TENDER FOR THE INTERIOR FURNISHING AND ALLIED WORKS OF BANK OF BARODA, NOIDA REGIONAL OFFICE, NOIDA REGION, NEW-DELHI ZONE (ALTERNATE PREMISES) AT FIRST FLOOR, IRCON INTERNATIONAL LIMITED, BLOCK – B, PLOT NO. - 40A, SECTOR- 01, NOIDA, UTTAR PRADESH

ARCHITECT:

B. D. SHARMA CONSULTING PVT. LTD.

C-1/8, SAFDARJUNG DEVELOPMENT AREA,
BASEMENT, AUROBINDO MARKET, NEW DELHI

EMAIL: bdsarchitect@gmail.com

CONTACT NOS.: 9971850555, 9811175484

Date of Commencement of Issue of Tender Forms	**:**	**03.04.2024**
Last Date for Submission of Tender Forms	**:**	**24.04.2024 up to 03:00 PM**
Opening of Tender Forms (Technical Offer)	**:**	**24.04.2024 at 03:30 PM**

TENDER DOCUMENT

NAME AND ADDRESS OF THE TENDERER

……

……

……..

LAST DATE AND TIME OF SUBMISSION OF THE TENDER - 03.00 P.M. on or before 24.04.2024

BANK OF BARODA, NOIDA REGIONAL OFFICE,
13th FLOOR, BANK OF BARODA BUILDING,
16 PARLIAMENT STREET, NEW DELHI-110001.

EMAIL: pe.noida@bankofbaroda.com

CONTACT NO: 011-234411675

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NOTICE INVITING TENDERS

M/s _____

_____

_____

_____

TENDER FOR THE INTERIOR FURNISHING AND ALLIED WORKS OF BANK OF BARODA, NOIDA REGIONAL OFFICE, NOIDA REGION, NEW-DELHI ZONE (ALTERNATE PREMISES) AT FIRST FLOOR, IRCON INTERNATIONAL LIMITED, BLOCK –B, PLOT NO. - 40A, SECTOR- 01, NOIDA, UTTAR PRADESH

Bank of Baroda, Noida Region invites sealed offers in two bid system from firms having their own offices in New Delhi and NCR areas for **INTERIOR FURNISHING AND ALLIED WORKS OF BANK OF BARODA, NOIDA REGIONAL OFFICE, NOIDA REGION, NEW-DELHI ZONE (ALTERNATE PREMISES) AT FIRST FLOOR, IRCON INTERNATIONAL LIMITED, BLOCK –B, PLOT NO. - 40A, SECTOR- 01, NOIDA, UTTAR PRADESH.**

For complete detail, formats and terms & conditions of tender please log on to Bank's Website **www.bankofbaroda.com**

Tender document can be downloaded from Bank's website only. Tender document will not be supplied through office. Tender to be submitted in the Bank's format only.

The Interior furnishing and allied works will be carried out for **FIRST FLOOR, IRCON INTERNATIONAL LIMITED, BLOCK –B, PLOT NO. - 40A, SECTOR- 01, NOIDA, UTTAR PRADESH**

Date of commencement of issue of Tender Forms : 03.04.2024

Last date for submission of Tender forms : 24.04.2024 up to 03:00 PM
Opening of Tender Forms (Technical Offer) : 24.04.2024 at 03:30 PM

Earnest Money Deposit (Bid Security): ₹72,000/- (Seventy Two Thousand Only)

The preliminary evaluation will be done on the following parameters and offers from firms not conforming to any of these parameters will be rejected. The Bank reserves the right to reject or accept any application without assigning any reason.

Financial & Technical Parameters:

Sr. No.	Parameters	Remarks
1.	**Estimated cost**	**₹72,04,254/- (Rs. Seventy Two Lakhs Four Thousand Two Hundred Fifty Four Only)**
2.	Average Sales Volume of the firm in the last 3 years	Average financial turnover during the last 3 years, ending 31.03.2023, should be at least 30% of the estimated cost.
3.	Profit in the previous financial years	The firm should have earned profit during the last 3 financial years ending 31.03.2023.
4.	Works executed in the last 7	Experience of having successfully completed similar

	years	works during last 7 years ending last day of month previous to the one in which applications are invited should be either of the following: a) One similar work of minimum 80% of estimated cost OR b) Two similar works of minimum 50% of estimated cost OR c) Three similar work of minimum 40% of estimated cost The Contractor should submit Work Order & Completion/ Performance Certificate from the previous employer in support of executing similar works failing which the tender shall not be considered.
5.	Similar Works	Similar work means interior furnishing and allied works of same nature/ magnitude involving interior furnishing, electrification, AC ducting, furniture work, carried out for Public Sectors Banks/ Private Sector Banks/ Public Sector Undertakings/ Central Govt./ State Govt.
6.	Main Activity	Main Activity of Tenderer/ Bidder should be of contractor ship otherwise tender shall be rejected.

Earnest money for ₹72,000/- (Seventy Two Thousand Only) to be remitted by means of Bank Demand Draft / Bankers' Cheque drawn in favour of 'Bank of Baroda', payable at New Delhi and should be enclosed along with the technical offer.

i) Envelope I – EMD
ii) Envelope II – Technical Bid
iii) Envelope III – Price Bid

All the envelopes should be put into one single sealed cover duly super scribed as

"TENDER FOR THE INTERIOR FURNISHING AND ALLIED WORKS OF BANK OF BARODA, NOIDA REGIONAL OFFICE, NOIDA REGION, NEW-DELHI ZONE (ALTERNATE PREMISES)"

Sealed offer should be dropped (By Hand Only) in the Tender Box kept at BANK OF BARODA, NOIDA REGIONAL OFFICE, 13th FLOOR, BANK OF BARODA BUILDING, 16 PARLIAMENT STREET, NEW DELHI - 110001. Tender received by e-mail/ post/ courier/ any other means shall not be entertained.

The tenderer shall furnish along with the technical bid detailed literature, pamphlets and performance data for appraisal and evaluation of the offer.

1 The Tenderer must obtain for himself/ themselves on his/ their own responsibility and at his/ their own Expenses all the information that may be necessary for the purpose of filling of this Tender and Before submitting tender and must scrutinize the drawings and inspect the site of work and acquaint himself/ themselves with all local conditions & matter pertaining thereto.

2 Conditional Tenders will be rejected.

3 Each page of the tender documents is required to be signed by the person/ duly authorized persons as token of his/ their having acquainted himself/ themselves with the general conditions

etc. as lay down herein. Any tender with any of the documents not so endorsed is liable to be rejected.

4 The tender forms must be filled in English and all entries must be made by hand and written in ink. If any of the documents is missing or unsigned, the tender shall be considered invalid.

5 All erasures and alterations made while filling the tender must authenticated by the initials of the tenderer. Over writing of figures is not permitted. Failure to comply with either in any change in rates or conditions after submitting of the tender will not be entertained.

6 **EARNEST MONEY DEPOSIT / INITIAL SECURITY DEPOSIT/ RETENTION MONEY:**

i. Earnest Money Deposit (EMD):

Tenderer shall deposit as EMD an amount of **₹72,000/- (Seventy Two Thousand Only)** in the form of Bank Demand Draft / Bankers' Cheque drawn on any New Delhi Branch of any scheduled Bank, in favour of **BANK OF BARODA** in Envelope no. I.

ii. Initial Security Deposit (ISD):

The successful Tenderer to whom the contract is awarded shall deposit as Initial Security Deposit a sum to make up 2% of the value of accepted tender including the Earnest Money deposited by him/ them. The successful Tenderer shall pay Initial Security Deposit within -7- days after receiving the letter of acceptance of his/ their Tender.

iii. Retention Money (RM):

Apart from the Initial Security Deposit to be made by the Contractor/s as aforesaid, the Retention Money shall be deducted from Progressive Running Account Bills at 8% of the gross value of the work done in each Running Account bill. Provided that the total Security Deposit i.e. the Initial Security Deposit and the Retention amount shall both together not exceed 5% of the Contract amount as determined after considering all variations as approved.

7 Within -7- (Seven) days of the receipt of intimation from the Employer of the acceptance of tender, the successful Tenderer shall be bound to execute the necessary documents by signing agreement in accordance with the Terms & Conditions of the contract attached therewith, on the written acceptance by the employer and the person so tendering, whether such formal contract is subsequently entered into/or not.

8 All the compensation of other sums of money payable by the contractor to the Employers under the terms of this contract may be deducted from the Security Deposit or from any sums that may become due to the contractor on any account whatsoever. In the event of the Security Deposit being reduced by reason of any such deduction; the contractor shall within -7- days of being asked to do so make good by Demand Draft any such sums which may have been deducted from the security deposit.

9 Unless otherwise agreed or stipulated in this tender, Employers are not concerned with any rise or fall in the prices of any materials or labour. The rates quoted shall include all costs, allowances, excise, duties, sales tax, service tax, central taxes, Royalties, VAT or any other taxes, octroi or any other charges including any enhanced labour rates etc. which may be enacted from time to time by the State and/ or the Central Government and shall remain valid till Virtual Completion of the work. Under no circumstances shall our Employer be held responsible for compensation or

loss to the contractor due to any increase in the cost of labour and/ or material etc. **GST shall be paid extra on submission of GST invoice containing Contractor's & Bank's GST numbers.**

10 The tenderer should thoroughly study works, conditions of contract, relevant specifications and rates quoted should cover cost of executing the items as per the relevant specification.

11 The tender drawings have been included in the tender document for general guidance of the contractor for basic reference and evaluation at our office. Detailed working drawings, details of construction feature etc. shall be supplied from time to time for execution of works, which shall be deemed to be within the provision of contract and scope of work.

12 The tender shall remain valid for acceptance for a period of 90 days from date of opening of the price bid.

13 Employers do not bind themselves to accept the lowest or any tender and reserve to themselves the right to accept or reject any or all tenders, either in whole or in part, without assigning any reasons whatsoever for doing so.

14 Tender document in which tender is submitted by a Tenderer shall become the property of the Employer and the Employer shall have no obligation to return the same to the Tenderer.

15 Tenders not giving the full particulars as mentioned above or as called for in the special Conditions or not complying with any of the conditions set forth above or therein are liable to summary rejection.

For any clarification of technical details you may contact

(I) M/S B. D. SHARMA CONSULTING PVT. LTD. C-1/8, SAFDARJUNG DEVELOPMENT AREA, BASEMENT, NEW DELHI–110016. CONTACT NO.: 011-26522528.

(II) MANAGER, PREMISES & EQUIPMENT DEPARTMENT, BANK OF BARODA, NOIDA REGIONAL OFFICE, 13TH FLOOR, BANK OF BARODA BUILDING, 16 PARLIAMENT STREET, NEW DELHI - 110001. CONTACT NO.: 011-23441675.

and can meet for any clarifications, with prior intimation/ appointment.

Regional Head
Bank of Baroda
Noida Region

CHECK LIST FOR TENDER

Sl. No	Details	Please tick
1	Covering Letter in duplicate enclosed	☐
2	EMD enclosed to an amount of Rs.72,000/- (Seventy Two Thousand Only)) vide BC/ DD No: _____dated _____drawn on the Bank _____	☐
3	Duly Filled in Company details	☐
5	Duly filled in Annexure II – Financial details	☐
6	Duly Signed in Annexure II – Letter of Submission from contractors	☐
7	Duly filled in List of Materials considered in the tender	☐
8	Have read fully the Instruction to Tenderer, General Conditions of Contract, Special Conditions of contract etc.	☐
9	Part I – Envelope "TB" (Technical Bid) contain Tender document (Vol-I), Technical Specifications (Vol-II), Drawing (Vol-III), Earnest Money Deposit (EMD) and letter indicating any variation, if any from the Technical and Commercial Specifications and conditions of the Tender – submitted in separate cover	☐
10	Part II – Envelope "PB" (Priced Bid) contain Dully filled Bill of Quantities submitted in a separate sealed cover	☐
11	All pages/ documents are stamped and signed by the authorized signatory of the firm and a letter of authorization in favour of authorized signatory is enclosed	☐

NAME OF WORK: **TENDER FOR THE INTERIOR FURNISHING AND ALLIED WORKS OF BANK OF BARODA, NOIDA REGIONAL OFFICE, NOIDA REGION, NEW-DELHI ZONE (ALTERNATE PREMISES) AT FIRST FLOOR, IRCON INTERNATIONAL LIMITED, BLOCK – B, PLOT NO. - 40A, SECTOR- 01, NOIDA, UTTAR PRADESH**

MANDATORY INFORMATION

Name of Firm	
Address of Firm with Contact Phone and Mobile No.	
Local Address of Firm with Contact Phone and Mobile No.	
Email Id	
PAN No.	
Service Tax No.	
TAN No.	
TIN/ VAT No.	
GST No.	
ESI/ PF Registration No.	
Any other Registration details relevant to the contract	
Name of Bank with Address	
Branch Code	
Type of Account	
Account No.	
9 Digit MICR Code No.	

Note: In order to ensure immediate credit of payment made by the bank, it is preferable to have the Account with Bank of Baroda.

Annexure-II

MANDATORY INFORMATION

1. Name of the Organization and Address:

2. Year of Establishment:

3. Status of the Firm:
(Whether Pvt. Ltd. Company/ Public Ltd. Company/ Partnership Firm/ Proprietorship Firm)

4. Name of the Chairman/ Managing Director/ CEO/ Country Head (as the case may be):

5. Whether registered with the Register of Companies/ Register of Firms in India. If so, mention number and date and enclose Registration Certificate copy.

6. a) Name and Address of Bankers:

(i)

(ii)

b) Turnover of the company/ firm during last three financial years.
(Please attach a copy of audited Balance Sheet and Profit & Loss Account for the year

2020-21 (Audited)

2021-22 (Audited)

2022-23 (Audited)

7. Whether registered for sales tax purpose. If so, mention number and date. Also furnish copies of sales tax clearance certificate.

8. Whether an assessee of income tax. If so, mention Permanent Account Number, furnish copies of income tax clearance certificate.

9. Mention the address and phone number of the company New Delhi office below:

10. Give the date of opening of New Delhi Office.

11. Give details of the after-sales service facility in terms on technical manpower and spares provided by your company in New Delhi.

12. What are your main fields of activities? Mention the fields giving the annual turnover for each field.

    1.

    2.

    3.

    4.

13. If you have been prequalified by other organization/ statutory bodies, such as Banks, CPWD, PWD, etc. for Interior Furnishing works. Furnish their names, category and date of registration.

14. Furnish the names of renowned organizations, where you have completed Interior furnishing works. In the last three years ending 31 March 2023.

Name of Organization with Address	Year of Installation	Value of Orders

(Please attached the copies of their orders)

15. Details of Technical Staff in New Delhi & Adjoining areas:

Sr. No.	Name	Qualification	Post Held	Experience

16. List of Enclosures:

    a. Certificate of Registration/ Partnership Deed.

    b. Certificate of Registration with Income Tax, GST, EPF, ESI, VAT/ TIN.

    c. Audited Balance Sheet (Statement of Last 3 Financial Years).

    d. Copies of Work Orders as mentioned above along with photocopies of relevant TDS certificates and Satisfactory Completion Certificates.

    e. Copies of Income Tax Return/ Assessment Orders for the 3 Financial Years.

    f. Performance Guarantee.

    g. Copies of Registration with SSI/ NSIC or ISO 9000 certification, if any.

Note: In absence of any of the above enclosures, your application is likely to be rejected.

DECLARATION:

1. I/ We have read the instructions appended and all terms and conditions and I/ We understand that if any false information is detected at a later date, any future contract made between us and Bank of Baroda on the basis of the information given by me/ us can be treated as invalid by the bank and I/ We will be solely responsible for the consequences.

2. I/ We agree that the decision of Bank of Baroda in selection of contractors will be final and binding to me/ us.

3. All the information furnished by me hereunder is correct to the best of my knowledge and belief.

4. I/ We agree that I/ We have no objection if enquiries are made about the work listed by me/ us in the accompanying sheets.

