documents. The rates shall be firm and shall not be subject to cost escalation on account of labor, material and labor conditions or any other reason whatsoever.

2.5 The tenders shall use only the form issued with this tender to fill up the rates.

2.6 Every page of the tender shall be signed on the left hand side bottom corner and any tender not so complied with is liable to be treated as defective & liable to be rejected.

2.7 In the event of a tender being a selected for acceptance. The Indian Bank will inform the tender for the specification and other documents for the acceptance with tender. The successful tender shall also deposit the required amount of the security money within the prescribed time and if the tender fails to deposit the required amount of the security money within the prescribed period, Indian Bank may reject the tender.

2.8 The successful tender will be notified about the acceptance of his tender by the Employer and he will have to deposit balance amount initial security and executed agreement within 7 (Seven) days thereof, failing which his tender would be liable to rejection with forfeiture of the Earnest Money.

2.9 The tender shall fill up the complete form of article of agreement before submission of tender. Failure to comply may entail rejection of the tender.

2.10 The contractor will be governed by the Indian contract act, Indian sale of good act and all other relevant laws. All payments due to the contractor under the contract will be made in Indian rupee currency.

2.11 The rate quoted shall be for complete work at site and should be inclusive of incidentals necessary for carrying out the work. The rates shall be inclusive of sales tax if applicable at **New Delhi** for work contract, central or state sales tax, octopi duty, royalty, ESI or any other tax or duty levied by any government or public bodies excluding GST on WCT. The rate shall be firm and shall not be subject to cost escalation of labor, material and exchange variations, labor conditions and other conditions whatsoever.

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| 2.12 | A schedule of approximate quantities for various items accompanies this tender. It shall be clearly understood that neither the architect nor the employer will accept any responsibility for the correctness or completeness of this schedule in respect of item and quantities and this schedule is liable to alternations by omission, deduction or addition at the discretion of the employer in consultation with the architect without violating the items of the contract. |
| 2.13 | The contractor must produce latest income tax clearance certificate along with this tender. |
| 2.14 | Form of 'Tender of works' contained in section –3 shall be completed along with submission of tender. In case of failure to do so the tender is liable to rejection. |
| 2.15 | The employer does not bind itself to accept the lowest or any tender or to assign any reason thereof and also reserves the right of accepting the whole or part of the tender. The part acceptance will not violate the terms and conditions of the contract and will execute the work at the specified rates without any extra charges or compensation. |
| 2.16 | Income tax deductions will be made as per the prevailing rates from the contractor's on account bills. |
| 2.17 | No mobilization advance or secured advance is to be allowed to the contractor. |
| 2.18 | Power and water connection, if required, has to be arranged by the contractor only. |
| 2.19 | The Contractor should have been empaneled (Valid) from our Bank and should have local office in Delhi & NCR. |
| 2.20 | The contractor/firm should have valid GST registration number for the particular trade of work. |

SECTION - 3

FORWARDING LETTER

FROM:

To:

Ref.:

Dear Sir,

1. With reference to the tender invited by you, I/ we hereby offer to perform, provide, execute and complete the works in conformity with conditions of contract, drawings and specifications for the respective items of schedule of quantities attached hereto.
2. I/ we have satisfied myself / ourselves as to the location and prevailing conditionings of the site, and have read carefully the articles of agreement, condition of contract, specification, general and special conditions, technical specifications etc, and I/We understand that the works are to be completed within **30 Days** from the date of commencement and fully understand that the time will be the essence of the contract.
3. I/We enclosed a demand draft for **Rs. 36,000/-** drawn on Indian Bank payable at favor of the **Indian Bank, Zonal Office Delhi Central, New Delhi- 110001** as earnest money and fully understand that this amount will not bear any interest.
4. I/We agree to keep the offer for **3 months** from the date of opening the tender.
5. Should this tender be accepted in whole or in part, I/We hereby agree to abide by and fulfill and the terms and conditions annexed hereto. I/We fail to commence the work specified in tender documents , I/We agree that my / our earnest money shall stand for-feinted absolutely to the Employer otherwise the said Earnest money shall be retained by the Employer towards security deposit (retention money) .
6. All the terms and conditions contained in the notice Inviting Tenders, Conditions of Tenders, General conditions of contract, specifications for execution of the work, additional conditions and the agreement etc. constituting the tender documents have been fully read by me/us and explained to me/us and I/We hereby accept the same and sign hereunder in token of their acceptance.
7. We are further enclosing herewith the following documents :-
 - i) Partnership Deed. Article of Association and power of Attorney. We agree that no change will be made in these documents without prior approval of the Indian Bank.
 - ii) Tender documents duly signed along with detailed program and targets of completion of each items work.



iii) Detail of deployment of manpower, machinery, plant and equipment.

iv) Latest I.T.C.C

v) Demand Draft No. _____ Date _____ Drawn

Name of the partners / Directors

Of the firm 1)

2)

Date: _____

Yours faithfully,

Witness: _____ Name & Sign. of Tenders (s) office

Stamp and seal of the Tenders (s).

Address: _____

Occupation: - _____



SECTION – 4
AGREEMENT



ARTICLES OF AGREEMENT

THIS AGREEMENT is made on this day of20XX between Indian Bank and having its Corporate Office/ Zonal Office at < Address.....> (hereinafter referred to as the “Employer”) which expression shall include its successor, legal heirs and assignees of the one part.

AND M/s. having its office at
.....

(hereinafter referred to as the “Contractor”) which expression shall include its successor, legal heirs and assignees of the second part.

WHEREAS the Employer has caused drawings and tender documents for ‘Repair and renovation works (Civil, Carpentry, Plumbing, Electrical, Fire Fighting & HVAC works) for < Name of the work.....>

AND whereas the Employer has called for tender vide ref. no. dated..... .

AND whereas the contractor has submitted the tender ref. no. dated to the Employer on

AND whereas the Contractor has agreed to execute the work as per drawings, specifications, conditions of contract and Work Order.

AND whereas the Employer has accepted the Contractor’s tender as aforesaid and whereas the tender submitted by the contractor has been accepted for such sum as may be ascertained to be payable in terms of the Bill of Quantities and which sum is estimated to be Rs. (Rupees) hereinafter referred to as the said “Contract Agreement”.

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:-

1) In consideration of the said Contract Sum to be paid at the times and in the manner set forth in the said Conditions the Contractor shall carry out and complete the Civil, Carpentry, Plumbing, Electrical & AC Works in terms and conditions herein contained and according to the general conditions of the contract, notice inviting tender, special conditions of contract, general scope of work, technical specifications, schedule of rates and instructions to be given by and the supervision of and to the entire satisfaction of the Employer.



2) Contract Price, Taxes and Payment Terms :

Total contract price is Rs..... which is inclusive of cost of materials, equipment, installation charges and tools and tackles required for execution of the job. Above price is inclusive of all taxes & duties including excise duty, sales tax, works contract tax, income tax, octroi etc. in respect of this contract. No claim in this respect will be entertained. Sales tax on works contract & Income tax on payments will be deducted and deposited by Employer in accordance with the sales tax law of the state and the provisions of tax deductions at source under income tax act 1961.

However, interim payment will be made as per the site measurements on Item Rate basis.

3) Completion Period:

Time is the essence of the Contract. The work is to be completed in all respects within XX (.....) months reckoned from XXth day from the date of issue of the Work Order or handing over of site whichever is later. If the Contractor fails to complete the job within the agreed time period the Contractor will have to bear liquidated damages as per the relevant clause mentioned in the Tender Documents.

4) Earnest Money:

The Contractor has deposited an amount of Rs./- (Rupees..... only) as earnest money.

5) Inspection of Site:

The Contractor has inspected the site before submitting his tender and has satisfied himself as to the nature of the work to be executed on the site. Any difficulties which the Contractor may come across in the course of the work shall in no way relieve the contractor to claim or receive extra payment unless the Employer is of the opinion that such difficulties could not have been foreseen and the Employer consents in writing.

6) Supply of Material and Labor:

The Contractor shall arrange all labor, materials, equipment's, tools, tackles and everything necessary for the completion of the work. The Contractor will assume all responsibility for the safety, protection and accounting of all material and equipment and the work during construction. All materials used by the Contractor shall be of the best quality conforming to the required specification mentioned in the tender document and will be subject to the approval of the Employer. All such materials not approved by the Employer shall be removed at once by the Contractor at his own expense. The Contractor shall also at his own expense arrange for carrying out any test of materials which the Employer may from time to time require or if so desired by the employer.

7) Defective Work / Materials:

If any part of the work done by the Contractor is found defective in workmanship or if bad or inferior materials have been used the Contractor shall at his own risk and cost demolish all such defective work and rebuild the same and / or replace the bad or inferior materials used within a time frame mentioned to the satisfaction of the Employer. The decision of the Employer in this regard shall be final and binding on the Contractor. In case of default of the contractor to

remove the defective work and rebuild the same or replace bad or inferior materials as directed by the Employer, the Employer shall be entitled to employ anyone else to carry out the same at risk and cost of the Contractor and recover all expenses incurred in this regard from the contractor.

8) Inspection of Work:

During progress of the work the Employer shall be entitled at all times to have access to and inspect the work.

9) Supervision:

The Contractor shall provide one or more competent and technical qualified engineers duly and fully authorized to act on his behalf in all matters relating to the works to be carried out under or any other matter concerning this agreement and who shall at all times be present at the works while any work is in progress as per directions, explanations & instructions of Employer.

10) Compliance with Statutory Regulations & Work Rules:

The Contractor shall be responsible for complying with the applicable laws / bye laws / Regulations in force from time to time and shall have to bear all statutory liabilities to the workers / personnel engaged for the job. Nothing will be paid extra in this regard. If any amount is paid by the Employer with this regard the same amount shall be deducted from the Contractor's dues. The Contractor shall have to arrange insurance cover for the workers / personnel engaged by him for the job.

11) Determination of Contract:

In the event of Contractor failing to keep / adhere to agreed schedule of work, or in the event of the Contractor failing to comply with the provisions of this contract by default and / or negligence and / or suspension of work or in the event of Contractor failing to complete the work within the stipulated period, the Employer may terminate this Agreement forthwith and employ, at the Contractor's risk and cost, another contractor or sufficient number of workmen to complete the work.