5. I/ We agree that I/ We have not applied in the name of sister concern for the subject empanelment process.

Place: **Signature**

Date: **Name & Designation**

Seal of Organization

FORM OF TENDER

THE ASST. GENERAL MANAGER & RH,
BANK OF BARODA,
NOIDA REGIONAL OFFICE,
13TH FLOOR, BANK OF BARODA BUILDING,
16 PARLIAMENT STREET,
NEW DELHI-110001.

Madam,

RE: TENDER FOR THE INTERIOR FURNISHING AND ALLIED WORKS OF BANK OF BARODA, NOIDA REGIONAL OFFICE, NOIDA REGION, NEW-DELHI ZONE (ALTERNATE PREMISES).

1. We have carefully examined the specifications, designs and schedule of quantities relating to the works specified in the memorandum hereinafter set out and having visited and examined the existing installations and the installation site of the works specified in the said memorandum given below and having acquired the requisite information relating thereto as affecting the tender. We hereby offer to execute the works specified in the said memorandum within the time specified in the said memorandum at the rates mentioned in the Schedule of Quantities submitted in a separately sealed envelope as 'Part – II) and in accordance in all respects with specifications, designs and instructions in writing referred to in articles of agreement, general instructions to the tenderer and special conditions, conditions hereinbefore referred to, specifications, data sheet and schedule of quantities and with such materials as are provided for, by and in all other respects, in accordance with such conditions as far as they may be applicable.

MEMORANDUM

(a)	Description of Works	**Tender for the interior furnishing and allied works of Bank of Baroda, Noida Regional Office, Noida region, New-Delhi Zone (alternate premises) at first floor, Ircon International Limited, Block –B, Plot no. - 40A, Sector- 01, Noida, Uttar Pradesh**
(b)	Mode of Payment	**As per clause of General instructions to Contractors and Special Conditions**
(c)	Earnest Money	**₹72,000/- (Rupees Seventy Two Thousand Only)**
(d)	Time allowed for Completion of Work	**Maximum 60 days from the 7th day of the issuance of work order or from the day of handing over the site whichever is later**

2. I/ We herewith deposit **₹72,000/- (Rupees Seventy-Two Thousand Only)** by Demand Draft or Banker's Cheque drawn in favour of "**Bank of Baroda" Payable at New Delhi,** as Earnest Money Deposit for the execution of the works at my/ our tendered rates together with any variations should the work be awarded to me / us.

3. In the event of this tender being accepted, I/ we agree to enter into and execute the necessary contract required by you. I/ We do hereby bind myself/ ourselves to forfeit the aforesaid deposit of **₹72,000/- (Rupees Seventy Two Thousand Only)** in the event of our refusal or delay in signing the Contract Agreement. I/ we further agree to execute and complete the work within the time frame stipulated in the tender documents. I/ we agree not to employ Sub-Contractors without the prior approval of the Bank.

4. I/ we agree to pay Sales Tax, Service Tax, Works Contract Tax, Excise Tax, Octroi, VAT, Duties, all Royalties and all other applicable taxes prevailing and be levied from time to time on such items for which the same are livable and the rates quoted by me/ us are inclusive of the same. **GST shall be paid by the Bank extra on submission of GST invoice containing Contractor's & Bank's GST numbers**

5. I/ we understand that you are not bound to accept the lowest tender or bound to assign any reasons for rejecting our tender. I/ we further understand that Bank of Baroda may award Contracts for Electrical to more than one Contractors and that I/ we shall make no claims whatsoever if Bank of Baroda accept only a part of my/ our tender. We unconditionally agree to Bank of Baroda's preconditions a stipulated in the tender documents.

6. I/ We agree that in case of my/ our failure to execute work in accordance with the specifications and instructions received from the Owner or the Consultants appointed by the Bank, during the course of the work, Bank reserves the right to terminate my contract and forfeit the Earnest money deposit paid by me in additions to recovery of all the dues to the Bank from the payment receivable by me. Further I may also be barred from tendering in future for the Bank and its subsidiaries.

7. I/ we agree to keep our tender open for 90 days from the date of opening of envelope No. 1 i.e. (Technical Bid) and this period of validity can be extended for such period as may be mutually agreed between the Bank and us in writing.

8. The Tender is submitted in two parts in separate sealed envelopes. Part–I contains all commercial terms and conditions and technical particulars and Part-II contains only the price bid in Bank's Proforma.

9. I/ we enclose herewith the completed tender documents duly signed.

   The acceptance of this tender shall constitute a contract binding on us and any failure shall constitute a breach of contract by us, and the tender accepting authority shall be entitled to have the work executed at our risk and cost and to claim extra cost/expenditure incurred by them, from us.

   Dated this _____day of _____2024

   For and on behalf of M/s_____

   _____
   (Signature with seal)

   Name _____
   Designation _____
   Place _____
   Date _____

   (Certified true copy of the Power of Attorney of the above signatory should be enclosed).

   Witnesses:

   (1) Signature with _____
   Name, address and date _____
   _____

   (2) Signature with _____
   Name, address and date _____

ARTICLES OF AGREEMENT

(To be executed on a non-judicial stamp paper of `500/-)

ARTICLES OF AGREEMENT made this _____ day of _____ 2024 between the Bank of Baroda, a corporate body constituted under the Banking Companies (Acquisition and Transfer of Undertakings) Act 1970 and having its Noida Regional Office at 13th Floor, Bank of Baroda Building, 16 Parliament Street, New Delhi-110001, represented by the Assistant General Manager (hereinafter referred to as the "OWNER/ EMPLOYER') which expression shall include its successor/s and assignee/s of the ONE PART AND M/s _____ having its registered office at _____ (Hereinafter referred to as the 'CONTRACTOR') which expression shall include its successor/s and assignee/s of the OTHER PART.

WHEREAS the Employer is desirous of getting executed the work of **TENDER FOR THE INTERIOR FURNISHING AND ALLIED WORKS OF BANK OF BARODA, NOIDA REGIONAL OFFICE, NOIDA REGION, NEW-DELHI ZONE (ALTERNATE PREMISES) AT FIRST FLOOR, IRCON INTERNATIONAL LIMITED, BLOCK – B, PLOT NO. - 40A, SECTOR- 01, NOIDA, UTTAR PRADESH** and has caused specifications describing the work to be done. AND WHEREAS the said specifications and the schedule of quantities have been signed by or on behalf of the parties hereto.

AND WHEREAS the Contractor has agreed to execute upon the subject work to the conditions set forth herein and to conditions set forth in the special conditions and in the schedule of quantities and condition of Contract as modified and finally accepted by both the parties)all of which are collectively hereinafter referred to as "the said Conditions") the works shown upon the said drawings and/or described in the said Specifications and included in the Schedule of quantities at the respective rates therein set forth, amounting to the sum as therein arrived at or such other sum as shall become payable there under(hereinafter referred to as and the schedule of quantities.

AND WHEREAS the Owner/ Employer in order to effectively carry out the said works engaged M/s B. D. SHARMA CONSULTING PVT. LTD., C-1/8, SAFDARJUNG DEVELOPMENT AREA, BASEMENT, NEW DELHI–110016 (hereinafter referred to as The ARCHITECT) to prepare specifications, describing the works to be executed, to call for tenders from contractors for the job, to open tenders received at the office of the OWNER/ EMPLOYER, to scrutinize and recommend to the Owner/ Employer the name or names of the Contractor or Contractors so recommended after having the approval and acceptance thereof from the Owner/ Employer.

AND WHEREAS the Owner/ Employer has caused the specifications, priced schedule of quantities of said works as per General Conditions of Contract, Special Conditions, Additional Condition and Instructions to the Tenderer prepared with the assistance of the said Consultants subject to which the offer of the Contractor shall be accepted.

AND WHEREAS the tender of the Contractor for the said works has been approved and accepted for a sum of Rs₹. _____by the Owner.

AND WHEREAS the contractor has deposited with the owner ₹ _____ as security deposit for the due performance of the Agreement.

AND WHEREAS the said Consultant has issued work order thereafter to the Contractor.

AND WHEREAS the Specifications, Priced Schedule of Quantities, General Conditions of Contract, Special Conditions, Additional Conditions and Instructions to the Tenderers including all other conditions as mentioned in the tender document and all correspondence exchanged by or between the parties from the date of submission of the tender till the award of the work, both letters inclusive (hereinafter collectively referred to as 'the said conditions') have been signed by the parties hereto and the contractor has agreed to execute the works upon and subject to the said conditions.

NOW IT IS HEREBY AGREED AS FOLLOWS:

1. In consideration of the said contract payments to be made to the Contractor as hereinafter provided the Contractor shall upon and subject to the said conditions execute and complete the works and such further instructions as may be furnished to the contractor by the owner/ employer through the/ consultants as described in the said specifications and the said priced Schedule of Quantities.

2. The employer shall pay the Contractor the said Contract amount or such other sum as shall become payable at the times and in manner specified in the said conditions:

a. The Employer has accepted the offer of the contractor and the Contractor has agreed to execute the said works, subject to the terms and conditions contained herein and those in Annexure referred herein, for the provision and the execution of the works mentioned in the Contract at an amount or ₹_____(all inclusive)

b. Contractor shall not claim any escalation in contract rate for rise in prices of materials/ Labour etc. during the completion of work and shall complete the work at contracted rate which shall be valid for project period 60 days from the date of commencement of work. In case of extension in the time period of execution of contract beyond Project Period of 60 days, for the reasons of delay attributed to the contractor, he shall not be eligible for escalation and the Consultant/ Bank decision in this respect shall be final and binding on the contractor.

3. The term the Electrical Consultant in the said conditions shall mean the said M/s B. D. CONSULTING PVT. LTD. or in the event of the said Electrical Consultant ceasing to be the Electrical Consultant for the purpose of this contract for whatever reason, such other person or persons as shall be nominated for that purpose by the Owner/ Employer, provided always that no person subsequently appointed to be the Electrical Consultant under this contract shall be entitled to disregard or over rule any decision or direction or approval given or expressed in writing by the Outgoing Electrical Consultant for the time being if the same had been done under instruction from the owner/ Employer.

4. The agreement and documents are mentioned above shall from the part of this agreement and the parties hereto shall respectively abide by, submit themselves to the said conditions and perform the agreements on their part respectively in the said conditions contained.

This contract is neither a fixed lump sum contract nor a price work contract to carry out the work in respect to the TENDER FOR THE INTERIOR FURNISHING AND ALLIED WORKS OF BANK OF BARODA, NOIDA REGIONAL OFFICE, NOIDA REGION, NEW-DELHI ZONE (ALTERNATE PREMISES) AT FIRST FLOOR, IRCON INTERNATIONAL LIMITED, BLOCK –B, PLOT NO. - 40A, SECTOR- 01, NOIDA, UTTAR PRADESH. All subsidiary work connected therewith within the same site may be ordered to be done from the time to time by the said Owner/ Employer through the Electrical Consultant as the case may be even though the said work s may not be shown on the drawings or described in the said specifications or the priced schedule of quantities described and to be paid for according to the actual measured qualities at the rates contained in the schedule of rates and probable quantities or as provided in the said conditions.

5. Not with standing what are stated in the general conditions and instructions to the tenderer and here before stated, the Owner/ employer through the Electrical Consultant reserves right to itself the right of altering the drawings and nature of the work by adding to or omitting any items of works or having portions of the same carried out at any time during the currency of Contract, without prejudice to this contract.

6. Time shall be considered as the essence of this contract and the contractor hereby agrees to commence the work on the day of handing over of the site or within the fourteen days from the date of issue of formal work order whichever is later as provided for in the said conditions and to complete the entire work within the stipulated time subject nevertheless to the provisions of extension of time.

7. Any dispute arising under the agreement between the parties hereto shall be referred for adjudication to a sole arbitrator in the manner and in terms of the provisions as laid down in the General Conditions of Contract. The award of the arbitrator shall be final and binding on both the parties.

8. All disputes arising out of or in any way connected with this agreement shall be deemed at New Delhi and Courts in New Delhi shall have jurisdiction to determine the same.

9. That the several parts of this contract have been read by the contractor and fully understood by the contractor.

In witness whereof the Employer and the Contractor have set their respective hands to these presents through their authorized official and the said two duplicates hereof to be executed on its behalf of the day and year first herein above written.

SIGNED by the said Owner/ Employer _____
In the presence of:

(1). Signature _____

Name and Address _____
_____
_____

(2). Signature _____

Name and Address _____
_____
_____

SIGNED by the said Contractor _____
In the presence of:

(1). Signature _____

Name and Address _____
_____
_____

(2). Signature _____

Name and Address _____
_____

_____
_____

AGREEMENT (UP TO DLP PERIOD)

ARTICLES OF AGREEMENT MADE THIS ON / / 2024 between M/s BANK OF BARODA (hereinafter called "THE EMPLOYER") of the one part and _____ (contractor) Registered under Companies Act, 1956 and having its office at _____ (hereinafter called "THE CONTRACTOR") of the other part.

1.1 WHEREAS "THE EMPLOYER" desires to engage one contracting agency for (as described under scope of works hereto) to be carrying out for their _____(work) as per the drawings, plans, sections, elevations etc. prepared by their Architect, M/s _____ on the basis of above.

1.2 The term "Architect" in the said conditions shall mean the said M/s B. D. SHARMA CONULTING PVT. LTD. (ARCHITECT) and shall include their heirs, legal representatives and assignees or in the event of his/their death or ceasing to be the Architect for the purpose by the employer, such other person as shall be nominated for that purpose by the Employer, not being a person to whom the contractor shall have reasonable objection which the Employer shall consider sufficient and such subsequently appointed person not to be subsequently appointed to be entitled to disregard or overrule any previous decisions or approvals or directions given or expressed by the Architect for the time being.

1.3 In response to the tenders invited by EMPLOYER/ Architect, the CONTRACTOR have inspected the site and surroundings of the works specified in the tender documents and have before accepting the Contract, satisfied themselves by careful examination about the nature of the work and nature of the site and local conditions, quantities nature and magnitude of work, the availability of labour and material necessary for the execution of work, the means of access to work site, the supply of power and water thereto and the accommodation they may require and have made local and independent enquiries and obtained complete information as to the matters and things referred to, or implied in the Contract or having any connection therewith and have considered the nature and extent of all probable and possible situations, delays, hindrances, or interferences to or with the execution and completion of work to be carried out under the Contract being awarded hereunder and have examined and considered all other matters, conditions, and things and probable and possible contingencies thereto affecting the execution and completion of work and which might have influenced them in accepting the Contract.

1.4 The following documents annexed hereto and marked as Annexure as per numbers given against each of these documents, shall form the integral part of this Agreement as if these were fully incorporated herein and this Agreement together with all its Annexure are hereinafter referred to as the CONTRACT

1.5.1 Form of Offer

1.5.2 Brief description of work

1.5.3 Additional General conditions to the contract

1.5.4 General Conditions of Contract

1.5.5 Special Conditions of Contract & Appendix

1.5.6 Contractor/s Labour rules and Regulations

1.5.7 Technical Specifications

1.5.8 Bill of Quantities

1.5.9 List of Approved Makes of material

1.5.10 List of Drawings

1.5.11 Correspondence exchanged prior to letter of intent and awarding the work (including acceptance of the work and undertakings related to the same)

1.6 The EMPLOYER has accepted the offer of the CONTRACTOR/S and the Contractor has agreed to execute the said Works, subject to the terms and conditions contained herein and those contained in Annexure referred herein, for the provision and the execution of the works mentioned in the CONTRACT at an amount of Rs _____ (Excluding GST) (In figures)

1.7 The rates quoted by the Contractor shall remain firm till completion of the work and authorised extension of time as stated elsewhere in the contract. The price variation as per the formula mentioned in the tender document shall be paid to the contractor/s based on the indices published by the RBI, as stated in the contract elsewhere

NOW THESE PRESENTS WITNESSED AND IS HEREBY AGREED AND DECLARED AS FOLLOWS:

1.8 The CONTRACTOR/S shall provide, execute and complete all the works mentioned in the CONTRACT and shall do and perform all other acts and things mentioned or described in the CONTRACT or which are to be implied there from or may be reasonably necessary for the completion of the said works and the times and in the manner and subject to the terms and conditions or stipulations mentioned in the CONTRACT.