12) Force Majeure:

This clause will be operative only if the work is delayed by

- a) Acts of God
- b) Earthquake or floods or similar natural calamities.
- c) Serious loss or damage by fire or lightning.

In case any Force Majeure condition herein mentioned occurs and continues for a period exceeding 15 days the parties hereto undertake to sit together and devise ways for expeditious and proper performance of the obligations of the parties under this order.

13) Arbitration:

“ In the event of any dispute or difference relating to interpretation and application of provisions of the contract and all disputes/claims whatsoever which shall either during the continuance of the contract or afterwards either between the parties to the contract or the respective representatives touching the construction/application of any provision/clause mentioned in the contract or any account or liability between the parties to the contract or as to any act or deed or omission of any party to the contract, in any way relating to these presents, shall be first at the discretion of the Bank attempted to be resolved in good faith by mutual discussion within 30 days of the dispute or question being raised failing which the same shall be settled by arbitration in accordance with provisions of Indian arbitration and Conciliation act 1996.

The Parties concerned shall designate an arbitrator on mutual consent/consensus. In the event of no consensus being arrived, an Arbitral Tribunal shall be constituted comprising three Arbitrators, each party appointed one arbitrator and a third arbitrator to be appointed by the two arbitrators so appointed by the parties. The venue of the arbitration shall be exclusively at Chennai and any award passed by arbitrator or the arbitral Tribunal shall be final, conclusive and binding upon the parties and shall be deemed to have been made between parties themselves. The parties to the dispute shall share equally the cost of arbitration as intimated by the arbitrator”.

IN WITNESS whereof the said contracting parties have set their hands and seals on the day and year first hereinabove witness.

Witness Address

Employer

Witness Address

Contractor



SECTION – 5

GENERAL CONDITION OF CONTRACT

Except where provided for in the description of the individual items in the schedule of quantities and in the specifications and conditions laid down hereinafter and in the drawing. The work shall be carried out as per standard specifications and under the direction of employer / Architect.

1. INTERPRETATION

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

- i) Employer: The term employer shall mean Indian Bank having their head office at 66, Rajaji Salai, Chennai and any of its employees representative authorized on their behalf.
- ii) Architect: The term architect shall mean the approved architects of Indian Bank or in the event of his / their ceasing to be the architect for the purpose of this contract such other person/s as the employer shall nominate for the purpose.
- iii) Contractor: The term contractor shall mean Company, firm or the party to whom the Contract is awarded and shall include his / their legal representative(s) or successor(s).
- iv) Site: Shall mean the places or buildings envisaged by the employer where the work is to be executed or carried out.
- v) Site Engineer: The bank may appoint the site engineer. The bank may also determine the number of site engineer and the supporting staff at site office to assist them and also whether the site engineer shall be temporary or permanent. As far as possible, the site engineer should assume charge of his post before the contractor reports on site of work. Where more than one site engineer is appointed, one of them shall be designated as senior site engineer by the premises department and the other site engineer shall be reporting to the senior site engineer.
- vi) Drawings: The work is to be carried out in accordance with drawings, specifications, the schedule of quantities and any further drawings which may be supplied or any other instruction, which may be given by the employer during the execution of work.

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

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

The contractor shall ask in writing for any clarification 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 decision thereon.

- vii) “The Works” shall mean the work or works to be executed or done under this contract.
- viii) “Act of Insolvency” shall mean any act as such as defined by the presidency town’s insolvency act or provisional insolvency act or any amending statutes.
- ix) “The schedule of quantities” shall mean the schedule of quantities as specified and forming part of this tender.
- x) “Priced schedule of quantities” shall mean the schedule of quantities duly priced with the accepted quoted rates of the contractor.

2. SCOPE

The work consists of **Interior-Furnishing, Electrical & Ac renovation Works AT NARELA BRANCH, New Delhi, 110040.** In accordance with the “drawings” and “Schedule of quantities”. It includes furnishing all material, labor, tools and equipment and management necessary for the incidental to the construction and completion of the work. All works, during its progress and upon completion, shall confirm to the lines, elevations and grades as show on the drawings furnished by the employer / architects. Should any detail essential for the efficient completion of the work to be omitted from the drawings and specifications, it shall be responsibility of the contractor to inform the employer / architects and to furnish and install such detail with employer’s / architect’s concurrence, so that ,upon completion of the proposed work , the same will be acceptable and ready for use.



Employer/ Architect may in their absolute discretion issue further drawings and / or written instructions, details, directions and explanations, which are hereafter collectively referred to as “The Employer’s / Architect’s instructions in regard to:

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

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

Regarding all factory made products for which ISI marked products are available, only products bearing ISI marking shall be used in the work.

3. TENDER SHALL VISIT THE SITE

Intending tender shall visit the site and make him thoroughly acquainted with the local site condition. Nature and requirement of the works, facilities of transport condition effective labor and materials, access and storage for material and removal of rubbish. The tender shall provide in their tender for cost of carriage, height 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 tender will not be entitled to any claim of compensation for difficulties faced or losses incurred on account of any site condition which existed before the commencement of the work or which in the opinion of the employer / architects might be deemed to have reasonably been inferred to be existing before commencement of work.

4. TENDERS

The entire set of tender paper issued to the tender should be submitted fully priced also signed on the last page together with initials on every page. Initial / signature will indicate the acceptance of the tender paper by the tender.

The schedule of quantities shall be filled in as follows:-

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

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

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

The tenders should not that 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. It called upon by the employer / architects detailed



analysis of any or all the rates shall be submitted. The employer / architect shall not be bound to recognize the contractor's analysis.

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

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

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

The tender shall note that his tender shall remain open for consideration for a period of 3 months from the date of opening of the tender.

5. AGREEMENT

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

6. GOVERNMENT AND LOCAL RULES

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

7. TAXES AND DUTIES

The tender must include in their tender prices quoted for all duties royalties, excise and sales tax or any other taxes or local charges if applicable, excluding GST on WCT No extra claim on this account will in any case be entertained.

8. PROVISIONAL SUM (P.S.)

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

9. QUANTITIES OR WORK TO BE EXECUTED

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

10. OTHER PERSONS ENGAGED BY THE EMPLOYER

The employers reserves the right to execute any part of the work in this contract or any work which is not included in this contract, by other agency or persons and contractor shall allow all reasonable facilities and use of his scaffolding for the execution of such work. The main contractor shall extend all co-operations in this regard.

11. EARNEST MONEY DEPOSIT

The tender will have to deposit an amount of **Rs. 36,000/-** in the form of bank draft drawn in favor of **Indian Bank, Zonal Office Delhi Central, New Delhi- 110001** at the time of submission of tender as an earnest money. The employer is not liable to pay any interest on the earnest money. The earnest money of the unsuccessful tenders will be refunded without any interest soon after the decision to award the work is taken or after the expiry of the validity period of the tender.

12. CONTRACTOR TO PROVIDE EVERYTHING NECESSARY:

The contractor shall provide everything necessary for the proper execution of works according to the intent and meaning of the drawings, specifications and Schedule of Quantities taken together whether the same may or may not be particularly shown or described therein, provided that the same can reasonably be inferred there from and if the Contractor finds any discrepancy in the drawings or between the drawings, general conditions, specifications and Schedule of Quantities, he shall immediately refer the same in writing to the employer / Architect, whose decisions shall be final and binding. The contractor shall provide himself for ground and fresh water for carrying out of the works at his own cost. The employer shall on no account be responsible for the expenses incurred by the contractor for hired ground or fresh water obtained from elsewhere.

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

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

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

The contractor shall at all times, give access to workers engaged by the Employer or any men employed on the buildings, and to provide such parties, sufficient and if required, special scaffolding hoists and ladders and provide them with water and lighting and level or make any holes, groves etc., in any work. Where directed by the employer or as may be required to enable such workmen to lay or fix pipes. Electrical wiring. Special fittings etc. The quoted rates of the tenders shall accordingly include all these above-mentioned contingent works.

13. TIME OF COMPLETION EXTENSION OF THE PROGRESS CHART

1. Time of completion: The entire work is to be completed in all respects within the stipulated period. The work shall be deemed to be commenced within the Seven days from the date of acceptance letter or date of handing over of site, whichever is earlier. Time is the essence of the contract and shall be strictly observed by the contractor.

The work shall not be considered as complete until the employer / architects have certified in writing that his has been completed and the defect liability period shall commence from the date of such certificates.

2. Extension of time: If in the opinion of the employer / Architects the work be delayed (a) by any exceptionally inclement weather or (b) by reason of instructions from the employer in consequence of proceedings taken or threatened by or disputes, with adjoining or neighboring owner or (c) by the workers, or delay of other contractors or tradesmen engaged or nominated by the employer and not referred to in the specification or (d) by reason of authorized extra or addition or (e) by reason of any combination of workmen or strikes or lock out affecting any of the building trades or (g) from other causes which the employer may consider are beyond the control of the contractor, the employer at the completion of the time allowed for the contract, shall make fair and reasonable extension of time for completion in respect therefore. In the event of the employer failing to give possession of the site upon the day specified above the time completion shall be extended suitably.
3. In case of such strikes or lock-outs, as referred to above, the contractor shall immediately give the employer, written notice thereof. Nevertheless, the contractor shall use his best endeavors all that to prevent delay, and shall do all that may be reasonably required, to the satisfaction of the employer, to proceed with the works and on his doing so that it will be ground of consideration by the employer for an extension of time as above provided. The decision of the employer as to the period



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

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

- ## 15. NOTICE AND PATENT OF APPROPRIATE AUTHORITY AND OWNERS

The contractor shall arrange to give notice 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 fees that may be properly chargeable in respect of the work and lodge the receipt with the employer.

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

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

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

17. DATUM

The average ground level will be considered as the crown of the nearest road which should be taken as "Datum" which is however subject to final confirmation by the employer / architect. All levels shown in the drawings are to be strictly adhered to.