1.9 It has been understood by the parties hereto that the EMPLOYER will have right to make reasonable changes in the drawings and designs during the progress of the construction works without prejudice to the CONTRACT. Not withstanding anything to the contrary contained in any of the Annexure hereto the CONTRACTOR/S shall commence the work on _____ and shall complete the same on or before _____ and the time shall be the essence of the CONTRACT. In consideration of the due provision, execution and completion of all the works, in terms of the CONTRACT the EMPLOYER does hereby agree with the CONTRACTOR/S that the EMPLOYER will pay to the CONTRACTOR/S the respective amounts for the work actually done by them and approved by the EMPLOYER. Such Payments shall be made at such time and in such a manner as provided for in the CONTRACT.

1.9.1 The CONTRACTOR/S do hereby agree to pay such sums as may be due to the EMPLOYER for the service rendered or material supplied by the EMPLOYER to the CONTRACTOR/S as set out in the CONTRACT.

1.9.2 The Contractor/s do hereby agree that the amount of liquidated damages specified in conditions of contract/ special conditions of contract represents a genuine and fair estimate of the loss likely to be suffered by the EMPLOYER in the event of the works not being completed in time.

1.10 It is specifically and distinctly understood and agreed between the EMPLOYER and the CONTRACTOR/s that the CONTRACTOR/s shall have no right, title or interest in the site made available by the EMPLOYER for the execution of the works or in the building, structures or works executed on the said site by the CONTRACTOR/s in the goods articles, materials etc. brought on the said site (unless the same specifically belongs to the CONTRACTOR/s) and the CONTRACTOR/s shall not have or deemed to have any lien or charge whatsoever for unpaid bills and it will not be entitled to assume or retain possession or control of the site or structure and the EMPLOYER shall have an absolute and unfettered right to take full possession of the site and to remove the CONTRACTOR/s, their servants, agents and materials belonging to the CONTRACTOR/s lying in the site.

1.11 The CONTRACTOR/s shall be allowed to enter upon the site for execution of the contract work and shall not have any claim, right, title or interest in the site or the structures erected thereon and shall not enter upon at any time without consent of the Employer except for executing the works mentioned in the contract.

1.12 The materials including sand, gravel, stone, loose earth, rock etc. dug up or excavated from the said site shall, unless otherwise expressly agreed under the CONTRACT, exclusively belong to the Employers and the CONTRACTOR/S shall have no right or claim over the same and such excavation and materials shall be disposed of by the contractor as per the instructions of the EMPLOYER.

1.13 The dispute or difference if any, relating to this agreement or any document appended hereto shall be settled by arbitration under the provisions of Indian Arbitration &Conciliation Act, 1996 or any rules and regulations framed there under within the jurisdiction of New Delhi and the jurisdiction of arbitration shall be the city New Delhi only.

1.14 All legal matters disputes shall be within the jurisdiction of New Delhi only.

IN WITNESS WHEREOF the parties have executed these presents on the day and the year first above written.

Signed and Delivered for	Signed and Delivered for and on behalf
And on behalf of EMPLOYER	of Contractor
WITNESSES	WITNESSES
1_____	1_____
2_____	2_____

APPENDIX-A

Sr. No.	Description of work	:	**TENDER FOR THE INTERIOR FURNISHING AND ALLIED WORKS OF BANK OF BARODA, NOIDA REGIONAL OFFICE, NOIDA REGION, NEW-DELHI ZONE (ALTERNATE PREMISES) AT FIRST FLOOR, IRCON INTERNATIONAL LIMITED, BLOCK – B, PLOT NO. - 40A, SECTOR- 01, NOIDA, UTTAR PRADESH**
1	Name of employer	:	Bank of Baroda, Noida Region, New-Delhi Zone
2	Address at which the tenders are to be submitted	:	Bank of Baroda, Noida Regional Office, 13th Floor, Bank of Baroda Building, 16 Parliament Street, New Delhi - 110001.
3	Period of downloading of tender documents	:	From 03.04.2024
4	Last date of submission of tender	:	**24.04.2024 up to 03:00 PM**
5	Date and time of opening of tender (Technical Bid only)	:	**24.04.2024 at 03:30 PM**
6	Validity of the tender	:	90 days from the date of submission/ as may be Extended
7	Place of Opening Tender	:	Bank of Baroda, Noida Regional Office, 13th Floor, Bank of Baroda Building, 16 Parliament Street, New Delhi - 110001.
8	Earnest Money Deposit	:	**Rs.72,000/- (Rupees Seventy Two Thousand Only)** by Bank Demand Draft/ Banker's Cheque.
9	Tender rate includes	:	All taxes, duties, levies, royalties, fees, cess or charges in respect of the works including but not limited to sales tax, tax on work contract, Service tax and all other duties/ taxes levied by the Central/ State Government during the currency of the contract shall be borne by the contractor. GST shall be paid by the Bank extra on submission of GST invoice containing Bank's & Contractors' GST numbers.
10	Initial Security Deposit	:	Sum equivalent to 2% of contract value less EMD deposited with tender.
11	Security Deposit	:	Total security deposit shall be 5% of contract value. Out of this 2% of contract value is in the form of Initial Security Deposit which included the EMD.
12	Liquidated damages	:	1.0% per week subject to maximum of 10% of total contract value.
13	Time of Completion	:	60 Days from the 7th day of the issue of work order or from the day of handing over the site whichever is later.
14	Defects liability period	:	-12- Months from the date of issuance of virtual completion certificate.
15	Interval/ Amount of interim bills.	:	The minimum interval between two such bills shall be 20 days and Rs.25,00,000/- (Rupees Twenty Five Lacs Only)
16	Time within which payment to be made after certificate.	:	-7- (Seven) working days from the date of receipt of Architect Certificate.
18	Performance Guarantee	:	5% of Contract Amount to be submitted as Bank Guarantee/ FDR (in joint name with Bank as the first party) within -7-days of receipt of Letter of Award (valid up to completion period of the contract/ extended period, if permitted). This

			Performance Guarantee shall be refunded within 14 days of the issue of Defect Liability Certificate (Taking Over Certificate with a list of Defects)
19	Release of Total Security Deposit (EMD, ISD & Retention Money)	:	a) "50% of the Total Security Deposit (EMD, ISD & Retention Money) shall be refunded to the contractor on": i) Issue of Virtual Completion Certificate by the Architects on recommendations by ARCHITECT. ii) Contractor's removal of his/ their materials, equipment, and labour force, temporary sheds/ stores etc. from the site, (excepting for a small presence required for the Defect Liability Period/maintenance and approved by the Bank.) b) The remaining 50% of the amount shall be refunded 14 (fourteen) days after the end of defects liability period provided he/ they has satisfactorily carried out all the works and attended to all defects in accordance with the conditions of the contract, including site clearance .

INSTRUCTIONS TO TENDERER

Tenders must be submitted in sealed envelopes SUPER SCRIBED **"TENDER FOR THE INTERIOR FURNISHING AND ALLIED WORKS OF BANK OF BARODA, NOIDA REGIONAL OFFICE, NOIDA REGION, NEW-DELHI ZONE (ALTERNATE PREMISES)"** and addressed to **THE REGIONAL HEAD, BANK OF BARODA, NOIDA REGIONAL OFFICE, 13TH FLOOR, BANK OF BARODA BUILDING, 16 PARLIAMENT STREET, NEW DELHI - 110001** and be submitted at the address above mentioned on/ before **24.04.2024 up to 1500 Hours.** The bids will be opened at **1530 Hours** on the same day in the presence of the tenderers or their authorised representatives, who are present on the date and time of opening.

1. Any tender delivered or sent otherwise will be at the risk of the Tenderers.

2. The Employer reserves the right to postpone the date for presentation of tenders and will give timely notice of any such postponement to the prospective Tender.

3. The following tenders are liable to rejection:

   a) Tender forms containing "over written" or "erased" rate or rates and amount shown in "figures and "words" not in English.

   b) Tender quoting rates on units different from those prescribed in the schedules.

   c) Tender which omits a quotation on one or more of the items in the schedule.

   d) Tender which is incomplete, obscure or irregular

   e) Tender with rates which are obviously unbalanced.

4. Tender in respect of which any request from the Tenderer is received in of additions, alterations, modifications, corrections, etc., of the terms & conditions or rates after opening of tenders.

5. Tender in respect of which canvassing in any form is resorted to by the Tenderer

6. Tender received after the time and date specified above.

7. If the Tenderer deliberately gives wrong information in his/ their tender or circumstances for the acceptance of his/their tender the Employer reserves the right to reject such tender at any stage.

8. If a Tenderer seeks to clarify his/ their quotations or rates, this should only be done in a separate covering letter. No material modifications to the specifications, item descriptions, contract clause etc. will, however, be entertained. Other clarifications may be considered. The contents of a covering letter sent along with the tender will be considered as part of the quotation. If any of these conditions admitted for consideration has a financial bearing on the cost quoted, the additional cost arising out of this condition will be added for comparative evaluation of tenders.

9. By submitting a tender for the work, a Tenderer will be deemed to have satisfied himself/ themselves by actual inspection of the site and locality of the work, that the rates quoted by him/ them in the tender will be adequate to complete such work according to the specifications and conditions attached thereto and he has taken into account all conditions and difficulties that may be encountered during its progress and to have quoted labour and material rates, which shall include cost of materials with taxes, Octroi, Royalties, VAT and other duties, lead, loading and unloading freight for materials, and all other charges including the furnishing of all plant, equipment, tools, scaffolding and other facilities and services necessary or proper arrangement for the completion and maintenance of the work, except such as may be otherwise expressly provided in the contract documents for the completion and maintenance of the work to the entire satisfaction of the ARCHITECT/ Employer. The TDS amount on prevailing rate and work contract tax /VAT etc. shall be deducted from Contractor's Running Account / Final bills and paid to the Government. Necessary Certificates shall be issued to the Tenderers by the Employer.

10. The successful Tenderer shall make his/ their own arrangements for all materials except as specified in the contract if any.

11. The quantities shown in the attached schedule are given as a guide and are approximate only and are subject to variation according to the needs of the Employer. The Employer accepts no liability for their accuracy. The Employer does not guarantee work under each item of the schedule.

12. Tender shall be signed by the Tenderer with his/ their signature. Tender by partnership or Hindu joint family firm may be signed in the firm's name by the partners or the Karta or Manager as the case may be or any other duly authorized representative followed by the name and designation of the persons so signing. Attested copy of the Partnership Deed must accompany the tender of any Partnership firm. Tenders by a Company shall be signed with the name of the Company by a person authorized in this behalf and a Power of Attorney/ Resolution by the board or other satisfactory proof showing that the person signing the tender document on behalf of the Company is duly authorized to do so, shall accompany the tender. The Employer will not be bound by any Power of Attorney granted by the Tenderer. It may, however recognize such Power of Attorney and changes after obtaining proper legal advice, the cost of which may be chargeable to the Contractor.

13. Tenderer should note with their quotations the Tenderers shall sign all schedules, specifications, special conditions, etc., in token of acceptance thereof. The signature on the tender schedule alone shall also be deemed to be taken as acceptance of all these.

14. If a Tenderer expires after the submission of his/ their tender or after the acceptance of his/ their tender the Employer may deem such tender as cancelled. If a partner of a firm expires after the submission of their tender, the Employer may deem such tender as cancelled if the firm does not retain its character.

15. If the Tenderer has a relative employed in any capacity in M/s B. D. SHARMA CONSULTING PVT. LTD. or BANK OF BARODA, he/ they shall inform the authority calling for tenders of the fact when submitting his/ their tender, failing which his/ their contract may be rescinded, if the fact subsequently comes to, he/ they shall be liable to make good to the Employer any loss or damage from such cancellation to the like extent provided in the case of cancellation under clause of Special notes and Conditions of Contract.

16. No contract work, however petty, may be carried out except under or in accordance with a duly executed agreement or on a special written authority from authorized officer of the Employer.

17. No agreement is valid unless signed by the Contractor or his/ their duly authorized agent and by a competent person on behalf of the Employer.

18. Further Details of drawings if not supplied with the Tender documents for the work may be seen in the office of M/s B. D. SHARMA CONSULTING, C-1/8, SAFDARJUNG DEVELOPMENT AREA, BASEMENT, NEW DELHI - 110016.

19. The Form of Agreement, Form of Tender, Invitation to Tender, Instruction to Tender, General Conditions of Contract, Additional General Conditions of Contract, Special Conditions of Contract, Specifications, Drawings, Time Schedule and the rates and amounts accepted against the items of the Tender Schedule together with the Tender covering letter, and all correspondence entered into between the Employer and the Tenderer prior to the issue of the Letter of intent and the Letter of Intent awarding the work and acceptance by tenderer including undertakings related to the award of work shall form the contract.

20. If there is any conflict between any of the provisions in the Special Conditions and those in any of the other documents condition including GCC etc., the provisions in the Special Conditions shall prevail.

21. If there be any difference between the description in the Specification, drawings and the works items in the Tender Schedule, the order of precedence shall be as under:

    a) BOQ. (Bill of Quantities)

    b) Technical Specifications.

    c) Drawings issued 'Valid for Construction'.

    Relevant IS Code/ latest CPWD work manual/ shall be followed wherever not specified/ covered in this tender.

22. Acceptance of the tender will be intimated to the successful Tenderer through a letter of acceptance. The Contractor shall then be required to execute an Agreement within the time specified in the letter of acceptance. In the event of failure on the part of the Contractor for acceptance/ signing the Agreement within the specified time, the amount of Earnest Money shall be forfeited and the acceptance of his/their tender shall be considered as withdrawn.

23. The forfeiture of Earnest Money is to be considered in addition to liquidated damages which the employer can claim as per any other provisions envisaged for losses, or penalties implied in the provisions of the contract.

24. Disputes, if any, regarding this tender shall be subject to the Jurisdiction of Courts in New Delhi.

25. The tenderer will have to fill their rates only in price bid issued by Bank. Tenderers in which the price bids are given in any other format are liable to be rejected. In price bid, there shall be no conditions whatsoever. In case any tenderer mentions any condition including conditional rebates in their price bid, tender shall be rejected forthwith.

GENERAL CONDITIONS OF CONTRACT

1. **General:**

1.1 The proposed BOB Regional Office, Noida Region) premises is located at FIRST FLOOR, IRCON INTERNATIONAL LIMITED, BLOCK – B, PLOT NO.- 40A, SECTOR- 01, NOIDA, UTTAR PRADESH.

1.2 The payment shall be made as per actual execution of works.

1.3 All works are to be completed in 60 days.

1.4 The successful tenderer shall submit the schedule of work completion accordingly.

1.5 All or any extra work involved shall be got approved in writing from the Architect/Employer before executing the same.

1.6 The contracted rate shall be firm till completion of work and same shall be inclusive of State/ Central Sales Tax, Service Tax, Excise, Octroi, Turnover Tax, Works Contract Tax, VAT, Service Tax, Royalties and other Taxes, levies, cess applicable during construction period and completion of the work. GST shall be paid by the Bank extra on submission of GST invoice.

1.7 Contractor shall extend all sorts of help within his/ their purview to other agencies working simultaneously in the same project as per direction of Architect without any extra cost.

1.8 The contractor shall make his own arrangement for electrical power supply and water required for the work and nothing extra will be paid for the same. The successful tenderer can avail the water and electric supply facility for labours and construction purpose, which is available at site. However payment/ charges should be paid to the main civil contractor as per their mutual understanding without involving Architect and ARCHITECT or Bank.

2. Insurance: On commencement for the work.

2.1 The contractor shall take out a suitable CAR. Insurance policy (including Fire, Natural calamities etc. covering entire scope of the works under this contract for the value of work as per contract tender conditions and arrange to keep the policy valid till the completion period including authorised extension of time, if any.

2.2 The contractor shall take out and submit to Employer a suitable insurance policy against third party risks. The limit of liability of this insurance shall be limited to `25 Lakhs in respect of any one accident or series of accidents arising out of one event or `10 Lakh in respect of any passer-by. (The policy shall be kept valid, till completion including authorised extensions, if any.

2.3 The contractor shall take out and submit to Employer a suitable Insurance Policy against Workmen's compensation/ Janata Policy/ group insurance as per requirements. The policy shall be kept valid, till completion including authorised extensions, if any.

2.4 Necessary PF & ESI contribution of contractor's labourers will have to be paid by contractor as per statutory authority's regulations and EMPLOYER shall be absolved of all the risk. (Also refer clause No.23 of GCC INSURANCE…)

3. The defect liability period shall be as mentioned in Appendix to form of offer Annexure-1, annexed to this document.

4. Contractor shall appoint technically qualified personnel as approved by Architect in Consultation with the employer and maintain full time, qualified and experienced staff on site. Engineer shall be approved registered Site Engineer as per Local Regulation.

5. EMPLOYER has got right to appoint separate contracting agencies for work other than the scope of the tender except otherwise instructed.

6. Total security deposit:

The total Security Deposit shall comprise of:

a) Earnest Money Deposit

b) Initial Security Deposit

c) Retention Money

7. **Earnest money deposit (EMD):**

Tenderer shall deposit an amount of **Rs.72,000/- (Seventy Two Thousand Only)** in the form of Banker's Cheque/ Bank Demand Draft drawn on any New Delhi Branch of any scheduled Bank, in favour of M/s BANK OF BARODA in envelope I. No interest on Earnest Money Deposited by the tenderer shall be paid. Tenders submitted without Earnest Money Deposit as specified shall not be considered. The EMD will be exempted on submission of valid certificate of registration from National small Industries Corporation (NSIC)/ MSME/ KVIC/ SSI, etc.

The EMD of the unsuccessful Tenderers will be refunded within a reasonable period of time after the decision to award the work is taken. The EMD shall stand absolutely forfeited if the tenderer revokes his/ their tender at any time during the period when he is required to keep his/ their tender open for acceptance by the Employer, or if, the tender is accepted, the Contractor fails to pay the security deposit as stipulated/or if he/ they fail/s to commence the work within stipulated time.

8. **Initial Security Deposit (ISD):**

The successful tenderer to whom the contract is awarded shall deposit as Initial Security Deposit by Fixed Deposit a sum to make up 2% of the value of accepted tender after the appropriation of the Earnest Money deposited by him/ them within -7- days after receiving the letter of acceptance of his/ their Tender. The fixed deposit shall be for the duration of the contract period and shall be refunded to the contractor, after the issue of the certificate of virtual completion as per condition thereof. Such fixed deposit, which shall be in joint name with the employer and shall remain in the custody of the employer till such time the security deposit, either in whole or in part thereof, shall be forfeited in the event of Contractor/s' failure to observe any terms of this contract/ or non-compliance with the condition of contract. The security deposit amount will be adjusted or included in the retention money as per contract clause mentioned elsewhere in this tender.

9. **Retention Money (RM):**

Apart from the Initial Security Deposit to be made by the Contractor/s as aforesaid, the Retention Money shall be deducted from Progressive Running Account Bills at 8% of the gross value of the work done and claimed in each Running Account bill. Provided that the total Security Deposit i.e. the Initial Security Deposit (Excluding interest component) amount + the Retention amount shall both together not exceed 5% of the Contract amount as determined after considering all variations as approved. On Virtual Completion of the job and on the Contractor/s submitting to the ARCHITECT, the as- built drawings (including soft copies), the ARCHITECT shall declare the job to be virtually complete, endorsed by the ARCHITECTs and accepted by the Employer and upon this an amount equivalent to 50% of the total security deposit will be refunded to the Contractor/s and balance shall be retained by the Employers till the end of the Defects Liability Period. However, the Contractor/s shall have option to have the balance Retention Money replaced by Bank Guarantee which shall be valid till the end of Defects Liability Period and the same shall be released only upon successful completion of the Defects Liability Period and on finalizing the Final bill.

If the Contractor/s do not carry out the rectification work during the Defects Liability Period, the Employer shall have the right to get such defective work rectified after giving due notice in writing to the Contractor/s and recover the cost of repairs from the money so retained & in case the cost of work incurred by the employer is more than the retention money, the same can be recovered from the contractor.

10. Value of all interim bills shall be as per annexure to form of offer. The Architects shall endorse the bill certified by the ARCHITECT to enable the Employers in releasing the payment. Payment to be released within 10 days of receipt of Architect certificate.

11. The ARCHITECT shall have power to withhold any certificate, if the works or any parts thereof are not carried out to their satisfaction. The ARCHITECT may revise any certificate; make any correction in any previous certificates, which have been issued by them.

12. All respective contract rates under various works include rents, deposits, premiums and other cost of transport, hiring loading and unloading, of all material including all type of taxes, royalties, levies, testing charges, Octroi charges, wastages and damages etc. and the same shall be borne by the Contractor/s.

13. **The Employers reserve their right of adding, altering or deleting any items from the scope of the contractor's works for which no compensation of whatsoever type will be paid to the contractor.** This shall also include the profits and overheads or any other claims by the Contractor/s.

14. Time shall be the essence of the contract and the decision of the ARCHITECT and/or the employer in the matter of date of start, suspension and completion of the work shall be final and binding upon the contractor.

15. **Security/ Watchman:** The Contractor shall maintain at his/ their cost, 24 hours/ watchman/ security system or watch and ward of their materials/property. They shall not allow any unauthorized persons to enter the premises/building and on failure of the same, the contractor shall be held liable for all costs & damages.

16. **Addenda:**

Addenda to the tender document may be issued (if required) on Bank's website only, to clarify documents or to reflect modifications to the design or contract terms. Each

bidder shall submit the same along with his/ their tender. All addenda issued by the Bank shall become part of Tender Document.

17. **Mobilization Advance:**

a) On written application from the Contractor, the Employer may grant mobilization advance up to 10% of the amount of accepted tender less the value of probable costs for the Cement and Steel reinforcement bars. The mobilization advance will be released in two equal instalments, each against production of Bank Guarantee for 110% of the amount requested as mobilization advance. The first instalment shall be released after contractor has commenced the work at site and Contractor satisfies ARCHITECT/ Employer with production of documentary evidence that this amount of Mobilisation Advance shall be used for procurement of materials/equipment/labour for the work. Second instalment will be released after the Bank satisfying 1st instalment of mobilization advance was used for purpose for which it was granted. The advance shall attract simple interest at the rate of 12% per annum. The advance shall be secured by a Bank Guarantee from a Nationalized Bank for the 110% of amount of mobilization Advance plus interest at the rate of 12% per annum (in approved Proforma), which will be recovered in the manner described hereinafter.

b) The amount of mobilization advance, which may be given the contractor, shall be at the sole discretion of the employer.

c) The mobilization advance shall be utilized by the contractor for the purpose of this contract and for no other purpose.

d) Recovery of the mobilization advance and of interest there on shall be made by the deduction from the contractor's running account bills on pro-rata basis till completion of 60% of value of work or from the first three (-3-) running bills whichever occurs earlier.

e) If any time the contractor fails to execute the contract to the satisfaction of the employer for any reason whatsoever the employer shall be entitled to reach forthwith the entire amount so advanced with interest, cost and legal expenses, etc. and/ or recover the whole balance amount as the case may be from the bill if any, payable to the contractor or by enforcing the Bank guarantee at the discretion of the Employer.

18. **TERMINATION OF CONTRACT BY THE BANK:**

If the Contractor being an individual or a firm, commits any "Act of insolvency" or shall be adjudged as insolvent or being an incorporated Company shall have an order for compulsory winding up or applies for voluntary winding up or subject to the supervision of the court and of the official Assignee or the Liquidator in such acts of insolvency or winding up shall be unable within Five days after notice to him/ them requiring him/ them, to show to the reasonable satisfaction of the Architect/ Employer that he/ they is/ are able to carry out and fulfil the Contract, and to give security therefore, if so required by the Architect/ Employer Or if the contractor (whether an individual; firm or incorporated company) shall suffer execution to be issued, or shall suffer any payment under this contract to be attached by or on behalf of any of the creditors of the Contractor

Or shall assign or sub-let the Contract without the consent in writing of the Architect/ Employer first obtained

Or shall charge or encumber this Contract or any payments due or which might become due to the Contract or any payments due or which might become due to the Contractor there under

Or if the Architect shall certify in writing to the Employer that the Contractor:

i. has abandoned the Contract, or

ii. has failed to commence the works, or has without any lawful excuse under these conditions suspended the progress of the works for Five days after receiving from the Architects written notice to proceed, or

iii. has failed to proceed with the works with such due diligence and failed to make such due progress as would enable the works to be complete with the time agreed upon, or

iv. has failed to remove materials from the site or to pull down and replace work for Five days after receiving from the Architects written notice that the said materials or work were condemned and rejected by the Architects, or

v. Has neglected or failed persistently to observe and perform all or any of the acts, matters or things by this Contract to be observed and performed. By the Contractor for Five days after written notice shall have been given to the Contractor requiring the Contractor to observe or perform the same or

vi. Has to the detriment of good workmanship or in defiance of the Architects instruction to the contrary sublet any part of the Contract.

Then in any case of the said cases mentioned above, the employer may notwithstanding any previous waiver, after giving Five days' notice in writing to the Contractor, determine the Contract but without thereby affecting the powers of the Architect, or the obligations and liabilities of the Contractor, the whole of which shall continue in force as fully as if

Contract has not been determined and as if the works subsequently executed had been executed by or on behalf of the Contractor. And further, the Employer, may enter upon and take possession of the work and all plant, tools, scaffoldings, sheds, machinery, seam and other power utensils and material lying upon the premises or the adjoining lands or roads and use the same as his/ their own property or may employ the same by means if his/their own servants and workmen carrying on and completing the works and the Contractor shall not in any way interrupt or to do any act, matter or things to prevent or hinder such other contractor or other person or persons employed for completing and finishing or using the materials and plant for the works. When the works shall be completed or as soon thereafter as convenient, the Architect shall give a notice in writing to the Contractor to remove his/ their surplus materials and plant, and should the Contractor fail to do so within a period of 14 days after receipt thereof by him/ them the employer may sell the same by public auction and shall give credit to the Contractor for the amount realized after deducting there from the costs of removal and sale by the Employer for the values of the said materials and the expenses or loss which the Employer shall have been put to in procuring the works to be completed and the amount , if any, owing to the Contractor and the amount which shall be so certified shall thereupon be paid by the Employer, to the Contractor, or, by the Contractor to the Employer, as the case may be, and the certificate of the Architect/ Employer shall be final and conclusive between the parties. On termination of the contract, the contractor shall forthwith remove himself/ themselves and his/ their workmen from the works site.

19. **TERMINATION OF THE CONTRACT BY THE CONTRACTOR:**

If payment of the amount payable by the Employer under the Certificates of the Architect shall be in arrears and unpaid for 30 (thirty) days after notice in writing requiring payment of the amount shall have been given by the Contractor to the Employer, or the Employer commits any 'Act of Insolvency', or if the Employer being adjudged insolvent or (being an incorporated company) shall have an order made against it or pass an effective resolution for winding up either compulsorily or subject to the supervision of the court or voluntarily, or if the official assignee of the Employer shall repudiate the contract, or if the official assignee or the liquidator in any such winding up fails within 15 (Fifteen) days after notice to him/ them requiring him/ them to do so, to show to the reasonable satisfaction of the Contractor that he/ they is able to carry out and fulfil the Contract and to make all payments due, and to become due hereunder and if required by the Contractor, to give security for the same, or if the works be stopped for 3 (three) months under an order of the Architects or the Employer etc. any of or by any injunction or other orders of any court of law, then and in any of the said cases the Contractor shall be at liberty to determine the Contract by notice in writing to the Employer, through the Architects, and he/ they shall be entitled to recover from the employer payment for all works executed and for any loss he/ they may sustain upon any plant or material supplied or purchased or prepared for the purpose of the Contract. Minimum notice period for the contractor's determination shall be 3 (three months).

In arriving at the amount of such payment, the net rates or prices quoted for lump sum work contained in the Contractor's original tender shall be followed or where the same may not apply, valuation shall be followed, or where the same may not apply, valuation shall be made in accordance with clause 42b (PRICES FOR EXTRA …..)

20. **TECHNICAL AUDIT:**

The work is liable to be technically audited by the chief technical examiner of the Central Vigilance Commission, Government of India, from time to time. Any defects, improvements or testing etc. pointed out by the Chief Technical Examiner's Organisation (CTEO), CVC, should be carried out by the contractor at his/ their own cost and any deduction suggested by the CTEO shall be effected.

The employer shall have right to cause technical examination and audit of works and the final bills of the Contractor/s including all supporting vouchers, abstract, etc. to be made at the time of payment of the final bill. If as a result of this examination or otherwise any sum is found to have been overpaid in respect of any work done by the contractor under the contract the contractor shall be liable to return the amount of over payment and it will be due to him/them and in any other manner legally permissible and it is found that contractor was paid less than what was due to him/ them under the contract in respect of any work, executed by him/ them under the contract, the amount of such under payment shall be duly paid by the Employer.

Any sum of money due and payable to the contractor (including security deposit returnable to them) under this contract may be appropriated by the Employer and set off against any claim of the Employer for the payment of sum of money arising out of or under any other contract made by the contractor with the Employer.

(ANNEXURE - 4)

ADDITIONAL GENERAL CONDITIONS OF CONTRACT

1. Definitions and Interpretations:

In the contract (as hereinafter defined) the following words and expressions shall have the meanings hereby assigned to them, except where the context otherwise required:

A. **"EMPLOYER/ CLIENT"** means **M/S. BANK OF BARODA** (having their office at **Bank of Baroda, Noida Regional Office, 13th Floor, Bank of Baroda Building, 16 Parliament Street, New-Delhi - 110001** and shall include his/ their heirs, legal representatives, shall include assignees & successors.

B. "CONTRACTOR" shall mean the individual or firm or company, whether incorporated or not, undertaking the works and shall include the legal representative or such individual or the persons, comprising such firm or company or the successors of such firm or company and the permitted assigns of such individual or firm or company.

C. "ARCHITECT" shall mean **M/s B. D. SHARMA CONSULTING PVT. LTD. having their office in C-1/8, Safdarjung Development Area, Basement, New-Delhi - 110016** engaged by the Bank of Baroda to act as ARCHITECT for the purpose of the contract and shall include his/ their heirs, legal representatives, assignees and successors.

D. "CONSULTING ENGINEER" means Sub-Consultant retained by the Architect or Employer for designing of Structural/ Electrical/ Mechanical/ Sanitary and Plumbing works and shall include his/their heirs, legal representatives, assignees and successors.

E. "CONTRACT" means the documents forming the tender and acceptance thereof together with documents referred to therein or individual works orders in the case of terms of contracts including the General Conditions of Contract, Special Conditions, the Appendix, Bill of Quantities, Schedule of rates and prices or the rates quoted, scope of work, Specifications, Drawings and the Contract Agreement if completed and all these documents correspondence prior to Letter of Intent awarding the work as applicable taken together shall be deemed to form the Contract and shall be complementary to one another.

F. "CONTRACT PRICE" means the sum named in the letter of acceptance or the contract subject to such additions thereto or deductions there from as may be made under the provisions hereinafter contained in the contract.