18. CONTRACTOR IMMEDIATELY TO REMOVE ALL OFFENSES

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

The contractor shall keep the foundation and works free from water and shall provide and maintain at his own expenses electrically or other power driven pumps and other plant to the satisfaction of the employer for the purpose unit the building is handed over to the employer. The contractor shall arrange for the disposal of the water so accumulated to the satisfaction of the employer and local includes in his rates for the purpose.

19. ACCESS

Any authorized representative of the employer shall at all reasonable times have free access to the works and/or to the workshops, factories or other places where item/items of work are being prepared or manufactured for the contract and also to any place where the materials are lying or from which they are being obtained. The Contractor shall give every facility to the Architect, Owner and their representative for the inspection and examination and test of the materials and workmanship. Except the representative of employer no person, shall be allowed at any time without permission of the employer.

20. MATERIAL, WORKMANSHIP, SAMPLES, TESTING OF MATERIALS

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

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

All the material (except where otherwise described) store and equipment required for the full performance of the work under the contract must be provided through normal channel and must include charge for import duties, sales tax, octroi and other charges and must be the best of their kind available and the contractor/s must be entirely responsible for the proper and efficient carrying out of the work. The work must be done in the best workman like manner. Samples of all materials to be used must be submitted to the employer / architect when so directed by the engineer / architect.

21. REMOVAL OF IMPROPER WORK:

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

22. SITE ENGINEER

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



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

23. CONTRACTOR'S EMPLOYERS

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 perform their job efficiently.

The contractor shall employ local labors on the work as far as possible. No labor below the age of sixteen years and who is not an Indian National shall be employed on the work.

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

The contractor shall comply with the provisions of all labor legislation including the requirements of.

- a) Employer's Liability Act.
- b) Workman's Compensation Act.
- c) Contract Labor (Regulation & Abolition) Act, 1970 and Central Rules 1971
- d) Apprentices Act 1961
- e) Any other Act or enactment relating thereto and rules framed hereunder from time to time.

The contractor shall keep the Employer saved harmless and indemnified against claims if any of the workmen and a 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 MS own cost the order of requirement of any Health Officer of the State or any local authority or of the Employer regarding the maintenance of proper environmental sanitation of the area where the contractor's labors are housed or accommodated, for the prevention of small pox. Cholera, plague, typhoid, maintain and keep in good sanitary conditions 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 in completion of the works. Adequate precautions shall be taken by the contractor to prevent nuisance of and kind on the works or the lands adjoining the same.

The contractor shall arrange to provide first aid treatment to the labors 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 to the competent authority where such report is required by law.

24. DISMISSAL OF WORKMEN :

The contractor shall on the request of the employer immediately dismiss from the works any person employed thereon who may, in the opinion of the employer, is unsuitable or incompetent or who may misconduct himself, and such person shall not again be employed or allowed on the works without the permission of the employer. The employer shall not enter into correspondence for stating the reasons for dismissal of such workmen. Such discharge shall not be the basis of any claim for compensation or damages against the employer or any of their officer or employee.

25. ASSIGNMENT

The whole works included in the contract shall be executed by the contractor and the contractor shall not directly or indirectly transfer, assign or underlet the contract or any part share thereof or interest therein, nor shall take a new partner, without the 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 works during their progress.

26. DAMAGE TO PERSONS AND PROPERTY INSURANCE ETC.

The contractor shall be responsible for all injury to persons, property or things and for all structural and decorative damage to property which may arise from operation or neglect or default of himself or of any Sub-Contractor or of any of his or a Sub-Contractor's employees, whether such injury or damage may arise from carelessness, accident or any other cause



whatever in any way connected with the carrying out of this contract. This clause shall be held to include, interlace any damage to buildings, whether immediately adjacent or otherwise, any damage to roads, streets, footpaths, bridges, or ways as well as damages caused to the buildings and works forming the subject of this contract by rain, wind or other inclemency of the weather. The Contractor shall indemnify the Employer and hold him harmless in respect of all, and any expenses arising from any such injury or damage to persons or property as aforesaid and also in respect of any claim made in respect of injury or damage under any acts of Governments or otherwise, and also in respect of any award of compensation or damages consequent upon such claim.

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

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

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

27. INSURANCE

Unless otherwise instructed the contractor shall insure the work and keep them insured until the virtual completion of the contract against loss or damage by fire and / or earthquake, flood. The insurance must be placed with a company approved by the employer, in the joint names of the employer and the contractor for such amount and for any further sum if called to do so by the employer, the premium of such further sum being allowed to the contractor as an authorized extra.

The contractor shall deposit the policy and receipts for the premiums with the employer within 10 days from the date of signing the Contract. In default of the Contractor insuring as provided above, the employer on his behalf may so insure and may deduct the premiums paid from any money due or which may become due to the contractor. The Contractor shall as soon as the claim under the policy is settled, or the work reinstated by the Insurance office, should they elect to do so proceed with all due diligence with the completion of the works in the same manner as though the fire had not occurred and in all respects under the same conditions of contract. The contractor in case, of rebuilding or reinstatement after fire, shall be entitled to such extension of time for completion as the employer may deem fit.

28. ACCOUNTS RECIEPTS AND VOUCHERS

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

29. MEASUREMENT

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

30. PAYMENTS

The bills of the Contractor's shall be submitted to the Architects which in turn shall duly forward the same certifying the correctness thereof along with all the relevant records to the employer within a week of the receipt of bills and other records from the Architects subject to deduction of applicable taxes, advances, security deposits etc. or such other sums as may be agreed or provided for under the Contract.

All the interim payments shall be regarded as payments by way of advance against the final payments for work actually done and completed, and shall not preclude the requiring of bad, unsound, and imperfect or unskilled work to be removed and taken any and reconstructed, or recreated or be considered as an admission of the performance of the contract, or may part

thereof in any respect or the accruing of any claim , nor shall it conclude determine or affect in any way the power of the Employer under these conditions or any of them as to the final settlement and adjustment of the accounts or otherwise or in any other way vary or affect the contract.

Final payment: -The final bill shall be accompanied by a certificate of completion from that employer/ Architect. Payments of final bill shall be made after deduction of retention money as specified in clause 11 of these conditions, which same shall be refunded after the completion of the defect liability period after receiving the employer's / architects certificates that the contractor has rectified all defect to the satisfaction of the employer / architect. The acceptance of payment of the final bill the contractor would indicate that he will have no further claim in respect of the work executed.

31. VARIATION / DEVIATION

The price of all such additional items/ non tendered items will be worked out on the basis of rates quoted for similar items in the contract wherever existing or on engineering rate analysis based on prevalent fair price of labor, material and other components as required. The tender rates shall hold good for any increase or decrease in the tendered quantities up to variations of 25%. For variation beyond $\pm 25\%$ the rate for the respective items may be reviewed on mutually agreed terms.

32. SUBSTITUTION

Should the contractor desire to substitute any material and workmanship, he / they must obtain the approval of the employer / architect in writing for any such substitution well in advance. Material designated in this specification indefinitely by such terms as "Equal" or other approved etc. specific approval of the employer / architect has been obtained in writing.

33. PREPARATION OF BUILDING WORKS FOR OCCUPATION & USE ON COMPLETION

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

On completion the contractor shall clean windows, and doors including oiling if necessary , of all hardware., inside and outside , stair – case , and every part of the building . He will leave the entire building neat and clean and ready for immediate occupation and total satisfaction of the Bank.

34. CLEARING SITE ON COMPLETION

On completion of the works the contractor shall clear away and remove from the site construction plant, surplus material, rubbish and temporary works of every kind and leave the whole of the site and the works clean and in a workmanlike condition to the satisfaction of the employer / architect.

35. DEFECTES AFTER COMPLETION

The contractor shall make good at his own cost and to the satisfaction of the Employer all defects, shrinkage, settlements or other faults which may appear within 13 months after completion of the work. In default the Employer may employ and pay other persons to amend and make good such damages , losses and expenses consequent thereon or incidental there to shall be made good and borne by the contractor and such damages , loss and expenses shall recoverable from him by the employer or may be deducted by the employer , in lieu of such amending and making good by the contractor deduct from any money due to the contractor a sum equivalent to the cost of amending such work and in the event of the amount retained being insufficient , recover that balance from the contractor from the amount retained under clause No. 12 together with any expenses the Employer any have incurred in connection therewith .

36. CONCEALED WORK

The contractor shall give due notice to the employer / architects whenever any work is to be buried in the earth, concrete or in the bodies of walls or otherwise becoming inaccessible later on, in order that the work may be inspected and correct dimensions taken before such burial, in default whereof the same shall at ht opinion of the employer / architect be either opened up for measurement at the contractor's expanses 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 a accepted as correct and binding on the contractor .

37. ESCALATION

The rate quoted shall be firm throughout the tenure of the contract (including extension of time, if any, granted) and will not be subject to any fluctuation due to increase in cost of material, labor, sales tax, octroi etc. unless specially provided in these documents.

The price variation clause being adopted by the RBI may be followed, if such a situation arises on a case basis.

38. IDLE LABOUR



Whatever the mesons 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.

39. SUSPENSION

If the Contractor, except on account of any legal restraint upon the employer preventing the continuance of the works, 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 that the works be proceeded within a reasonable manner, and with reasonable dispatch, such notice shall not be unreasonably given and must signify that it purports to be a notice under the provisions of this clause and must specify the acts or defaults on the part of the Contractor upon which it is based.

After such notice shall have been given to the contractor shall not be at liberty to remove the site of works or from any ground continuous thereto any plant and materials to subset from date of such notice being given until the notice shall have been complied with. If the contractor shall fail for 7 (seven) days after such notice has been given to proceed with the works as therein prescribed, the employer may proceed as provided in clause 40 (Termination of contract by employer).