G. i) "WORK" Works means all the works specified or set forth and required in and by the said specifications, drawings and schedule hereto annexed or to be implied there from and shall include both permanent works and temporary works, whether original, altered, substituted or additional, to be executed in accordance with the contract.

ii) "PERMANENT WORKS" means the permanent works to be executed and maintained in accordance with the contract.

(iii) "TEMPORARY WORKS" means all temporary works of every kind (other than Contractor's Equipment) required in or about the execution and completion of the Works and the remedying of any defects therein.

H. "SPECIFICATION" means the specification referred to the tender and any modification thereof or addition thereto as may from time to time be furnished or approved in writing by the Architect.

I. "DRAWINGS" means the drawings, maps, plans & tracings or prints there of or referred in the contract, any modification of such drawings approved in writing by the Architect and such other drawings as may from time to time be furnished or approved in writing by the Architect.

J. "SITE" shall mean the land and/or other places on, into or through which work is to be executed under the contract or any adjacent land, path or street through which work is to be executed under the contract or any adjacent land, path or street which may be allotted or used for the purpose of carrying out the contract.

K. "NOTICE" in writing or written notice means a notice in writing typed or printed characters sent (unless delivered personally or otherwise proved to have been received) by registered post to the last known private or business address or registered office of the addresses and shall be deemed to have been received when in the ordinary course of post it would have been delivered.

L. "APPROVED" means approved in writing including subsequent written confirmation of previous verbal approval and "Approval" means approved in writing including as aforesaid.

M. "MONTH" means month according to Gregorian calendar.

N. "SCHEDULED BANK" means bank included in the second schedule to the Reserve Bank of India Act, 1934.

O. "SUB CONTRACTOR" means any person, firm or corporation having a contract for the execution of a part or parts of the work included in the contract and a person, firm or corporation furnishing materials called for in the contract and worked to a special design according to the specifications.

P. "VIRTUAL COMPLETION" means that the constructions of works specified are of the works is sufficiently completed in accordance with the contract, as modified by any changed or variation orders agreed to by the parties so that the Employer can occupy the same for the use it was intended.

Q. "CONTRACT PERIOD" means the accepted period of consecutive days stated on the Form of Tender starting from the Architect or Employer's order to commence the work.

R. "ACT OF INSOLVENCY" means any act of Insolvency defined by the Presidency Towns Insolvency Act, or the Provincial Insolvency Act or any Act amending such original act/s.

S. "THE DATE OF COMPLETION" is the date or dates for completion of the work or works or any part of the works set out or ascertained in accordance with the individual works orders and the tender documents or any subsequent amendments thereto

T. "SINGULAR AND PLURAL" words importing persons include firms and corporations, words importing the singular party only also include the plural and vice versa where the context requires.

2. Consultant:

The Consultant engaged by the Employer/ Architect shall supervise the works and to test any materials to be used in the works. The contractor shall offer the Consultants every facility and assistance for examining the works and materials and checking and measuring works and materials. All correspondence related to the contract shall be routed through the ARCHITECT.

3. Duties and Powers of consultant:

Consultant's duties are to watch and supervise the works of and to test any materials to be used or workmanship employed in connection with the works, quality control, Project Scheduling and monitoring and co-ordinating with all other Agencies, recording of measurements, certification of bills, preparing extra/deviation items, excess/ saving statement, preparing Minutes of Meeting etc. They shall have no authority either to relieve the Contractor of any of his/ their duties or obligations under the contract or except those expressly provided hereunder, to order any work involving delay or any extra payment by the Employer or any variation of or in the works.

Wherever it is mandatory by law, that the Contractor appointed by the Employers shall be registered with the Local Authorities as Supervisor, the incumbent so selected shall so forthwith show his/their registration.

The Contractor shall afford the ARCHITECT every facility and assistance for examining the works and materials and checking and measuring time and materials. The ARCHITECT shall have no power to revoke, alter, enlarge or relax any requirements of this contract or to sanction any day work, additions, alterations, deviations or omissions unless such an authority may be confirmed by written order of the employer.

The Consultant shall act in consultation with the Architect in regard to the quality of all aspects of work and, will finalise the selection of finishing materials. The ARCHITECT shall jointly record the measurements with Contractor's representative for all items of works and on completion hand over the records to the Employer.

The Consultant shall have the power to give notice to the Contractor or his/their Engineer-In-Charge, about the non-approval of any work or materials and such works shall be suspended or the use of such materials should be discontinued until the decision of the

Architects/ Employer 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 completed. Subject to the limitations of this clause, the Contractor shall take instructions only from the Architects/ Employer as the case may be through ARCHITECT.

The ARCHITECT shall have such other power and discharge other functions as are specifically provided in this contract included such incidental or consequential powers or duties, subject always to such specific instructions or directions of the Employer, which shall be duly notified to the Contractor/s.

4. Scope of Contract:

The contractor shall carry out and complete the said work in every respect in accordance with this contract and with the directions of and to the satisfaction of the ARCHITECT/ Architect/ Employer. The Architect may in his/their absolute discretion and from time to time, issue further drawings and/or written instructions, details, directions and explanations which are hereafter collectively referred to as “Instructions" reflected either in the minutes or in any other form in regard to:

a) The variation or modification of the design, quality or quantity of works or the additions or omissions or substitutions of any work.

b) Any discrepancy in the drawings and/or drawings and/ or specifications.

c) The removal from the site of any material brought thereon by the contractor and the substitution of any other material thereafter.

d) The removal and/ or re-execution of any works executed by the Contractor.

e) The dismissal from the works of any person employed thereupon.

f) The opening up for inspection of any work covered up.

g) The amending and making good of any defects.

h) Removal of improper works and materials.

i) Assignment and subletting.

j) The Employer shall have a right to delete or reduce any scope of work or any item from the contract and contractor shall not make any extra claim on this count

k) Postponement of any work to be executed under the provision of the contract.

The contractor shall forthwith comply with and duly execute any work comprised in such Architect/ Employer/ Architect instructions, directions and explanations given to the Contractor or his/ their representative. If instructions, directions upon the works by the Architect/ Employer/ ARCHITECT shall, involving a variation be confirmed in writing by the Contractor, within 7 days and if not dissented in writing within a further 7 days by the Architect/ Employer, such instructions shall be deemed to be the "Employer/Architect Instructions" within the scope of the contract. If compliance with these instructions as aforesaid involves work and/or expenses and/ or loss beyond that contemplated by the contract, then, unless the same were issued.

If the Contractor fails to comply with the Employer/ Architect/ ARCHITECT instructions within a fortnight after the receipt of written notice from the Employer/ Architect requiring compliance with such instructions, the Employer, through the Architects, may employ some other agency to execute any work whatsoever which may be necessary to give effect to such instructions.

For the purpose of entering day-to-day instructions by the Employer/ ARCHITECT, the Contractor shall maintain at his/their own cost, a 'Site Instructions Book' in quadruplicate in which the instructions shall be entered by Employer/ ARCHITECT.

'Instructions' to the Contractor shall be generally issued through ARCHITECT. However Employer, for the sake of urgency as a result of inspection or otherwise, may issue instructions directly with the knowledge of the ARCHITECT who should ratify the same promptly.

5. Drawings and Specifications:

The Work shall be carried out to the entire satisfaction of the Employer/ Architects/ ARCHITECT or their Consultants and in accordance with the signed drawings, specifications, preambles and such further drawings and details as may be provided by the ARCHITECT and in accordance with such written instructions, directions and explanation as may from time to time be given by the Employer/ Architect whose decisions as to sufficiency and quality of the work and materials shall be final and binding upon all parties.

No drawing shall be taken as in itself an order for execution unless, in addition to the Architect/Architect signature, it bears express words stating remark "VALID FOR CONSTRUCTION". No claim for payment for extra works shall be allowed unless the said work shall have been executed under the provisions of clause no-7 (AUTHORITIES NOTICES PATENT) or by the authorities directions in writing of the Consultant as herein mentioned.

Two complete sets of the drawings, certified copy of agreement shall be furnished to the Contractor. The Architect shall furnish, within such time, as may be reasonable, one copy of additional drawings, which in his/their opinion are necessary for the execution of any work. Such copies shall be kept on the works, and the Architect or his/ their representatives shall at all reasonable times have access to the same. The Contractor before the issue of the Final Certificate shall return all drawings, certified copy of tender document together with specifications to the Architects. The Original Contract documents shall remain in the custody of the Employer and shall be produced by him/them at his/ their office as and when required.

Any additional prints of drawings if any, required by the Contractor/s, may be supplied by the Architect but on the payment of charges.

Any work indicated on the drawings and not mentioned in the specification or vice-versa shall be furnished as though fully set forth in both. Work not specifically detailed, called for, marked or specified shall be the same as similar parts that are detailed marked or specified.

The Contractor's work shall not deviate from the drawings and the specifications. The Architect interpretation of these documents shall be final and without appeal.

Errors or inconsistencies discovered in the drawings and specifications shall be promptly brought to the attention of the Architect for interpretation or correction. Local conditions,

which may affect the work, shall likewise be brought to the Architect attention. If at any time, it is discovered that work is being done which is not in accordance with the contract drawings and specifications, the contractor shall correct the work immediately. Corrections of defective work shall not be a basis for any claim for extension. The Contractor shall not carry on work except with the knowledge of the Architect.

Figured dimensions on the scale drawings and large size details shall govern and large size details shall take precedence over small-scale drawings. Any work done before receipt of such details, if not in accordance with the same, shall be removed and replaced or adjusted as directed, by the Contractor without expense to the Employer. These general conditions apply with equal force to all the work including authorized extra works.

All Drawings, Specifications and copies thereof furnished by the Architect are his/ their property. They shall not be used on any other work and shall be returned to the Architect at his/ their request on completion or termination of the Contract.

At the completion of the contract, the contractor shall return to the Architect, all drawings/ copies provided under the contract.

The Architect shall have full power and authority to supply to the Contractor through ARCHITECT from time to time during the progress of works such further drawings and instructions as shall be necessary for the purpose of the proper and adequate execution and maintenance of the works and the Contractor shall carry out and be bound by the same.

6. Discrepancy in Various Documents:

The Contractor shall provide everything necessary for the proper execution of the works according to the true intent of and meaning of the Drawings, Specifications etc. taken together whether the same may or may not be particularly shown or described therein, provided that the same can be inferred there from. If the Contractor finds any discrepancy in the Drawings or between the drawings, Specifications etc., he/ they shall immediately refer the same in writing to the Architect who shall decide which shall be followed, and his/ their decision shall be final and binding on contractor after Employer's concurrence.

7. Authorities, Notices, Patent Rights &Royalties: -

The Contractor shall conform to the provisions of the statutes relating to the works and to the Regulations and Bye Laws of any Local Authority and of any Water, Lighting or other Companies or Authorities with whose systems the Structure is proposed to be connected and shall before making any variation from the Drawings and Specifications that may be necessitated by so conforming, give to the Architect written notice, specifying the variations proposed to be made and the reason for making it, and apply for instructions thereon.

The Contractor shall bring to the attention of the ARCHITECT, all notices required by the said Acts, Regulations or bye laws to give to any authority and pay to such authority or to any public offices, all fees that may be properly chargeable, in respect of the works and lodge the receipts with the Employer through ARCHITECT.

The Contractor shall indemnify the Employer against all claims in respect of patent rights, design, trademarks or name or other protected rights in respect of any constructional plant machine, work or material used for or in connection with the works or temporary works from and against all claims, demands, proceedings, damages, costs, charges and expenses whatsoever in respect thereof or in relation thereto. The Contractor shall defend all actions

arising from such claims, unless he/ they has informed the Architect/ ARCHITECT before any such infringement and received their permission to proceed and shall himself/ themselves pay all royalties, license fees, damages, costs and charges of all and every part that may be legally incurred in respect thereof.

8. Contract Price:

The Contract Price shall not be adjusted or altered in any way whatsoever otherwise than in accordance with the express provisions of these conditions and subject to Clause 40 C ---- (ALTERATION…) of these conditions.

9. Contract Bills:

The Contract Bills for certificate of payment shall be described in mode of payment.

Any error in description or omission of items from the Contract bills shall not vitiate this contract but shall be corrected and deemed to be a variation required by the Architect.

10. General Obligations:

Contractor's General Responsibilities

a) The Contractor shall be responsible, subject to the provisions of the Contract and with due care and diligence, to execute and maintain the works and provide all labour including the supervision thereof, new material, Constructional Plant and all other things whether of a temporary or permanent nature, required in and for such execution and maintenance so far as the necessity for providing the same is specified in or is reasonably to be inferred from the Contract.

b) The Contractor shall take full responsibility for the adequacy, stability and safety of all site operations and methods of construction, provided that the Contractor shall not be responsible except as may be expressly provided in the Contract for the design or specification of the Permanent Works or for the design or specification of any Temporary works prepared by the Architect.

11. Contract Agreement:

The Contractor shall when called upon to do so enter into and execute a Contract Agreement to be prepared and completed at the cost of the Contractor in the form annexed herewith such modifications as may be necessary.

12. Performance Bond:

The Contractor shall, at his/ their own expense provide or obtain a Bank Guarantee in the format approved by the Employer to be jointly or severally bound to together with him/ them to the Employer in the sum provided in the tender for the due performance of the Contract. (Refer appendix to form offer –Annexure- 1 ITEM NO 18).

13. Inspection of Site:

a) The Contractor shall inspect and examine the site and its surroundings and information available in connection therewith and shall satisfy himself/ themselves so far as is practicable before submitting his/ their tender as to the site conditions, the extent and nature of work and

materials necessary for the completion of the works, the means of access to the site and accommodation he/ they may require and in general shall himself/ themselves obtain all necessary information subject as above mentioned, as to risks, contingencies and all other circumstances which may influence or affect his/ their Tender.

14 .Sufficiency of Tender:

a) The Contractor shall be deemed to have satisfied himself/ themselves before tendering as to the correctness and sufficiency of his/ their tender for the works and of the rates and prices stated in Schedule of Quantities/ Scope of work and/ or the Schedule of Rates and Prices, which rates and prices shall cover all his/ their obligations under the Contract, and all matters and things necessary for the completion of the works.

b) **Contractor not Entitled to Extra Payment**

Except otherwise specifically provided for in the Contract, the Contractor shall not be entitled to any extra payment neither from resale of any material etc. nor to be relieved from any of his/ their obligation for reasons of his/ their misunderstanding, or his/ their failure to obtain correct information or his/ their inability to foresee any matter which may affect the execution or maintenance of the works.

15. Work to be to the Satisfaction of the Project Architect:

The Contractor shall execute and maintain the works in strict accordance with the contract to the satisfaction of the Project Architect and shall comply with and adhere strictly to the instructions and directions from them or their representative/s.

16. Programme to be furnished:

a) Within a 15 days' time after the acceptance of his/ their Tender, the Contractor shall submit to the ARCHITECT for his/ their approval and/ or information a BAR Chart/ chart showing the order of procurement and method in which he/they proposes to carry out the works, a general description of the arrangements and methods which he/ they proposes to adopt for the execution of the Works, the Temporary Works which he/they intends to supply, use or construct as the case may be, the scheduling of samples, Shop Drawings and approvals from concerned authorities as required under the contract.

b) If the actual progress of the works does not conform to the approved chart, the Contractor shall be required to submit a revised programme and implement the same for the completion of the works within the stipulated time for completion.

c) List of personnel at site, Authorized representative, Technical & non-technical staff, labours force, Security arrangement deployed at site for on schedule completion of this contract.

d) The submission to and approval by the ARCHITECT of such programs shall not relieve the Contractor of any of his/ their duties or responsibilities under the contract.

17 Contractor's Superintendence:

The Contractor shall give or provide all necessary superintendence during the execution of the works and as long thereafter as the ARCHITECT/ Employer may consider necessary. The Contractor or one of his/their competent and authorized agent or representative is to be

constantly on the works and shall give his/ their whole time to the superintendence of the same. Such authorized agent or representative shall receive on behalf of the Contractor the directions and instructions from the Architect / ARCHITECT/ Employer.

18 Contractor's Employees:

a) The Contractor shall provide and employ on the site skilled and experienced technical assistants, foremen and leading hands to give proper supervision and such skilled, semi-skilled and unskilled labour for the proper and timely execution and maintenance of the works.

b) The Contractor shall be required to remove forthwith from the works any person employed by the Contractor in or about the execution or maintenance of the works who in the opinion of the ARCHITECT/ Employer misconducts himself/ themselves or incompetent or negligent and thus considered to be undesirable and shall be replaced as soon as possible by a competent substitute approved by the ARCHITECT/ Employer.

19 Setting Out:

The Contractor at his/their own expenses to set out the works accurately in accordance with the plans and to the complete satisfaction of the ARCHITECT. The Contractor shall be solely responsible for the true and perfect setting out of the works in relation to original points lines and levels of reference and for the correctness of the positions levels, dimensions and alignment of all parts of the works and for the provision of all necessary instruments, appliances and labour in connection therewith.

The responsibility for the true and proper setting out rests with the Contractor who shall rectify any error at his/ their own cost to the satisfaction of the ARCHITECT, unless such error is based on incorrect data supplied in writing by the Architect or his/ their Representative, in which case the expenses of rectifying shall be borne by the Employer. The checking of any setting out or of any line or level by the ARCHITECT/Architect or his/their Representative shall not in any way relieve the Contractor of his/their responsibility for the correctness thereof and the Contractor shall carefully protect and preserve all benchmarks, pegs and other things used in setting out the works.

20 Security and maintenance of Premises Lighting:

The Contractor shall in connection with the works provide and maintain at his/ their own cost all lights/ guards when and where necessary or required by the ARCHITECT or his/ their Representative or by any duly constituted authority for the protection of the works or for the safety and convenience of the public or others.

21 Care of Works:

a) From the commencement to the completion of the works, the Contractor shall take full responsibility for the care thereof and of all temporary works, and in case any damage, loss or injury shall happen to the works or to any part thereof or to any temporary works from any cause whatsoever, save and except risks as defined in sub-clause (b). In this clause, shall at his/ their own cost, repair and make good the same, so that at completion, the permanent works shall be in good order and condition and in conformity in every respect with the requirements of the contract and the Architect instructions. In the event of any such damage, loss or injury happening from any of the excepted risks, the contractor shall, if and to the extent required by the Architect and subject always to the provision of Clause

mentioned elsewhere in the conditions hereof, repair and make good the same as aforesaid at the cost of the Employer. The Contractor shall also be liable for any damage to the works occasioned by him/ them in the course of any operations carried out by him/ them for the purpose of complying with his/ their obligations under Clause 40-41---(ALTER-ADD and CONTRACTOR TO SEARCH) thereof.

b) Excepted Risks:

The "Excepted Risks" are Force majeure, exceptionally incremental weather, fire, earthquake, civil commotion, riot, lockout, strike, war, hostilities (whether war be declared or not), invasion act of foreign enemies, rebellion, revolution in correction or military or usurped power civil war or a cause solely due to or use or occupation by the Employer of any portion of the works in respect of which a Certificate of Completion has been issued all of which are herein collectively referred to as "Excepted Risks".

23 Insurance in Respect of Damage to Person and Property:

From Commencement to Completion, the Contractor shall be responsible for all injury to persons, animal or things and for all structural and decorative damage to property which may arise from operation or neglect of himself/ themselves or any subcontractor or of any of his/ their or a sub-contractor's employee whether such injury or damage may arise from carelessness, accident or any other cause whether in any way connected with the carrying out of this contract. This clause shall be held to include interalia any damage to building, whether immediately adjacent or otherwise, any damages to roads, streets, footpaths, bridges, or ways as well as all damage to the buildings and works forming the subject of this contract by first or other inclemency weather. The contractor shall indemnify the Employer and hold him/ them 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 any award of compensation or damages consequent upon such claim.

The Contractor shall reinstate all damage of every spot mentioned in this clause so as to deliver up the whole of the contract works complete and perfect in every respect and so as to make good or otherwise satisfy all claims for damage to the property of third parties. The Contractor shall indemnify the Employer against all claims which may be made against the Employer by any member of the public or other party in respect of anything which may arise in respect of the works or in consequence thereof and shall at his/their own expense effect and maintain until the virtual completion of the contract with an approved office a policy of insurance in the joint names of the Employer and the Contractor against such risks and deposit such policy or policies with the Employer on the signing of the contract. The Contractor shall also indemnify the Employer against all claims which may be made upon the Employer whether under the Workmen's Compensation Act or any other statute in force during the currency of this contract or at common law in respect of any employee of the Contractor or of any sub- contractor and shall at his/their own expense effect and maintain until the virtual completion of the contract, with an approved office a Policy of Insurance in the joint names of the Employer and the Contractor against such risks and deposit such policy or policies with the Employer from time to time during the currency of the contract.

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 the contract; however such damage shall be caused.

The Contractor shall at all times indemnify the Employer and keep indemnified in respect of any costs, charges for expenses arising out of any claim that may arise on account of the

Contractor's operation at the site or proceedings and also in respect of any award of or compensation of damages arising there from. It shall also be the Contractor's responsibility to file and pursue with the Insurance Company for a claim if any.

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

Before commencing the work, the Contractor shall without limiting his/ their obligations and responsibilities under the condition, obtain the necessary insurances. If he shall fail to effect and keep in force the insurances referred to in this clause or another insurances which he may be required to effect under the terms of contract then the contractor shall be fully responsible for the consequences of such a default. In any such case the Employer may effect and keep in force any such insurance and pay such premium or premiums as may be necessary for the purpose and from time to time deduct the amount so paid by the Employer as aforesaid from any monies due or which may become due to the Contractor or recover the same as a debt due from the Contractor. However the employer has no obligation of any sort to keep insured as above mentioned.

The Contractor shall provide the Employer with documentary evidence from time to time that he/ they has taken all the insurance policies mentioned in the foregoing paragraphs and that he/ they has paid the necessary premium for keeping the policy valid till the works are completed and handed over to the employer.

The ARCHITECT shall ensure the validity of the insurance policies on behalf of the Employer. If extension of time limit is granted by Employer, he/they shall have to ensure that the insurance policies are progressively extended. In addition to above please refer clause no. 35 Insurance against third party risks under Special Conditions of Contract.

24 Compliance with Statutes, Regulations etc.:

The Contractor shall comply with the provision of Payment of Wages Act,1936, Minimum Wages Act 1948, Employees Liability Act 1938, Workmen's Compensation Act 1923, Industrial Dispute Act 1947, Maternity Benefits Act 1961 and the Contractor's Labour (Regulation and Abolition) Act 1970 or any such statutes ordinance or have and the modification thereof and the regulation or Bye-Laws of any local or other duly constituted authority and rules and regulations of public bodies and companies which may be applicable to the works or to any temporary works as aforesaid and shall keep the Employer indemnified of every kind for breach of any such statute, ordinance or Law Regulation or Bye-Laws.

Contractor, as required, will pay necessary P.F. and E.S.I contribution for the contractor's workers and employer shall be absolved of all these risks.

The Successful Contractor, on award of the work and after completion of entire System shall obtain N.O.C./ Permission/ Licences from concerned local authorities/ statutory bodies (which shall include applying, follow up, liaisoning and obtaining the interim/final permission along with commissioning as per statutes).

25 Fire Insurance: As per C.A.R. Policy.

26 Giving of Notices and Payment of Fees:

The Contractor shall give all notices and pay all fees required to be given or paid by any National or State Statute Ordinance or other Law or any Regulation or Bye-Law of any local or other duly constituted authority in relation to the execution of the works or of any temporary works and by the rules and regulations of all public bodies and companies whose property or rights are affected or may be affected in any way by the works.

27 Returns of Labour etc.:

The Contractor shall furnish all such information regarding the supervisory staff, the numbers of the several classes of labour from time to time employed on the site, constructional plant etc. as the ARCHITECT may require.

28 Materials and Workmanship:

a) Quality of Material and Workmanship and Tests:

All materials and workmanship shall be of the respective kinds described in the contract and in accordance with the Architect/ ARCHITECT instructions and the contractor shall upon the request of the ARCHITECT furnish to them all invoices, accounts, receipts and other vouchers to prove the materials comply therewith and shall be subjected from time to time to such tests as the ARCHITECT may direct at the place of manufacture or fabrication or on the site or at all or any of such places. The Contractor shall at his/ their own cost provide such assistance, instruments, machines, labour and materials as are normally required for examining, measuring and testing any work and the quality, weight or quantity of any material used and shall supply samples of materials before incorporation in the works for testing as may be selected and required by the ARCHITECT. The material testing shall be done at approved labs/ institutes like VJTI/ IIT/ VICT and other govt. labs as directed by Project Architects/ Employer.

b) Cost of Samples and Shop Drawings:

All samples for the fittings and fixtures, hardware etc. should be submitted for approval before using in the work. The Contractor at his/their own cost as directed by the Architect shall supply all Samples and Shop Drawings. (3 sets).

c) Cost of Tests:

The cost of making any test shall be borne by the Contractor, if such test is clearly intended by or provided for in the contract and in the cases only for a test under load or of a test to ascertain whether the construction of any finished or partially finished work is appropriate the contract in sufficient detail to enable the Contractor for the purposes which it was intended to fulfil is particularized in to price or allow for the same in tender. Further the cost of tests, if as per advice/ instruction of statutory authorities/ CTE'S Organisation, CVC shall be borne by the contractor.

d) Cost of Test not provided for etc.:

If any test is ordered by the Project Architect which is either:

i) Not so intended by or provided for or,

ii) (In the case above mentioned) is not so particularized or,

iii) Though so intended or provided for is ordered by the Project Architect to be carried out by an independent person at any place other than the site or the place of manufacture or fabrication of the materials tested, then the cost of such test shall be borne by the Contractor if the test shows the workmanship or materials are not in accordance with the provisions of the contract or the Architect instructions but otherwise by the Employer.

29 Examination of Work:

a) Examination of Work Before Covering Up:

No work shall be covered up or put out of view without the approval of the Project Architect and the Contractor shall afford full opportunity for the Project Architect to examine and measure any work which is about to be covered up or put out of view and the Contractor shall give due notice to the Project Architect whenever any such work is ready or about to be ready for examination and the ARCHITECT/ Architect shall without unreasonable delay unless he/ they considers it necessary and advises the contractor accordingly attend for the purpose of examining and measuring such work.

b) Uncovering and Making Openings:

If the Contractor puts any part of the works or covers up or puts out of view before he/ they has notified the ARCHITECT and received instructions, he/they shall be liable to reinstate all work that may subsequently be, at any time, damaged on account of any defect in or insufficiency of the works. The Contractor shall at the request of the Architect, open up for inspection any work, and should the Contractor refuse or neglect to comply with such requests, the Employer through the Architect, may employ other agency to open up the same. If the said work has been covered up in contravention of the Architect instructions, or if on being opened up, if found not in accordance with the drawings and the specifications or the instructions of the Architect, the expenses of opening it again, whether done by the Contractor, or such other agency, shall be borne by the Contractor, and shall be recoverable from him/ them by the Employer or may be deducted by the Employer from any money due or which may become due to the Contractor. If the work has not been covered in contravention of such instructions and found to be in accordance with the said drawings and specifications or instructions than the expenses aforesaid shall be borne by the Employer and be added to the contract sum; provided always that in the case of other urgent work so open up and required immediate attention, the Architect shall within 7 days after receipt of written notice from the Contractor that the work has been opened make or cause the inspection thereof to be made at the expiration of such time, if such inspection shall not have been made. The contractor may cover up the same and shall not be required to open it up again except at the expenses of the Employer.

30 Improper Works:

a) Removal of Improper Work and Materials:

The Project Architect shall during the progress of the works have power to order in writing from time to time.

i) The substitution of proper and suitable material and,

ii) The removal and proper re-execution notwithstanding any previous test thereof or interim payment therefore of any work which in respect of materials or workmanship is not in accordance with the contract in the opinion of the ARCHITECT.

b) **Default of Contractor in Compliance:**

In case of default on the part of the Contractor in carrying out such order/ direction the Employer shall be entitled to employ and pay other agency to carry out the same and all expenses consequent thereon or incidental thereto shall be borne by the Contractor and shall be recoverable from him/ them by the Employer or may be deducted by the Employer from any amount due or which may become due to the Contractor which shall be final and conclusive.

31 Suspension of Work:

The Contractor, shall on the written direction of the Architect/ Employer suspend the progress of the works or any part thereof for such time or times and in such manner as the Architect may consider necessary and shall during such suspension properly protect against threats or damage and secure the work, so far as is necessary in the opinion of the Architect. The cost, if any, incurred by the Contractor in giving effect to the Architect instructions and Architect recommendations, if any, under this clause shall be borne and paid by the Employer unless such suspension is:

i) Otherwise provided for in the contract or

ii) Necessary by reason of some default on the part of the Contractor or Provided that Contractor shall not be entitled to recover any such extra cost unless he/ they gives written notice of his/their intention to claim to the Architect on receipt of the Architect order/ direction. The Architect shall settle and determine the payment and/ or extension of the time under Clause 35 ----DELAYS & EX hereof to be made to the Contractor in respect of such claim, as shall, in the opinion of the Architect, be fair and reasonable which shall be final and conclusive.

32 Commencements of Works:

The Contractor shall commence the works on site within 7 days after the receipt by him/them of an order in writing to this effect from the Employer or the date of possession whichever is later and shall proceed with the same with due expedition and without delay except as may be expressly sanctioned or ordered by the Architect/ Employer or be wholly beyond the Contractor's control.

33 Possession of Site:

a) Save in so far as the contract may prescribe and with the Employer’s written order to commence the works, the Contractor shall be given possession of the whole of the site or part by part progressively enabling him/ them to commence and proceed with the execution of the works in accordance with the programme referred to in Clause 16 hereof. If the Contractor suffers delay on account of the Employer's failure to give possession of site in accordance with the terms of this clause, necessary extension of time (without any financial implications) shall be granted by the Employer for the completion of the entire works, on recommendations of ARCHITECT.

b) The Contractor shall bear all costs and charges for special or temporary way leaves required by him/ them in connection with access to the site. The Contractor shall also provide at his/ their own cost any additional accommodation outside the site required by him/ them for the purposes of the works.

34 Time for Completion:

Subject to any requirement in the contract as to completion of any section of the works before completion of the whole, the whole of the works shall be completed within 60 Days including monsoon season. The time stated in the contract shall be calculated from the date of Commencement or such extended time as may be allowed under Clause 35-----(DELAYS AND EXT..) hereof.

34.1 Certification of Virtual Completion of Works:

The contractor shall report in writing to the ARCHITECT when the works are completed in all respects. The ARCHITECT shall, after the verification of works and in consultation with Architects, issue to the contractor a certificate (along with list of defects/ rectification to be attended as per clause No.39 (DEFECTS)) to be called "Virtual Completion Certificate" a copy whereof shall be submitted to the employer to enable it to take possession of the completed works. The Defects Liability Period shall commence only from the date of issue of such Virtual Completion certificate.