40. TERMINATION OF CONTRACT BY EMPLOYER

If the contractor being a company going in to 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 in to 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 the 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 contractor and if so required by the contractor 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 payment due or which may become due to the contractor, there under, or shall neglect or fail to observe and perform an or any of the acts matters of things by this contract to be observed and performed by the contractor within three clear days after the notice shall have been given to the contractor in manner hereinafter mentioned requiring the contractor to observe or perform the same or shall use improper materials or workmanship in carrying on to the works, or shall in the opinion of the employer not exercise such due diligence and make such due progress as would enable the work to be completed within due time agreed upon, and shall fail to proceed to the satisfaction of the of the employer after three clear days notice requiring the contractor so to do shall have been given to the contractor as hereinafter mentioned, or shall abandon the contract then and in any of the said cases, the employer may not withstanding previous waiver determine the contract by notice in writing to the effect as hereinafter mentioned, but without thereby effecting the powers of the employer of the obligations and liabilities of the contractor the whole which shall continue in force as fully as if the contract had not been so determined and as if the works subsequently executed had been executed by or on behalf of the contractor (without thereby creating trust in favor of contractor) further the employer or his agent or servants, may enter upon and take possession of the work and all plants, tools, scaffolding, shed , machinery, steam and other power, utensils and material lying upon premises or the adjoining lands or roads of sell the same as MS own property or may employ the same by mesa of his own servants and workman in carrying on and completing the work or by employing any other contractor or other persons or person to complete the work, the contractor shall not in any way interrupt or do any act matter of thing to prevent or hinder such other contractors or other persons or person employed from completing and finishing or using the material or 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 MS surplus material and plants, and should the contractor fail to do so within 14 days after receipt by him the employer may sell the same by public auction and shall give credit to the contractor for the amount to so released. Any expenses or losses incurred by the employer in getting the works carried out by the other contractor shall be adjusted against the amount payable to the contractor by way of selling his tools or plants or due on account of work carried out by the contractor prior to engaging other contractor or against the security deposit.

41. ARBITRATION

In the event of any dispute or difference whatsoever arising between the parties out of or pertaining to any Clause of this Contract including any question relating to meaning and interpretation of this contract or any alleged breach thereof, except those the decisions whereof have been specifically provided in the Contract, the same shall be settled as far as possible by mutual discussions and consultations between the parties.

In case of failure to resolve the difference/dispute in the above manner, the same shall be referred to the sole arbitration of any person appointed by mutual consultation of employer and contractor, who shall be presently unconnected with the organization for which the work is executed.



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 the Arbitrator shall be such place as may be fixed by the arbitrator in the sole discretion.

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

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

Subject to aforesaid the provision of the arbitration act 1940 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 arbitrator proceeding under this clause.

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

CONDITIONS FOR ELECTRICAL WORK

NOTE:-

These preambles apply to all the sections of schedule of quantities and tendered rates etc. shall be taken into account and all the provisions, additions to various provisioning thereof parts of the tendered documents.

1. The quantities given in schedule are provisional. The contractor will be paid for the actual quantity of work executed at site at the rates quoted in his tender. The owner reserves the right to increases or decreases any of the quantities or totally omit any item of work. The variation due to the above shall be limited to 5% of the total contract amount. Any claim by the contractor on these accounts will not be entertained.
2. All the items of work given in this schedule of quantities shall be executed strictly in accordance with the Indian Electricity Act. The Indian electricity rules and requirements of the Electric supply authority read in conjunction with the relevant drawings, specifications and the appropriate Indian Standards.
3. All measurements shall be taken in accordance with the Indian Standard Electrical Installation in buildings method of measurement of IS rules unless otherwise specified.
4. The contractor shall visit the site of work and shall satisfy himself to the conditions under which the work is to be performed. No extra claim on the grounds of ignorance or on grounds of insufficient description will be allowed at later date.
5. No alteration whatsoever is to be made to the text or quantities of this schedule unless authorized in writing by the owner/Bank. Any such alterations, notes or additions will be considered as addendum and shared in writing by the owner/Bank.
6. In the event of error occurring to the amount column of the schedule, as a result of wrong extension of unit rate and quantity, the rate quoted by the tender shall be regarded as firm and the extensions shall be amended on the basis of rates.
7. Any error in description or in quantity or omission of items from the contract shall lead to disqualification of the vendor.

GENERAL CONDITIONS:

The specification generally applicable to this works shall be as per C.P.W.D. Specifications for Electrical work at Delhi except as otherwise specified in the description of items given in the schedule of quantities or in the General and Technical specifications the requirement of these specifications will be fulfilled by the Contractor within the Tendered rates and without extra charge. The item rates quoted shall be deemed to have taken this specification into account.

1. The Electrical work will be carried out generally in accordance with the General specification 1972 with amendments up-to-date for Electrical work in Central Government buildings while complying in all respects with the requirements of the latest Indian Electricity Rules in force for the time being.
2. The Electrical shall be carried out simultaneously with building work and will be continued until it is completed satisfactorily along with the completion of essential portions of building work.

If any Minor alterations are found necessary, the contractor will do the same within the tendered rates.

The work will be carried out in the best workman like manner and any defect in the work or changes in the design etc. If pointed out shall be carried out by the contractor within the tendered rates.

The contractor shall employ adequate labor to complete the work within the stipulated time and make his own arrangements for housing labor and storage of materials etc. A whole time Electrical Supervisor/Engineer shall be employed by the contractor who will remain at site of work to receive orders or other instructions from the Architects/Engineer-in-charge./consultant.

Any material supplied by the Employers, if damaged in any way during cartage or execution of work or otherwise, shall be made good by the contractor at his own cost.

During, the progress of work, portions of the building may be occupied and put to use by the owner but contractor will remain fully responsible for maintenance of the Electrical Installations till the entire work covered by this contract is satisfactorily completed by the Architects/Engineer-in-charge./consultant.

8. CONTRACTOR TO OBTAIN INFORMATION BY HIMSELF

The contractor shall obtain for himself on his own responsibility and at his own expenses all the information which may be necessary for the purpose of tendering and for entering into contract, and must examine and study the specifications, drawings the design of electrical installation, inspect the site, the building plans etc. If the drawings are supplied to the contractor for tender purposes, the same must be returned in good condition with the tender. The contractor shall also not withstanding information given to him, make local and independent Enquiries.

9. TENDER RATES

All Tender rates will include for the cost of materials, erection connections, labour, supervision, tools, plant, transport all taxes contingencies, breakage, wastage, sundries, scaffolding, maintenance of installation for on eye etc. i.e. they should include an item complete in all respect.

10. APPROVALS

The contractor, while executing the work, shall conform to the provision of any Government Act relating to the work and to the regulations and Byelaws of the local authorities, and of the Company to whose system of supply the installation is proposed to be connected. The contractor shall give all notices, required by the Acts, Regulation of Byelaws. He will also undertake to provide test certificate and drawings as required and will make necessary arrangement stop procure electricity supply without any extra charge. The contractor shall also obtain all approvals for the item of work done under this contract from the appropriate authorities. All inspection fees or submission fees



paid by the contractor will be reimbursed by the owner against valid official receipts. Contractor shall possess valid electrical Contractor's License issued by the inspectorate of the Local Government, 'A' Class license category holders.

11. SAMPLES:

Samples of materials and fabrication drawings will be submitted by the contractor according to the schedule/specifications. Any deviation from the schedule/specification will have the written consent of the consultant/Architects. No approval given by the Consultants /Architect to any samples or shop drawings drawings submitted by the Contractor shall in any way exonerate the contractor from his liability to carry out the work the accordance with the terms of contract.

12. DRAWINGS:

A. WORKING DRAWINGS

The contractor will submit 4(four) sets of working drawings indicating detailed layouts for approval and proceed with work there after. All fabrication drawings and other literature will also be submitted in advance for approval.

B. COMPLETION DRAWINGS

The contractor shall submit one complete set of Original Tracing and further two copies of layout drawings to the Consultants/Architects after completion of the work. These complete drawings shall give the following information:

I. Runs of conduits, Diameter of conduit, number of wires contained in each conduit and size of wire for point wiring, mains, sub mains.

II. Location of Distribution Boards, Main Switches, Junction and outlet boxes.

III. Complete Schematic Diagram of the installation. Cables, dummy pipes, earthing and communication systems and all other services covered under this contract

IV. The Drawings will be submitted in 4 (four) different sets as below:-

SET NO:1 : Lighting layout giving details of the entire lighting system.

SETNO:2: Power layout giving details of the entire power system.

SETNO: 3: Communication layout, mains, sub mains, Lighting Protection, earthing system and any other detail not covered in earlier drawings.

SETNO: 4: Schematic diagram.

No completion certificate will be issued until the completion drawings in the above mentioned are submitted. The drawings will be prepared and submitted by the contractor without any extra charge. Rs.10,000/- may be kept for non-completion of the said drawings.

13. PROGRESS AND TIME OF COMPLETION

- a. The work will commence immediately after the contractor receives instructions to proceed.

- b. The contractor will work in cooperation with the building contractor and other contractors and shall arrange to place his conduits in the masonry and concrete work as the building or other work proceeds. Any hold up of the building or other work because of delay in laying of conduits or otherwise, shall be the responsibility of the Electrical Contractor and will make him liable for damages if any, by the Employers.

- c. The contractor shall in consultation with the Consultants/Architects draw up a time schedule on commencement of the work. This time schedule will be strictly adhered to.

SPECIFICATIONS

1. INTERNAL WIRING

System of wiring

The system of wiring shall consist of single core PVC insulated standard copper conductor in PVC conduits concealed or exposed as called fronted drawings.

General

Prior to laying and fixing of conduits, the Contractor shall carefully examine the drawings indicating the layout of conduits, satisfy himself about the sufficiency of number and size of conduits, location of junction boxes, sizes and location of switch boxes and other relevant details. Any discrepancy found in the drawings shall be brought to the notice of the Employer/ its representative. Any modifications suggested by the Contractor shall be got approved by the Architect before the actual laying of conduits is commenced.

Materials

PVC Conduits: PVC conduits shall be of min 2mm wall thickness and ISI marked to heavy duty.

Connections

All joints shall be fully water tight and sealed by applying cementing jointing compound as per manufacturer's recommendation. 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. Conduit system shall be erect and straight as far as possible. Separate conduits shall be run for 15amps-power outlet wiring. The Joints in conduit shall be free of burrs to avoid damage to installation of conductors while pulling them through the conduit.