35 Delays and Extension of Time for Completion:

If, in the opinion of the Employer, the works be delayed (a) by force majeure (b) by reason of any exceptionally incremental weather or (c) by reasons of proceedings taken or threatened by or dispute with adjoining or neighbours of adjoining properties or public authorities arising otherwise than through the Contractor's own default or (d) by the works or delays of the other Contractor/s or Tradesman engaged or nominated by the Employer or the Architect and not referred to in the Schedule of Quantities and/ or specifications or (e) by reason of the Architect/ employer instruction or (f) by reason of civil commotion, local commotion of workmen or strike or lockout affecting any of the building trades or (g) due to extra or additional work or other circumstances provided the Contractor has intimated to the Architect/ employer through ARCHITECT full and detailed particulars soon after such work has been commenced or (h) in consequence of the Contractor, not having in due time necessary instructions from the Architect/ through ARCHITECT for which he/ they shall have specifically applied in writing ahead of time, giving the Architect reasonable time to prepare such instructions, the Employer shall make a fair and reasonable extension of time for completion of work. In case of such strike or lockout, the Contractor shall, as soon as may be, give written notice thereof to the ARCHITECT but the Contractor shall nevertheless constantly use his/ their endeavours to prevent delay and do all that may reasonably be required to the satisfaction of the ARCHITECT/ Employer to proceed with the work.

36 Rate of Progress:

The whole of the material, plant and labour to be provided by the Contractor in tune with Clause 13-----(INSPECTION OF SITE) hereof and the mode, manner and speed of execution and maintenance of the works are to be of a kind and constructed in a manner approved of by the ARCHITECT. Should the rate or progress of the works or any part thereof, be at any time in the opinion of the ARCHITECT too slow to ensure the completion of the works by the prescribed time or extended time for completion, the ARCHITECT shall so notify the Contractor in writing and the Contractor shall there upon take such steps as the Contractor may think necessary and the ARCHITECT may approve to expedite progress so as to complete the works by the prescribed time or extended time for completion. If the work is not being carried out by day and night the Contractor shall request permission to work by night as well as by day and if the Architect/ Employer shall grant such permission the Contractor shall not be entitled to any additional payment for so doing but if

such permission shall be refused and there shall be no equivalent practicable method of expediting the progress of works, the time of completion of the works shall be extended by the Employer by such period as is solely attributable to such refusal. All work at night shall be carried out without unreasonable noise and disturbance. The Contractor shall indemnify the Employer from and against any liability for damage on account of noise or other disturbance created while or in carrying out the work and from and against all claims, demands, proceedings, damages, costs, charges and expenses whatsoever in regard or in relation to such liability.

37 Liquidated Damages for Delay:

If the Contractor fails to complete the works within the time prescribed by Clause 34 hereof or extended time then the Contractor shall pay to the Employer the sum stated in the Tender as Liquidated Damages for such default at Annexure - A Clause 11. The Employer may deduct without prejudice to any other method of recovery deductible amount of such extent from the money that stands due or which may become due to the Contractor. The payments or deduction of such damages shall not relieve the Contractor from his/their obligations and liabilities under the contract.

38 Certificate of Completion of Works:

a) When the whole of the works have been substantially completed and have satisfactorily passed any final test that may be prescribed by the contract, the Contractor may give a notice to the effect to the ARCHITECT accompanied by an undertaking to finalize any outstanding work during the period of maintenance. Such notice and undertaking shall be in writing and shall be deemed to be a request by the Contractor for the ARCHITECT to issue a Certificate of Completion in respect of the works. The Architect, shall within twenty eight days of the date of delivery of such notice either issue to the Contractor, with a copy to the Employer, a Certificate of completion stating the date on which, in his/ their opinion, the works were substantially/ virtually completed in accordance with the contract or give instructions in writing to the Contractor specifying all the work which, in the Architect opinion, requires to be done by the Contractor before the issue of such Certificate. The ARCHITECT shall also notify the Contractor of any defects in the works affecting substantial completion that may appear after instructions and before completion of the Works specified therein. The Contractor shall be entitled to receive such certificate of completion within twenty-eight days of completion to the satisfaction of the ARCHITECT of the Works so specified and making good any defects so notified.

b) **Certification of Completion by Stages:**

Similarly, in accordance with the procedure set out in sub clause (a) of this Clause, the Contractor may request and the ARCHITECT shall issue a Certificate in respect of:

i) Any section of the Permanent Works in respect of which a separate time for completion is provided in the contract, and

ii) Any substantial part of the Permanent Works, which has been completed to the satisfaction of the ARCHITECT and occupied or used by the Employer.

If any part of the Permanent Works shall have been substantially completed and shall have satisfactorily passed any final test that may be prescribed by the contract, the Architect, on recommendations of ARCHITECT, may issue a Certificate of Completion in respect of that part of Permanent Works before completion of the whole of the works

and upon the issue of such Certificate, the Contractor shall be deemed to have undertaken to complete any outstanding work in that part of the Work during the period of maintenance. Provided always that Certificate of Completion given in respect of any section or part of the Permanent Works before Completion of the whole shall not be deemed to certify completion of any ground or surfaces regarding reinstatement, unless such Certificate shall expressly so state.

39 Defects:

a) **Definition of "Defects Liability Period (DLP):**

In these conditions, the expression "Period of Defects Liability" shall mean the period of Defects Liability named in the Tender, calculated from the date of completion of the Works, certified by the Architect in accordance with item no.12 of Annexure-1 (appendix to form of offer) and mentioned elsewhere in the tender, or in the event of more than one certificate having been issued by the Architect under the said Clause from the respective dates so-certified. In general, the Defects Liability Period shall be one year after the virtual completion of the works.

b) **Defects:**

The Contractor shall make good at his/their own cost and to the satisfaction of the Architect/ Employer, all defects, or other faults and all damages, loss and expenses consequent thereon or incidental thereto, and such damage, loss and expenses shall be recoverable from him/ them by the Employer or may be deducted by the Employer from any money due or that become due to the Contractor.

c) **Entry to the Premises for Attending Defects:**

The premises shall have/ remain in exclusive physical possession of the Employer and the Contractor is given only a temporary permission to enter the said premises with his/their workman, agents for attending the defects, during the defects liability period. If the Contractor or his/ their workman whether negligently or otherwise causes any damage or loss to the property, fixtures of the Employer lying in the premises, the Contractor shall be bound to reimburse such loss to the Employer. The Employer always is entitled to deduct any amount of sum loss from the amounts payable to the Contractor.

d) **Execution of Work of Repair etc.:**

To the intent that the Works shall at or as soon as practicable after the expiration of the Defects Liability Period be delivered to the Employer in the condition required by the Contractor, fair wear and tear excepted, to the satisfaction of the ARCHITECT, as that in which they were at the commencement of the DLP, the Contractor shall finish the Work, if any, outstanding at the date of completion, as certified under Clause 34.1 hereof, as soon as practicable after such date and shall execute all such work of repair, amendment, reconstruction, rectification and making good defects, imperfections, or other faults as may be required of the Contractor in writing by the ARCHITECT during the DLP within fourteen days after its expiration, as a result of an inspection made by Project Architect/ Employer/ prior to its expiration.

e) **Cost of Execution of Work of Repair etc.:**

All such work shall be carried out by the Contractor at his/ their own expenses if the necessity thereof shall, in the opinion of the ARCHITECT, be due to the use of materials or workmanship not in accordance with the contract or to neglect or failure on the part of the Contractor to comply with any obligation, expressed or implied, on the Contractor's part under the Contract. If, in the opinion of the ARCHITECT/ Employer, such necessity shall be due to any other cause, the value of such work shall be ascertained and paid for as if it were additional work.

f) **Remedy on Contractor's Failure to Carry Out Work Required:**

If the Contractor shall fail to do any such work as aforesaid required by the ARCHITECT, the Employer shall be entitled to employ and pay other persons to carry out the same and if such works which, in the opinion of the ARCHITECT, the Contractor was liable to do at his/ their own expense under the Contract, then all expenses consequent thereon or incidental thereto shall be recoverable from the Contractor by the Employer or may be deducted by the Employer from any money due or which may become due to the Contractor.

40. Alterations, Additions and Omissions:

a) The term "Variation" as used under this clause means the alteration or modification of the design, quality or quantity of work as shown upon the drawings, scope of works, specification or included in the priced schedule of quantities and desired by or referred to in the schedule of quantities and includes the addition, omission or substitution of any work, the alteration of the kind of standard or any of the materials or goods to be used in the work, and removal from the site of any works materials or goods executed or brought thereon by the Contractor for the purpose of work other than work materials or goods which are not in accordance with this contract. The Employer shall have power to order the Contractor to do any of the following:

i) Increase or decrease the quantity of any work included in the contract.

ii) Omit any such work.

iii) Change the character or quality or kind of any such work.

iv) Change the levels, lines, position and dimensions of any part of the Works and

v) Execute additional work of any kind necessary for the completion of the works and no such variation shall in any way validate or invalidate the contract, but the value, if any, of all such variations shall be taken into account in ascertaining the amount of the Contract Price.

b) Orders for Variation to be in Writing:

The Contractor shall make no such variations without an order in writing of the Architect/ Employer through ARCHITECT. Provided that no order in writing shall be required for increase or decrease in the quantity of any work where such increase or decrease is not the result of an order given under this Clause, but is the result of the quantities exceeding or being less than those stated in the scope of works.

IEEMA (Indian Electrical & Electronics Manufacturer's Association)

PRICE VARIATION CLAUSE:

The price quoted or confirmed is based on the cost of raw materials, components and labour costs as on the date of opening the price bids and the same is deemed to be related to wholesale price index for metal products and All India Average Consumer Price Index Number for Industrial Workers as specified below. In case of any variation in these index numbers, the price shall be subject to adjustment up or down in accordance with following formula:

$$P = \frac{Po}{100}\left[15 + 55\frac{MP}{MPoWoWo} + 15\frac{Wo\,(D)}{} + 15\frac{Wo\,(I)}{}\right]$$

Where in:

P = Price payable as adjusted in accordance with the above price variation formula.

Po = Price quoted or confirmed.

MPo = Wholesale Price Index Number for Metal Products as published by the Office of the Economic Adviser, Ministry of Industry, Government of India, in their weekly Bulletin: 'Reserved Index Numbers of Wholesale Prices' (base 2004-05 =100), for the week ending 1st Saturday of relevant calendar month.

Wo = All India average Consumer Price Index Number for Industrial Workers (base 2004-05 = 100), as published by Labour Bureau, Ministry of Labour Government of India.

NOTE:

The above index number i.e. MPo & Wo are those published by IEEMA as prevailing on the 1st working day of the calendar month four months prior to the date of opening of price bid, e.g. when offer is submitted in June 2015, then the applicable index MPo shall be as prevailing on the first Saturday of February, 2015, then Wo-All India Average Consumer Price Index Number shall be that for the month of February 2015.

MP = Wholesale Price Index Number for metal products as published by the Office of Economic Adviser, Ministry of Industry, Government of India, in their weekly Bulletin: 'Reserved Index Numbers of Wholesale Prices' (base 2004-05 = 100)

NOTE:

The applicable Wholesale Price Index Number for metal products would be that prevailing on the 1st Saturday of the month covering the date four months prior to the date of delivery and shall be as published by IEEMA.

Wo(D) = All India Average Consumer Price Index Number for Industrial workers (base 2004-05 =100), as published Labour Bureau, Ministry of Labour, Government of India.

NOTE:

The applicable All India Average Consumer Price Index Number for Industrial Workers prevailing for the month four months prior to the date of delivery of manufactured materials and shall be as published by IEEMA.

Wo(I) = All India Average Consumer Price Index Number for Industrial Workers (base 2004-05 =100), as published by Labour Bureau, Ministry of Labour, Government of India.

NOTE:

The applicable All India Average Consumer Price Index Number for Industrial Workers prevailing for the month four months prior to the date of completion of installation / progress parts of installation and shall be as published by IEEMA.

EXAMPLE:

If the date of delivery in terms of this Price Variation Clause falls in December 2015, the applicable index ₹MP' shall be as prevailing on the week ending 1st Saturday of August 2007 and ₹Wo (D)' shall be for the month of August, 2015. If the date of completion of each installation is June, 2016 the applicable Wo (I) shall be for the month of February 2015.

NOTES:

a) The date of delivery shall be the date on which the manufactured material is notified as being ready for inspection/ dispatch in the absence of such notification, the date of manufacture's dispatch note shall be considered as the date of delivery (or the contract delivery date including any agreed extensions thereto) whichever shall be earlier.

b) The date of completion of each installation shall be the date on which the work is notified as being completed and is available for inspection (in the absence of such notification, the date of manufacture's note intimating such completion shall be considered as the crucial date) or the contracted completion date for such installation or part of installation (including any agreed extension thereto), whichever shall be earlier.

c) The index number for metal products is published weekly by the office of the Economic Advisor but if there are any changes the same are incorporated in the issue appearing in the following week. For the purpose of the Price Variation Clauses the final index figures shall apply.

d) The sole purpose of the above stipulation is to arrive at the amount of the entire contract under the various situations. The above stipulations do not indicate any intentions to sell materials under this contract as movables.

e) The claim for adjustment of price shall be made at two stages -one at the time of dispatch of materials and the other at the time of completion of erection.

41 Contractors to Search:

The Contractor shall, if required by the ARCHITECT in writing, search under the directions of the ARCHITECT for the cause of any defect, imperfection or fault appearing during the progress of the works or in the Period of DLP. Unless such defects, imperfection or fault shall be one for which the Contractor is liable under the contract, the cost of the work carried out by the Contractor in searching as aforesaid shall be borne by the Employer. If such defect, imperfection or fault shall be one for which the Contractor is liable as aforesaid, the cost of

work carried out in searching as aforesaid shall be borne by the Contractor and he shall in such case repair, rectify and make good such defect, imperfection or fault at his/ their own expense in accordance with the provisions of Clause 39 and 40 hereof.

42 Extra Item of Work:

a) Work or material of nature not included under the Schedule of items which has to be executed or supported, insurance of any of the Provisions of this contract shall be considered as an extra item. When alterations/ additions or omissions made to any work or material shall be such that the cost of the resulting work cannot be estimated according to the tendered items the same shall also be considered extra item. The Contractor shall carry out the extra items only after written communication/ approval by the Architect/ Employer/ through ARCHITECT. However, extra charges or claims in respect of any work will not be allowed unless the works they relate are clearly outside the spirit and meaning of the tender item/specifications and such works are ordered by the Architect/ Employer through ARCHITECT and claimed for specified manner before the particular work is actually commenced.

b) Prices for Extras, Ascertainment there of:

The extra item rates shall generally be derived from the quoted/ tender rates of the Contractor for comparable items of similar nature/ scope/ description under Schedule of Quantities of the Tender, making allowance for variations only. However if no comparable items are available in the unit rates and the quantity of work is to be executed can conveniently be derived/ measured; the same shall be arrived at based on the prevailing rates in the original tender. However, where the work is so disjointing the unit rates or the quantity of work done cannot be conveniently be derived/measured then it will be within the purview of the Architect/Employer/ ARCHITECT to derive the rates either from Tender item or other extra items or by rate analysis showing clearly the fair market cost of material, cost of labour, plus 15% to cover overheads, profit etc. The actual cost shall be determined for the above purpose, as the cost of: -

i) Materials supplied or used at site on items forming part of completed item of work as determined by the ARCHITECT by inquiry of the prevailing market rate at the time of procurement.

ii) Materials (non-consumable) which are used temporarily and not forming a part of the completed item of main work, provided the same are solely meant for the particular item and this cost would be determined by the ARCHITECT by inquiry of prevailing market rate.

iii) The actual cost of transport if solely transported for the execution of the particular extra work and running charge of equipment if any used for the execution of the particular extra item of work.

iv) Skilled and unskilled labour charges for the actual strength of labour employed and petty supervision charges as certified by the ARCHITECT.

Other relevant applicable costs viz. water, electricity, sundries etc. as per CPWD guidelines may be considered on satisfactory production of documentary evidence to the Architect/ Employer.