Bends in Conduit

Where necessary, bends or diversion may be achieved by means of bends and/or circular inspection boxes with adequate and suitable inlet and outlet connections. In case of recessed system each junction box shall be provided with a cover properly secured and flush with the finish wall surface, so that the conductors inside the conduit are easily accessible. No bend shall have radius less than $2\frac{1}{2}$ times the outside diameter of the conduit.

Fixing Conduits

Conduits and junction boxes shall be kept in position while the walls, slabs and floor are under construction and proper hold fasts shall be provided. Conduits shall be so arranged as to facilitate easy drawing of wire through them. Adequate junction boxes of approved quality and size shall be provided. Where conduits Cross expansion joints in the building, adequate expansion fittings or other approved devices shall be used to take care of any relative movement. All conduits shall be installed so as to avoid steam and hot water pipes. Conduit stubs in floor slabs shall be kept as short as possible above finished floor level in order to avoid any damage to them. After the conduits, junction boxes, outlet boxes and switch boxes are installed in position, their outlet shall be properly plugged or covered so that water, mortar, insects or any other foreign matter does not enter into the conduit System. Where called for, surface conduits shall be fixed by means of spacer bar saddle at intervals not more than 1000 mm and 100 mm from both sides of fitting or accessories. The saddles shall be 3mm x19mm galvanized mild steel flat, properly treated, Securely fixed to support by means of raw bolts and brass machine screws. Conduit in chases shall be avoided. Where nevoid able, conduit shall be fixed by means of Staples not more than 600mm apart and the chases filled with cement mortar 1:6 Cutting of horizontal chassis prohibited. All socket reconnection shall be made fully water tight by the use to suggested by manufacturer PVC Conduits.

.Switch outlets & Junction boxes

All outlets for switches, sockets and other receptacles shall be equipped with rust proof outlet boxes of sheet steel fabricated from 16SWG sheet as called for having smooth external and

internal surface to true finish. Where called for, outlet boxes for receiving's switches and fan regulators shall be fabricated to approved sizes and cove red with 3/16th inch thick decorative laminate sheet. Outlets exposed to the weather shall be fully weather tight, complete with rubber gasket covers. Outlets where used shall be painted with two coats of bituminous paint before they're fixed in position, outlet boxes fixed in concrete shall have a minimum depth of 75mm and the wall thickness of the box and spouts shall not be less than 2mm.

Inspection Boxes

Rust proof boxes of cast iron and 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 on walls/ ceiling finished surface and shall be provided with 3/16th inch thick decorative laminate sheet cover to the box with brass screws. Adequate ventilation holes shall be provided in the inspection box covers.

Telephone system

Conduit, junction boxes, draw boxes, outlet boxes and covers to boxes for telephone system shall be as described under relevant clauses elsewhere in these specifications. The conduit for telephone wiring shall be of specified size and shall terminate at outlets as indicated on the drawings. All telephone system conduit shall have '14' SWG galvanized steel pull wires installed.

Conductors

All PVC insulated copper conductor wires shall conform in all respects to Indian Standards.

Bunching of wires

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

Drawing Conductor

The drawing and jointing of copper conductor wires and cables shall be executed with due regard to the following precaution: While drawing insulated wires in to 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 like sharpening of a pencil and it shall not be removed by cutting its wire of wiring. Strands of wires shall not be cut for connecting terminals. The terminals shall have sufficient cross sectional area to take all strands and shall be thinned. The connecting brass screws shall have flat ends. All looped joints shall be connected through terminal blocks / connectors. The pressure applied to tighten terminal screws shall be just adequate, neither too much nor too less. Conductor having nominal cross-sectional area exceeding 4 Sq.mm shall always be provided with cable sockets. At all bolted terminals, brass flat washers 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 wires and cables shall bear the manufacturer's label and shall be brought to site in new and original packaging. For all internal wiring, PVC insulated wires of 250/440 volts grade shall be used. The sub-circuit wiring for points shall be carried out in looping in system and no joints shall be made.

2. SWITCHES, RECEPTACLES & FIXTURES

Switches

All 5/15amp switches shall be piano type switches 220 V A.C. All switches shall be fixed inside this witch boxes on the cover plates with Brass machine screws and nuts leaving ample space at the back and sides for accommodating wires. Flush mounted fan regulators shall be fixed inside this witch boxes over the cover plate with brass machine screws and nuts. The switch controlling the light point or fan shall be connected on the phase wire of the circuit. Switches shall be located at 1200mm above floor level unless otherwise indicated. Cover Plates: All switch receptacles and telephone system outlets in the walls shall be provided with white urea powder pressed cover plate of standard configuration of Switch remanufacturer. The cover plates shall be secured to the box With countersunk brass screws.

Wall socket outlet

All 5 amp 3pin socket outlets where called for shall be switches and 3 pin type. All 15 amp 3 pin wall socket outlets where called for shall be switched. The sockets shall be erected approximately 150 mm above floor level (to the bottom of the box), unless otherwise specified. The switch controlling the point outlets and socket outlets shall be on the phase wire of the circuit. The earth terminal of the socket shall be connected to the earth terminal provided inside the box by means of 2.5sq. mm insulated copper wire. No joints are allowed in the length of the conductors. If the use of joint connections is unavoidable due to any specific reasons, prior permission in writing shall be obtained from the employer/ its representative/ Engineer in charge before the use of such connections. No wire shall be drawn into any conduit, until all work, of any nature that may cause injury to the wire, is completed. Care shall be taken in pulling the wires so that no damage occurs to the installation of the wire. Before the wires are drawn into the conduits, the conduits shall be thoroughly cleaned of moisture, dust, dirt or any other obstruction by forcing compressed air through the conduit. The minimum size of PVC insulated copper conductor wires for all sub circuit shall be as follows: Wiring for lights, exhaust fan sand ceiling fan points shall be 1.5sq.mm .The two 15 amp power out lets shall be grouped be 1.5 sq.mm. The two 15 amp power outlets shall be grouped in one circuit where called for, Wiring for the first power outlet shall be carried out with 4 sq.mm. PVC insulated copper conductor wires. Wiring for the second power outlet shall be carried out with 4 sq.mm. All power outlets shall be provided with 2.5sq.mminsulated copper earth wires.

Colour code conductors

Color code shall be maintained for the entire wiring installation: Red, Yellow, Blue for the three phases, Black for neutral, Green for earth.

Ceiling fans

All ceiling fans shall be provided with suspension arrangements in the concrete slab / roof numbers. It is the duty of the contractor to make those provisions at the appropriate stage of construction. The fan hook boxes shall be fabricated from 16 SWG sheet steel in hexagonal shape and provided with 12mm dia. MS rod bent to shape. Exhaust fans shall be fixed at location shown on the drawings. They shall be wired to a plug socket and at a convenient location near the fans. All switch and outlet boxes fan and light fittings shall be bonded to earth through copper wire properly screwed into the body to make an effective contact.

3. CABLES

General

MV cables shall be supplied, inspected, laid, tested and commissioned in accordance with drawings, specifications, relevant Indian Standard. Specifications and cable manufacturer's instructions. The cable shall be delivered at site on original drums with manufacturer's name clearly written on the drums. The recommendation of the cable manufacture with regard to jointing and sealing shall be strictly followed:

Materials

The MV cables shall be PVC insulated Aluminum conductor armoured cable conforming to IS: 1554 laid in trenches, ducts and underground as shown on drawings.

All cables shall be inspected upon receipt at site and checked for damage during transit.

Cable terminations shall be done in terminal cable box using cable glands. All pipe sleeves shall be sealed with sealing compound.

Where a cable enters any piece of apparatus it shall be connected to the casing by means of an approved type of armored clamp and gland. The clamps must grip the armoring firm lytotheglandor casing, so that no undue stress is passed on to the cable conductors due to vibrations. The gland or cone shall be capable of effecting a good electrical bond between both the armoring and the casing.

Cables shall be laid by skilled and experienced work men using adequate rollers to minimize stretching of the cables. The cable drums shall be placed on jacks before unwinding the cable, Great care shall be exercise din laying cables to avoid forming kinks, the drums shall be unrolled and cables run over wood enrollers in trenches at intervals not exceeding 2 meters. Cables shall be laid at a depth of 0.75 meters below ground level.

Protection of cables

Cables under road crossing and any other places subject to heavy traffic shall be protected by running the me through me pipe of suitable size. The depth of the hume pipe shall be 1meterbelowthefinished road level.

All excavation and back fill including timbering, shoring and pumping required for the installation of the cables shall be carried out by the Contractor in accordance with 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 150 mm. Each layer shall be properly rammed and consolidated before laying the next layer. The Contractor shall restore all surfaces, roadways, sidewalks, curbs, walks or other works cut excavation to their original conditions, satisfactory to the employer/its representative, including disposal of surface soil as directed.

Prior to laying cables, the following tests shall be carried out: Insulation test between phases, phase and earth for each length of cable before and after jointing. On completion of cable laying work, the following test shall be conducted in the presence of the employer/its representative.

- a. Insulation Resistance Test(Sectional and overall)
- b. Continuity Resistance Test
- c. Earthing Test.

All tests shall be carried out in accordance with relevant Indian Standard Code 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 employer/its representative.

Markers & Warning Plates

Approved CL cable markers shall be provided along the route of the cables at every 30 meters distance and at both ends of road crossing, indicating "MV CABLES". Special CL markers shall be provided at all buried cable joints indicating "ELECTRICAL CABLE JOINT".

5 DISTRIBUTION BOARDS

The Distribution Panel and Distribution boards shall be suitable for operation on 3phase/single phase/ single Phase 415/ 230 volts. 50 cycles neutral grounded at Trans former and short circuit level not less than 9 ka at 415volts.

The distribution panel/Board shall comply with the latest edition of rail event Indian Standard and Indian Electricity Rule and Regulations.

Construction

The Distribution panels/boards shall be CRCA sheet steel cubical, indoor, dead front, floor mounting/ wall 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 used to render the joint dust proof. Distribution boards shall be preferably arranged in multitier. All doors and covers shall be fully gasketed with foam rubber and/ or rubber strips and shall be lockable. All M.S sheet steel used in the construction of Distribution boards shall be 16 SWG thick and shall be folded and braced as necessary to provide a rigid support for all components. Joints of any kind in sheet metal shall be seam welded, all welding's lag rounded off and welding pits wiped smooth with plumber metal.

All panels and covers shall be properly fitted and square with the frame and holes in the panel correctly positioned. Fixing screws shall enter into holes trapped into an adequate thickness of metal or provided with hank nuts. Self threading screws shall not be used in the construction of distribution boards.

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

Bus Bar Connections

Rectangular cross section suitable for full load current for MCB'S shall be provided on the phase of live conductors of each circuit, and a neutral bar for earthed neutral. The individual banks of MCB'S shall be detachable. Phase separation barriers of 3mm thick Bakelite sheet shall be provided between. There shall be ample space behind the fittings to accommodate all the wiring. All the internal wiring of distribution boards shall be concealed behind 3mm thick Bakelite sheet. All the distribution boards shall be completely factory wired, ready for connections. All the terminals shall have adequate current rating and size to suit individual feeder requirements. Each circuit shall be clearly numbered from left to right to correspond with the wiring diagram. All the switches and circuits shall be distinctly marked with a small description of the service installed.

Switch Fuse

The switch fuse units shall be 3 pole double break type suitable for load duty quick make and break action. Separate neutral link shall be provided in the switch. All switch fuse units shall be provided with hinged doors duly interlocked with operating mechanism, so as to prevent opening of the door when the switch is in "ON" position and also to prevent closing of the switch when the door is not properly secured. All contacts shall be silver plated and all live parts shall be shrouded. High rupturing capacity (HRC) fuse links shall be provided with switch fuse unit and shall be in accordance with IS:2208 and having rupturing capacity not less than 31 MVA at 415 volts. HRC fuse links shall be provided with visible indicators to show that they have operated.

Earthing

Copper earth bars of 25mmx3mm shall be provided for the distribution panel for the full length of the panel and connected to the frame work. Provisions shall be made for

Connection from this earth bar to the main earthing on both sides of the distribution panel.

Painting

All sheet steel shall undergo a process of degreasing, pickling in acid, cold rinsing, and phosphate passivating and then sprayed with a high corrosive resistant primer. The primer shall be baked in an oven. The finishing treatment shall be by application of two coats of synthetic enamel paint of approved color and staved.

Labels

Engraved PVC labels shall be provided on all incoming and outgoing feeder switches. Circuit dia gram showing the arrangement of the circuit inside the distribution board shall be pasted on inside of the panel door and covered with transparent laminated plastic sheet. All the distribution boards shall be subject to tests specified in relevant Indian Standard and test certificate shall be furnished.

5. EARTHING

All the non-current carrying metal parts of electrical installation shall be earthed properly. All metal conduits, trucking, cable sheaths, switchgear, distribution fuse boards, lighting fittings sand all other parts made of metal of specified earthing conductor stone efficient earth electrode. All earthing will be in conformity with the relevant provision of rules 33 and 61 of the Indian ElectricityRules1956,and Indian Standard SpecificationsIS:3043.

Earthing Conductors

Every earthing conductor shall be of bare G.I/Copper/insulated coppers called for on drawings/specified in bills of quantities and shall be protected against mechanical injury or corrosion.

Sizing of Earthing Conductors

The cross sectional area of earthing conductor shall be as called for on the drawing.

Construction of Earthing conductors

Main earthing conductors shall be taken from the earth connectors at the main switch boards to an earth electrode with which the connection is to be made. Sub - main earthing conductors shall run from the main switch board to the sub-distribution boards. Circuit earthing conductors shall run from the exposed metal of equipment and shall be Connected to any point on the earthing conductors, or its distribution board.

Stations Pipe Earthing:

Earthling electrode shall consist of a C.I. pipe (12 mm wall thickness) of 100 mm dia and 3.7 meters long. The electrode shall be buried vertically in the ground as far as practicable below permanent moisture level with its top not less than 200 mm below ground level. The electrode shall be in one piece and no joints shall be allowed in the electrode. Wherever possible 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. The pipe earth electrode shall be kept vertically and surrounded with 150 mm thick layer of charcoal dust and salt mixture up to height of 2.5 meters from the bottom. At the top of the electrode funnel with mesh shall be connected to the electrode, just below the funnel, with proper terminal lugs and check nut. The funnel over the C.I. pipe and earth connection shall be housed in a masonry chamber, approximately 300 mm long, 300 mm deep. The masonry chamber shall be provided with a cast iron cover resting over a CI frame embedded in masonry.

Earthing Connections

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 shall be connected to earth by two separate and distinct connections. The earthing conductors inside the building where overexposed shall be properly protected from

mechanical injury by running the same in G.I. pipe of adequate size. The earthing conductor shall be painted to protect it against corrosion.

Earthing conductor outside the building shall be laid 600 mm below the finished ground level. The overlapping in GI strips in joints shall be riveted. Lugs of adequate capacity and size shall be used for all termination of conductor wires above 6 sq. mm size. Lugs shall be bolted to the equipment body to bear the load after the metal body is cleaned of paint and other oily substance.

Resistance to Earth

The resistance of each earth system shall not exceed 1.0 ohm.

6. Testing

General

After the completion of the work then the system shall be subject to following tests:

1. Wiring continuity

test 2. Insulation continuity test

3. Earth continuity test

4. Earth Resistivity test

Besides the above tests any other tests specified by the local authority shall also be carried out. All tested and calibrated instruments for testing, labour and materials and incidentals necessary to conduct the above tests shall be provided by the contractor at his own cost.

Testing of Wiring

The entire wiring systems shall be tested for continuity of circuits, and earthing after wiring is completed and before signing off by the Contractor in the presence of the Architects.

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 and except in concentric wiring wall amp 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. Where the supply is derived from AC-three-phase system, 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 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 specified above. The insulation resistance between the case of frame work of housing and power appliance and all live parts of earth appliance shall not be less than specified in the relevant Indian Standard specification.

Earth Continuity Test

The earth continuity conductor metallic envelopes of cables shall be tested, for electric continuity and the electrical resistance of the same along with the earthing lead but excluding any added resistance or earth leakage. Circuit break measured from the connection with the earth electrode to any point in the earth continuity conductor in the completed installation shall not exceed one 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 connections to an outer or phase conductor or to the non-earthed conductor of the supply. In the three or four wire installation at rest 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 installation shall be subject to the final acceptance of the employer as well as the local authorities.

Earth Resistivity Test.

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

I.S. STANDARD

In general the materials, equipment and workmanship shall conform to the following Indian Standard, unless otherwise called for:-

1. PVC Insulated (Heavy Duty) cables for working voltage up to & including

1100v (Revised).

: I.S. 1554 -1976 PT 1

2. PVC Insulated Cables (for voltage up to 1000v)

: I.S. 694 -1977

3. Rigid Steel Conduits for Electrical Wiring (Second Revision)

: I.S. 9537 -1972

4. Accessories for rigid steel conduits for electrical wiring

: I.S. 3837 -1976

5. Boxes for the closures of Electrical accessories.

: I.S. 5133 -1969

6. 3 Pin plug & socket outlets

: I.S. 1293 -1967

7. Adhesive insulating tapes for Electrical Lighting fitting

: I.S. 2448 -1968 II

8. General safety requirements for Electrical Lighting Fittings.

: I.S. 1913 -1969

9. Electric Ceiling Fan speed regulators.

: I.S. 347 -1966

10. Propellor type ACV ventilating fan

: I.S. 2312 -1967

11. Code of practice for earthing

: I.S. 3043 -1987

12. Code of practice for safety of building (General) Electrical installation

: I.S. 1646 -1961

13. Air break switches & fuses combination units for voltage not exceeding 1000 VAC or 1200 VDC.

: I.S. 1904 -1976

14. HRC cartridge fuse link up to 650V

: I.S. 9224 -1979

15. Protection of Building and allied structures against lightning.

: I.S. 2309 -1969

16. Fittings for rigid steel conduits for Electrical wiring.

: I.S. 2667 -1976

17. Heavy duty air break switch & composite unit for air break switches & fuses for voltage not

exceeding1000V

: I.S. 4064 - 1978

18. General requirements for switchgear & control-
gearforvoltage not exceeding1000V

:I.S. 4237 - 1982

19. Switch socket outlet

:I.S. 4615 - 1968

20 MCCB, MCB, RCCB
SPECIFICATIONS

: AS PER I.S.

21 CONDUITS

: AS PER I.S. SPECIFICATIONS

AC TECHNICAL SPECIFICATIONS

Split System Air Conditioner

1. General

- 1.1. The contractor shall supply and install split system air conditioner wherever indicated. The system shall be complete in all respects and comply with the specifications as given.

2. Condensing units

- 2.1. Each condensing unit shall be complete unit with hermetic compressor/s, air cooled condenser, condenser fans with motors, internal piping, switches and internal wiring and shall be enclosed in weather proof outdoor type housing.
- 2.2. The compressor shall be hermetic, with enclosed gas cooled motor. The compressors shall be suitable for R410A , R-32.
- 2.3. The condenser coil shall be air-cooled type with aluminium fins and copper tubes and necessary refrigerant connections. The copper tubes shall not be less than 1/2" O.D.
- 2.4. The condenser air -fans shall be propeller type direct driven, each complete with motor. The air quantity and area of the condenser shall be adequate for working in the specified outdoor conditions.
- 2.5. The casing shall be fabricated from galvanized steel, zinc phosphate and finished with baked enamel paint. The casing shall make the whole unit fully weather proof, suitable for outdoor installation.
- 2.6. The unit shall include a remote control assembly with thermostat at and starting and speed switches
- 2.7. The necessary charge of refrigerant gas and lubricated oil shall be provided to run the system.

3. Fan Coil Unit

- 3.1. The fan coil unit shall be high mounted type and shall be matched to the receptive-condensing unit. Each unit shall consist of cooling coil, fan, filters, outer casing, drain pan, accessories etc.
- 3.2. The cooling coil shall have copper tubes of not less than 3/8" O.D. and continuous aluminium plate fins with integral collars. The tubes shall be staggered in the direction of the airflow.
- 3.3. The fan section shall consist of (2) two light weight Aluminium impellers. statically and dynamically balanced, mounted directly on to a double shaft single phase, multiple winding motor capable of running at 3 speeds.
- 3.4. The unit casing shall be made of high quality moulded plastic and shall be insulated to lower the noise level and eliminate condensation. The supply and return air grills shall be high quality moulded plastic.

4. Refrigerant Piping

- 4.1. The condensing unit and evaporator unit shall be interconnected by Type –1 seamless copper refrigerant liquid and suction lines using flared or brazed fittings, necessary accessories shall be incorporated in the circuit.
- 4.2. The suction line shall be insulated with 6mm rubber foam insulation sections.

5. Miscellaneous

- 5.1. The cooling unit shall have control panel, housing the starting switches, contractor, relays etc.
- 5.2. Insulation pads shall be provided under the units.
- 5.3. Drain line shall be provided from fan coil unit up to drain trap. (to be priced separately)



INSULATION

1. Duct Insulation

- 1.1. Insulating material shall be resin bonded glass wool, faced with aluminium foil on one side reinforced with kraft paper and fused to the insulation material. The thermal conductivity of the insulation material shall not exceed 0.034 kcal per hr-sqm- degree Celsius/mtr at 32 degree Celsius mean temperature and density shall not be less than 24kg./Cum.

Duct Insulation thickness shall be as follows:

- Duct in conditioned space - 25mm thick
Duct in unconditioned space - 50mm thick
Duct beated with fresh air - 50mm thick

1.2. Application

- 1.2.1. Application on ducts not wider than 900mm.

1.2.1.1. Apply CPRX compound on the surface after cleaning the ducts fix blankets of insulation material of specified thickness tightly to the surface with joints well butted and secured.

1.2.1.2. All joints shall be sealed with 50 mm wide aluminium adhesive based tape as specified.

1.2.1.3. The insulation material on the ducts shall be finally secured with 19mm X 24 Ga G.I. wire mesh.

2. Duct Acoustic Lining

2.1. Material

Resin bonded glass wool of density 24Kg/Cum and K-value of 0.034 kcal per hr-sqm- degree Celsius/mtr of 25mm thickness

2.2. Application

2.2.1. The duct surface shall first be cleaned from inside.

2.2.2. Then frame of 25mm square made of 18 Ga (1.2mm) thick G.I. sheet should be fixed on both ends of the duct piece.

2.2.3. The insulation slab should be fixed between these sections of ducts using adhesive compound and self adhesive stick pins.

2.2.4. The insulation shall then be covered with RP tissue, sealing all joint so that no fibre is visible.

2.2.5. The insulation shall then be covered with 0.5mm perforated aluminium sheets.

2.2.6. The sheet of insulation shall be secured to the duct by means of stick pins as mentioned above.

GENERAL SPECIFICATIONS

GENERAL

The Contractor is advised to study all the drawings in details including the intent of the design. All clarifications necessary should be sought by the Contractors, prior to filling in the tender.

All the work shall be carried out in best workmanship like manner and wherever, specifications for any item are not given, the relevant Indian Standard Institution specifications shall be applicable.

Generally, the make as approved in the list of approved makes and materials shall be insisted upon, except for any reason valid and appropriate in the opinion of both Architect and Employer. No. Extra cost is liable to be entertained for any variations in the basic cost of material.

PARTICULAR SPECIFICATIONS

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buildings, royalty or any other tax incidental charges involved in complete execution of work and nothing extra shall be payable on this account.

16. *The drawings will be read in correlation / conjunction with specification of item and variance if any, shall be brought to the notice of Employer / Architect prior to submission of tender by the tenderer(s) or else the decision of the Employer / Architect shall be final and binding.*

PROPELLER FAN

Propeller fan shall be direct-driven, three or four blade type, mounted on a steel mounting plate with orifice ring.

- a. Mounting Plate shall be of steel construction, square with streamlined venture inlet (reversed for supply applications) coated with baked enamel paint. Mounting plate shall be of standard size, constructed of 12 to 16 gauge sheet steel depending upon the fan size. Orifice ring shall be correctly formed by spinning or stamping to provide easy passage of air without turbulence and to direct the air stream.
- b. Fan Blades shall be constructed of aluminium or steel. Fan hub shall be of heavy welded steel construction with blades bolted to the hub. Fan blades and hub assembly shall be statically and dynamically balanced at the manufacturer's works.
- c. Shaft shall be of steel, accurately ground and shall be of ample size for the load transmitted and shall not pass through first critical speed thru the full range of specified fan speeds.
- d. Motor shall be standard (easily replaceable) permanent split capacitor or shaded pole for small sizes, totally enclosed with prelubricated sleeve or ball bearings, designed for quiet operation with a maximum speed of 1000 rpm for fans 60 cm dia or larger and 1440 rpm for fans 45 cm dia and smaller. Motors for larger fans shall be suitable for $415 \pm 6\%$ volts, 50 cycles 3 phase power supply, and for smaller fans shall be suitable for $220 \pm 6\%$ volts, 50 cycles single phase power supply. Motors shall be suitable for either horizontal or vertical service as indicated on Drawings and in Schedule of Quantities.
- e. Accessories: The following accessories shall be provided with propeller fans :
 - i. Wire guard on inlet side and bird screen at the outlet.
 - ii. Fixed or gravity louvers built into a steel frame at the outlet.
 - iii. Regulator for controlling fan speed for single phase fan motor.
 - iv. Single phase preventers for 3 phase fans.

PERFORMANCE DATA

All fans shall be selected for the lowest operating noise level. Capacity ratings, power consumption, with operating points clearly indicated, shall be submitted and verified at the time of testing and commissioning of the installation.

TESTING

Capacity of all fans shall be measured by an anemometer. Measured air flow capacities shall conform to the specified capacities and quoted ratings. Power consumption shall be computed from measurements of incoming voltage and input current.

LIST OF APPROVED AND NOMINATED MANUFACTURERS / SUPPLIERS OF INTERIOR MATERIALS FOR INDIAN BANK AT NARELA BRANCH

LIST OF APPROVED MATERIALS FOR INTERIOR-CIVIL WORKS

(SAMPLES TO BE CHECKED & TESTED AT CONTRACTOR'S COST)

Make indicated in the under mentioned list of Approved Makes is for general guidance of contractor. Final choice of make & model out of List of Approved Makes shall be of Architect/ Employer.

S.No.	Material	Approved Make / Brand
I.	INTERIOR WORKS	
1.	MDF / Plywood / HDMR	Action / Century / Greenply / Durian / Archid
2.	Laminated Sheet	Archidlam / Greenlam / Merino / Formica / Sunmica / Advance Lam
3.	Veneer	Green / Duro / Century
4.	Particle board	Action / Century / Greenply / Durian / Archid / Korra Ply
5.	Acrylic sheet	ICI / GE
6.	Marine grade plywood	Century / Kitply / Greenply
7.	Adhesive	Fevicol / Araldite / Savicol
8.	Solid Surfaces (Corian)	DUPOINT / LG / Samsung
9.	Marine grade block board	Century / Kitply / Greenply
10.	Flush Door	Century / Kitply / Greenply / Durian
11.	Polish	Asian / Dulex
12.	Latex	MM Foam or equivalent ISI make
13.	High density foam	U foam or equivalent ISI make
14.	Locks	Godrej / Haffle / Hettich
15.	Storage Hardware	Godrej / Haffle / Hettich
16.	Screws / Nails & other accessories	GKW / Nettleford
17.	False Flooring	Kebao / Armstrong / AMF
18.	Vinyl Flooring	Armstrong / Gerflox / Eurotex
19.	Carpet	Unitex / Armstrong
20.	Wooden laminated flooring	Pergo / Armstrong / Euro
21.	Plain / Toughened glass	Saint-Gobain / Indo Ashai / Modi



22.	Hardware for general staff areas	Dorma / Euro / Ozone / Ebco
23.	Hardware for main glass doors (patch fittings)	Dorma / Euro / Ozone / Ebco
24.	Door closers (general use)	Dorma / Euro / Ozone / Ebco
25.	Floor springs (general use)	Dorma / Euro / Ozone / Ebco
26.	Floor springs for main glass doors	Dorma / Euro / Ozone / Ebco
27.	Aluminum sections for partitions	Jindal / Tata steel
28.	False Ceiling : Gypsum	India Gypsum / Saint Gobain
29.	False Ceiling : Grid (as approved)	Armstrong / AMF or equivalent
30.	False ceiling : Grid	AMF / Armstrong
31.	GI sections	India Gypsum / Saint Gobain / Jindal
32.	Acoustical False ceilings: Mineral Fiber board	Armstrong / Hunter Douglas / Peritex
33.	POP Punning	Gyprock / India Gypsum / Birla
34.	Paint	Asian / Nerolac / Dulex / Berger
35.	Exterior paint	Asian / Nerolac / Dulex / Berger
36.	ACP (Exterior/Interior)	Alstone / Eurobond / Alucobond
37.	Cylicon	G E / Dow corning/ Wacer
38.	Rolling / Vertical Blind	Vista / Winfab / Hunter Duglous
39.	Frosted Film	Garware / 3 M
40.	Aluminum Skirting: 50 mm	Jindal
41.	Water Proofing	Pidilite / Dr. Fixit / Fosroc
42.	Hardwood	Salwood / Teakwood / Steam Beach
43.	Glass	Saint Gobain / equivalent
II.	PLUMBING WORKS	
1.	CP Fittings	Jaquar / Kohler / Hindware
2.	Sanitary Ware	Jaquar / Kohler / Hindware / Cera / Parryware
3.	Sanitary fittings	Jaquar / Kohler / Hindware
4.	Geyser	Bajaj / Sphere Hot / Crompton / Racold / V Guard / Havells

5.	Stainless Steel Sink	Nirali / Diamond
6.	C.I. Pipe	Bengal Iron Corporation or equivalent ISI make
7.	Urinal Partition Glass	Jaquar / Merino / Saint Gobain / Modi / Ashai
8.	GI Pipe	Tata / Jindal / Zenith
9.	CP fittings	Prince / Astral
10.	PVC & CPVC Pipe	Prince / Astral
III.	CIVIL WORKS	
1.	Ceramic Tiles / Vitrified homogenous glazed tiles	HR Johnson / Kajaria / Nitco / Somany
2.	Cement	Ultratech / ACC / JK Cement / Ambuja
3.	Chemical Pasting (Tiles)	Pidilite / Fosroc / Eurokart
4.	Steel	Sail / Tiscon / Ispat / Tata

LIST OF APPROVED MAKES FOR ELECTRICAL WORKS

S.No.	Material	Approved Make / Brand
I.	ELECTRICAL	
1.	Light fittings	Philips / Wipro / Havells
2.	MCCB, MCB, RCCB, DB, ITPN TP, HRC Fuse, Change over switch, switch fuse Unit	L&T, ABB, Legrand, Siemens, Schneider
3.	FRLS insulated Elec. Wire / cable armoured, un-armoured, sheathed, unsheathed, flexible LT cable, Multi core, single core cable, flat cable	Finolex / Polycab / Havells / RR kabel / KEI
4.	PVC conduit (Heavy Duty Only)	CAP / Finolex / Polycab
5.	PVC insulated copper conductor wires	Finolex / Polycab / RR Cable
6.	Distribution box	Legrand / Schneider / ABB / Simens
7.	MCB & MCCB	Legrand / Schneider / ABB / Simens / L&T
8.	Light fixtures and lamps	Philips / Wipro / Osram / Havells / Crompton G. / Halonix
9.	HT Cable	Polycab / Havells
10.	Modular Switches	ABB / Legrand / MK / Anchor / ELLEYS / ROMA
11.	DLP Trunking	Legrand / Schneider or equivalent
12.	Power Cable	CCI / Skytone / Universal / LAPP / Torrent
13.	End termination	Raychem / Mahindra / ELMEX
14.	PANEL	Crompton / L&T / C&S
15.	Fan	Crompton / Havells / Bajaj / Usha
16.	Raceway & Alu. Trunking	Ata / Jindal / Zenith
17.	Casing Caping	Finolex / Cap or equivalent
18.	Weather proof socket outlet with MCB	ABB / MDS / LEXIC / NEPTUNE / ELCON – Clipsil, Simens, Schneider (Merlin Gerin)
19.	Miniature Circuit Breaker	ABB / MDS / LEXIC / SIEMENS / HPL
20.	Earth Leakage Circuit Breaker	MDS / LEXIS / SIEMENS / HPL

21.	MCB Distribution Boards in sheet steel housing (double door)	ABB / MDS / LEXIC / SIEMENS / HPL
II.	DISTRIBUTION	
1.	MV Contractor / Timer / Relays / Starters	Legrand / Schneider (MG) / ABB / Siemens / L&T
2.	Moulded case circuit breakers	Legrand / Schneider (MG) / ABB / Siemens / L&T
3.	SFU / Fuses	HPL / L&T. Siemens / GE Power / Schneider (MG)
4.	ACB	Schneider (MG) / ABB / Siemens / L&T
5.	Single Phase preventer (Current base)	L&T / Minilec
6.	Raising Mains / Tap off	Zeta / C&S / Siemens
7.	MV Switchboards	Tricolite Electrical industries / Conlec Engineers Pvt. Ltd. / Vidyut Control Pvt. Ltd. / Triniton Milestone Switchgear / Unilec Ltd/ Madhu Electrical Advance Electro Control Pvt. Ltd.
III.	LOW TENSION SYSTEM	
1.	Light & Fan Wire	Polycab / Finolex/ Havells
2.	Telephone Wires	Delton / Skyline / Finolex / Rallison / BAtra Henley
3.	Telephone Tag block	Krone / Pouyet / TVS
IV.	CABLES & ACCESSORIES	
1.	1100Volts grade cables	CCI / Universal / Fort Gloster / Polycab / RPG (asian) / Nicco
2.	Cable Lugs	Dowells
3.	Cable Compression Glands	Peeco / Comet
4.	Cable Trays / Cable Ladders	Sloto / Bharti / RICCO / MM Enterprises
V.	METERING & PROTECTION	

1.	Cast Resin current Transformers	Gilbert Maxwell / Kappa AE / Precise
2.	Meters (Digital)	L&T Roshab / Automatic Electric / Siemens / Socomex
3.	Selector switches	HPL / L&T Salzer / Kaycee
4.	Indication lamps	L&T Vaisno Teknic
5.	KWH Electronics Digital Meter	Secure / L&T / Enercon / Socomec - HPL
VI.	EPBAX	
1.	Exchange / Console Panel	Copper connection / flash Hymax / Accord CG / Tata Telecom / Panasonic
2.	CVT	Logicstst / Blue Bird / Selvon / Max Power
3.	UPS	HPL – Socomec / Tata Libert / APC / Invensys / Copper Connection
4.	Hand Set	Beetel / Tataphone / Crompton
5.	Tape off	Cat Vision / Shyam
VII.	ELECTRICAL ITEMS	
	Panel Switch Gear & related items	
1.	LT Panel / Bus Duct	By any Panel manufacturer who process C.P.R.I certificate for specified fault level & IP level protection
2.	Fuse Disconnect switch / switch fuse unit	L&T, Siemens / Schneider / ABB / Legrand
3.	Ammeter Voltmeter	AE / L&T / MECO / Rishab
4.	Digital Meter / Intellegent Multifunctional Digital meter	AE / HPL / CONZERV
5.	Selector Switch , Push button switch / emergency switch	KAY CEE / L&T / Siemens / Schneider
6.	Indication lamp	AE / L&T / Siemens / Schneider
7.	CT's	L&T / AE / Kappa
8.	AT's	L&T / Siemens / Schneider / Legrand

VIII.	TRANSFORMER	
1.	Distribution transformer	Jindal / Areva / Muskan / Alstrom
2.	11 or 33 KV VCB	Crompton / Alstom / ABB
3.	HT Termination & Jointing Kit	Ray Chem / Mahindra / ELMEX
4.	Cable Glands	Dowells / Siemens / Braco
5.	Lugs & Thimbles	Dowells / Johnson
6.	Up to & including 11 KV cables (ISI marks)	CCI / Skytone / Gloster / Havells
7.	Insulating Mats	ISI Marked
8.	Capacitor Bank (ISI marks)	GE Power / BHEL / EPCOS / L&T
9.	Lightning Arrestor	Altas / Alstom / GE Power
10.	Protection & Other relays	ABB / SIEMENS / SCHNEIDER / L&T / ALLEN BRADLEY
IX.	INTERNAL WIRING & RELATED WORKS	
1.	MCB / RCCB / ISOLATORS (ISI) marked MCB DB	L&T Siemens / Schneider / Legrand
2.	PVC Conduit	CAP / BEC / Seiko / AKG
3.	PVC insulated copper wire (ISI marked)	Skyline / Finolex / Havells / Polycab
4.	Telephone cable	Skytone / Delton / NICCO / Polycab / Finolex
5.	Switch, TV & Telephone socket & boxes (Modular type)	CPL / Legrand / ABB / Anchor
X.	MISCELLANEOUS ITEMS	
1.	Lightening protection unit	Erico / Pheonix / INDELEC
2.	Relays	L&T / ABB / SIEMENS / BCH
3.	Contractors	L&T / GE Power / BCH / Siemens / ABB
4.	Change over switch	C&S / Havells / L&T / HPL
5.	KWH, PF, Frequency meter	BHEL / AE / Havells / L&T / ALSTOM
6.	Push Buttons	L&T / Siemens

7.	Timers	L&T / Legrand / Schneider / Siemens / GE
8.	Timer Switch	L&T / Legrand / Schneider / Siemens / GE
XI.	NETWORKING	
1.	Switches	Brocode / Cisco / Digi-Link / 3Com / Nortel / Foundry / D-Link
2.	Patch Panel, Patch cords & I/o	Digi-Link / tyco(AMP) / Schneider / D-Link
3.	Cable	Digi-Link / Clipser / National / Polycab / Lapp / Finolex
4.	Racks	ComRack / HCL / ValRack / APW President

LIST OF APPROVED MATERIALS FOR HVAC WORKS

S. No	Description of Item	Approved Makes
1.	High side Equipment	
1.1	Cassette type	Daikin /Toshiba/ Mitsubishi / O General / Voltas / Bluestar
1.2	Split type Air conditioning	Daikin /Toshiba/ Mitsubishi / O General / Voltas / Bluestar
1.3	Inline Fans	Humdin /Air Flow/ Systemair / Flaktwood
1.4	Axial fan	Flakt wood / Wolter / Nicotra / Krugar
1.5	Dry Scrubber	Waves/Trion/Edgetech/Zeco/Humidine
2	Refrigerant Pipe	
2.1	Copper Pipe	Mandev Tubes/ Merchant/ Met Tube
3	Ducting & Grilles	
3.1	Grilles/ Diffusers	Caryaire/Titus/Saveair/System Air /crystal
3.2	G.I. Sheet Metal Duct	Jindal/National/ Tata
3.3	Self Adhesive Sealing Gasket for Ducts	Prima Seal/ Air Flow/ Trocellen
3.4	VCD/ Gravity louvers/ Exhaust & fresh air louvers	Caryaire/Ravistar
4	Pipes & Fittings	
4.1	GI pipe Medium Class	Jindal Hissar
4.2	UPVC pipe	AKG/Polypack/supreme
5.	Insulation	
5.1	Cross Linked Polyethylene	Trocellen/Supreme
5.2	O class Closed Cell Elastomeric Insulation	Armacell/K-flex/A-flex/Trocellen
5.3	Aluminium Tape	Johnson/ Birla 3M
5.4	Slottelotted Tray	KEPL/Flatco/MM Enterprises
6.	Stabilizers	
6.1	4 k.v.a wall mounted automatic stabilizer	bluebird/ logitech/ carrier/ micel
7.	CABLES	