No escalation shall be entertained on such extra items.

c) Claims:

The Contractor shall send to the employer's representative/ ARCHITECT prior to submission of Interim Bill/ Running Bill giving particulars of all claims for any additional payment to which the Contractor may consider himself/ themselves entitled and of all extra or additional work ordered by the Architect/ Employer, which he has executed. No final or interim claim for payment for any such work or expense will be considered which has not been included in such particulars. Provided always that the Architect shall be entitled to authorize payment to be made for any such work or expense, notwithstanding the Contractor's failure to comply with this condition, if the Contractor, has at the earliest practicable opportunity, notify the ARCHITECT/ Employer in writing such claims along with required particulars.

43 Plant Temporary Works and Materials:

Plant etc. Exclusive use for the Works:

All Temporary Works and materials provided by the Contractor shall when brought on to the site immediately be deemed to be exclusively intended for the completion of the Works and be deemed to become the property of the Employer and the Contractor shall not remove the same or any part thereof (Save for the purpose of moving it from one part of the site to another without the consent in writing of the Employer which shall not be unreasonably withheld. But the Employer will permit the Contractor the exclusive use of all such Temporary works and materials in and for the completion of the works until the happening of any event, which gives right to the Employer to exclude the Contractor from the site and proceed with the completion of the works.

44 Approvals of Materials, Etc.:

The ARCHITECT/ Employer is at a liberty to reject any materials, if in his/ their opinion they are of substandard quality or not as per the tender specifications.

45 Works to be measured:

The ARCHITECT shall, except as otherwise stated, ascertain and determine by measurement the value in terms of the contract of work done in accordance with the contract. It shall, when it required any part or parts of the works to be measured, give notice to the Contractor's authorized agent or representative, who shall forthwith attend or send a qualified agent to assist the ARCHITECT/ Architect in making such measurement, and shall furnish all particulars required by either of them. Should the Contractor not attend, or neglect or omit to send such agent, then the measurement made by the ARCHITECT or approved by him/them shall be taken to be the correct measurement of the work. For the purpose of measuring such Permanent work as is to be measured by records and drawings, the ARCHITECT shall prepare records and drawings month by month of such work and the Contractor as and when called upon to do so in writing, shall, within fourteen days, attend to examine and agree such records and drawings with the employer's representative/ ARCHITECT/ Architect and shall sign the same when so agreed. If the Contractor does not so attend to examine and agree such records and drawings, they shall be taken to be correct. If, after examination of such records and drawings, the Contractor does not agree with the same or does not sign the same as agreed, they shall nevertheless be taken to be correct, unless the Contractor shall, within fourteen days of such examination, lodge with the employer's representative/ ARCHITECT for decision by the Architect/Employer, notice

in writing of the respects in which such records and drawings are claimed by him/ them to be incorrect.

46 Method of Measurements:

a) Measurements shall be taken in accordance with the method stipulated in the specification. In case it is not stated the following shall be the method of measurements:

i) As per Indian Standard method of measurements, applicable for Electrical & Mechanical building Services.

ii) The measurement for certificate of payment shall be as described in mode of payment.

iii) IS-1200 and related I.S. Codes for Electrical & Mechanical Building Services.

iv) Indian Electricity rule 1910 and 2003-04

b) **Quantity Surveying:**

The Contractor will himself/ themselves undertake the quantity surveying work and submit his/their bills supported by reconciliation statements as directed. In case he/ they fails to submit his/ their bills in proper order, the Employer reserves for himself/ themselves the right to employ an expert who will also be employed, if the bills stated by the Contractor show inaccuracies frequently indicating that the Contractor is not capable of taking the required measurements and producing a proper bill. The Contractor (or the expert) will make the measurements on the basis of the drawings. The billing procedure and formats shall be as approved by the ARCHITECT.

47 Assignment or Sub-Letting:

The Contractor shall not assign or sub-let any portion of the work, except as expressly provided elsewhere in this Contract.

48 Certificates and Payments:

a) Certificates and Payments:

i) The Contractor shall submit to the ARCHITECT along with statements and voucher and documents etc. as directed and signed by the Contractor showing the quantities and value of the materials, equipment etc. ordered, work done on the site and of the stock of equipment and unused materials on the site intended to form part of the permanent work or such other items as directed.

ii) The rates of prices in such statements shall be in accordance with stipulations in the contract.

iii) If any rates or prices in the said contract are, in the opinion of the ARCHITECT, not applicable to some or any part of the work executed or materials supplied and the ARCHITECT has not fixed a rate or price at the time when such statement is prepared then temporary/provisional rates or prices shall be assigned by the Architect Representative.

iv) Neither the temporary rates or prices assigned under sub- clause (iii) of this clause nor the quantities mentioned in the statements submitted under sub-clause (i) of this clause shall be binding on the Employer or on the Contractor.

v) The Contractor shall when required by the ARCHITECT furnish all proper documents vouchers, returns, payment details etc. as to values to assist the ARCHITECT in the preparation of certificate.

b) Interim Payment:

The Contractor will be paid interim payment on the certificate of the Architect contract value of the Permanent Works executed up to date together with such amount (if any) that the ARCHITECT may consider proper on account of materials delivered by the Contractor on the site and in addition such amount that the ARCHITECT may consider fair and reasonable for any Temporary Works subject to a retention of the percentage named in the Contract until the amount retained shall reach the "Limit of Retention Money" named in the Contract (hereinafter called "the retention money") after which time no further deduction of retention will be made. The issue of interim payment certificate by the ARCHITECT/ Architect for the value of work done and period of honouring such Certificates by the Employer, after ascertainment if required, shall be as indicated in special conditions of Contract hereto.

c) Final Bill:

When the Architect has granted a certificate or certificates of completion for the whole of the works under clause 38 hereof and when the ARCHITECT has ascertained (excluding unsettled or disputed claims of the Contract) the final sum (that is to say the gross payment for the completion of the whole of the works) due to the Contractor, the ARCHITECT shall after allowing for the amount of all previous certificate and after determining and allowing for any sum due to the Employer from the Contractor for delay and after allowing for all other payments due from the Contractor to such a sum out of the balance so calculated as remaining due to the Contractor as will leave to be retained by the Employer a sum equal to retention money for defects liability period. The issue of Final payment certificate by the ARCHITECT endorsed by the Architect for the value of work done and period of honouring such certificates by the Employer, after ascertainment and making deductions on reasonable grounds, if required, shall be as indicated in special condition of Contract hereto.

As soon as possible after the Certificate or Certificates of completion for the whole of the works have been issued, the Contractor shall furnish a final account for the works in the form and manner prescribed by the ARCHITECT.

d) Payment after Defects Liability Period:

The said retention money retained under sub-clause (c) of this clause and the amount if and by which the final sum exceeds the final sum ascertained under the said sub-clause (c) will not be paid by the Employer until after the expiration of defects liability period and (subject to the deduction of such sums if any as the ARCHITECT shall determine to be due from the Contractor to the Employer) and CTE of CVC compliance only upon the ARCHITECT/ Employer being satisfied that all the Contractor's obligations under the Contract have been satisfactorily performed.

e) Time of Payment:

Payment upon each of the Project Architects' Certificates shall be made by the Employer within the specified time as mentioned in Appendix to Form of Offer – Annexure-I of the Contract after ascertaining and making necessary corrections/deductions, if required, on reasonable grounds.

f) Correction/ Withholding of Certificates:

The ARCHITECT/ Architect may by any certificate make any correction or modification in any previous certificate, which shall have been issued and shall have power to withhold approval of any certificate if the works of any part thereof are not being carried out to satisfaction. The Employer retains the right to correct/ deduct the payment/s on reasonable grounds/terms of the contract from the certificates issued by the ARCHITECT/ Architects.

49 Remedies and Powers:

a) <u>Default of Contractor</u>:

If the Contractor shall become Bankrupt, or an order being passed against the contractor/ their property appointing a Court Receiver or shall present his/ their petition in bankruptcy, or shall agree to carry out the Contract under a committee of inspection of his/ their creditors or, being a corporation, shall go into 10 (other than a voluntary liquidation for the purposes of amalgamation or reconstruction), if the contractor shall assign the Contract, without the consent in writing of the Employer first obtained, or shall have an execution levied on his/their goods, or if the ARCHITECT shall certify in writing to the Employer that in his/their opinion the Contractor :-

i) Has abandoned the Contract, or

ii) Without reasonable excuse has failed to commence the works or has suspended the progress of the works for twenty eight days after receiving from the Architect/ Employer written notice to proceed, or Has failed to remove materials from the site or to pull down and replace work for twenty eight days after receiving from the Architect written notice that the said materials or work had been condemned and rejected by the Architect under these conditions, or

iii) Despite previous warnings by the Project Architect/ Employer in writing, is not executing the works in accordance with the Contract, or

iv) Is persistently or flagrantly neglecting to carry out his/ their obligations under the Contract, or has, to the detriment of good workmanship, or in defiance of the Architect instructions to the contrary, sub-let any part of the contract then the Employer may, after giving fourteen days' notice in writing to the Contractor, enter upon the site , and the works and expel the Contractor there from without thereby avoiding the contract, or releasing the Contractor from any of his/ their obligations or liabilities under the Contract, or affecting the rights and powers conferred on the Employer or the Architect by the Contract, and may himself/ themselves complete the works or may employ any other Contractor to complete the works. The Employer or Contractor may use for such completion so much of the, temporary works and materials, which have been deemed to be reserved exclusively for the execution of the works, under the provisions of the contract, as he or they may think proper, and the Employer may, at any time, sell any of the said constructional plant, temporary works and unused materials and apply the proceeds of sale in or towards

the satisfaction of any sums due or which may become due to him/them from the Contractor under the Contract.

b) Valuation at Date of Forfeiture:

The ARCHITECT shall, as soon as may be practicable after any such entry and expulsion by the Employer, fix and determine expiate, or after reference to the parties, or after such investigation or enquiries as he may think fit to make or institute, and shall certify that amount, if any, had at the time of such entry and expulsion been reasonably earned by or would reasonably accrue to the Contractor in respect of work then actually done by him/ them under the Contract and the value of any of the said unused or partially used materials, any Contractual Plant and any temporary works.

c) Payment after Forfeiture:

If the Employer shall enter and expel the Contractor under this Clause, he/they shall not be liable to pay to the Contractor any money on account of the Contract until the expiration of the Defects Liability Period and thereafter until the costs of execution and maintenance, damages for delay in completion, if any, and all other expenses incurred by the Employer have been ascertained and the amount thereof certified by the ARCHITECT/ Architect. The Contractor shall then be entitled to receive only such sum or sums, if any, as the Architect may certify would have been payable to him/ them upon due completion by him/them after deducting the said amount, if such amount shall exceed the sum which would have been payable to the Contractor on due completion by him/them, then the Contractor shall, upon demand, pay to the Employer the amount of such excess and it shall be deemed a debt due by the Contractor to the Employer and shall be recoverable accordingly.

50 Urgent Repairs:

If, by reason of any accident of failure, or other event occurring or connection with the works, or any part thereof, either during the execution of the works, or during the DLP, any remedial or other work or repair shall in the opinion of the ARCHITECT, be urgently necessary for the safety of the works and the Contractor is unable or Unwilling at once to do such work or repair, the Employer may employ and pay other Persons to carry out such work or repair as the ARCHITECT/ Architect may consider necessary. If the work of repair so done by the Employer is the work which in the opinion of the Project Architect, the Contractor was liable to do at his/their own expense under the Contract, all expenses incurred by the Employer in so doing shall be recoverable from the Contractor by the Employer, or may be deducted by the Employer from any monies due or which may become due to the Contractor. Provided always that the ARCHITECT as the case may be, shall as soon after the occurrence of any such emergency as may be reasonably practicable notify the Contractor thereof in writing.

51 Matters to be finally Determined by the Architect: -

The Architect decision, opinion, direction certificate (except for payment) with respect to all or any of the matters under Clauses hereof (which matters are hereinafter referred to as excepted matter) shall be only on Architect scrutiny and recommendations to the Bank and shall be final and conclusive and binding on the parties hereto and shall be without appeal: -

Clause 5 - Architect interpretation of drawings and specifications

Clause 15 - Work to be to the satisfaction of the Architect.

Clause 28 - Material and workmanship

Clause 30(a) -Removal of improper work and materials.

Clause 35 – except 35(e)-delays and extension of time of completion

Clause 40 – Alterations, additions and omissions

Any other decision, opinion, direction, certificate or valuation of the Architect/Bank to give any of the same shall be subject to the right of arbitration.

52 Settlements of Disputes and Arbitration:

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

i) If the contractor considers that he is entitled to any extra payment or compensation in respect of the works over and above the amounts admitted as payable by the Architect or in case the contractor wants to dispute the validity of any deductions or recoveries made or proposed to be made from the contract or raise any dispute, the contractor shall forthwith give notice in writing of his/ their claim, or dispute to the Assistant General Manager, Bank of Baroda, Noida Region, New-Delhi Zone and endorse a copy of the same to the Architect, within 30 days from the date of disallowance thereof or the date of deduction or recovery. the said notice shall give full particulars of the claim, grounds on which it is based and detailed calculations of the amount claimed and the contractor shall not be entitled to raise any claim nor shall the Bank be in any way liable in respect of any claim by the contractor unless notice of such claim shall have been given by the contractor to the Assistant General Manager, Bank of Baroda, Noida Region, New-Delhi Zone in the manner and within the time as aforesaid. The contractor shall be deemed to have waived and extinguished all his/ their rights in respect of any claim not notified to the Assistant General Manager, Bank of Baroda, Noida Region, New-Delhi Zone in writing in the manner and within the time as aforesaid.

ii) Assistant General Manager, Bank of Baroda, Noida Region, New-Delhi Zone shall give his/ their decision in writing on the claims notified by the contractor. The contractor may within 30 days of the receipt of the decision of Assistant General Manager, Bank of Baroda, Noida Region, New-Delhi Zone submit his/ their claims to the conciliating authority namely the Assistant General Manager, Bank of Baroda, Noida Region, New-Delhi Zone for conciliation along with all details and copies of correspondence exchanged between him/them and the Assistant General Manager, Bank of Baroda, Noida Region, New-Delhi Zone.

iii) If the conciliation proceedings are terminated without settlement of the disputes, the contractor shall, within a period of 30 days of termination thereof shall give a notice to the concerned Assistant General Manager, Bank of Baroda, Noida Region, New-Delhi Zone

for appointment of an Arbitrator to adjudicate the notified claims failing which the claims of the contractor shall be deemed to have been considered absolutely barred and waived.

iv) Except where the decision has become final, binding and conclusive in terms of the contract, all disputes or differences arising out of the notified claims of the contractor as aforesaid and all claims of the Bank shall be referred for adjudication through arbitration by the sole Arbitrator appointed by the Assistant General Manager, Bank of Baroda, Noida Region, New-Delhi Zone. It will also be no objection to any such appointment that the Arbitrator so appointed is a Bank office and that he/they had to deal with matter to which the contract relates in the course of his/their duties as Bank officer. If the Arbitrator so appointed is unable or unwilling to act or resigns his/their appointment or vacates his/their office due to any reason whatsoever another sole Arbitrator shall be appointed in the manner aforesaid by the said Assistant General Manager, Bank of Baroda, Noida Region, New-Delhi Zone**.** Such person shall be entitled to proceed with the reference from the stage be entitled to proceed with the reference from the stage at which it was left by his/their Predecessor. It is a term of this contract that the party invoking arbitration shall give a list of disputes with amounts claimed in respect of each dispute along with the notice for appointment of arbitrator. It is also a term of this contract that no person other than a person appointed by such Assistant General Manager, Bank of Baroda, Noida Region, New-Delhi Zone as aforesaid should act as Arbitrator.

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

It is also a term of the contract that if any fees are payable to the arbitrator these shall be paid equally by both the parties unless otherwise directed by the Arbitrator. However, no fees will be payable to the arbitrator if he/they is a Bank officer.

It is also a term of the contract that the arbitrator shall be deemed to have entered on the reference on the date he/they issues notice to both the parties calling them to submit their statement of claims and counter statement of claims. The venue of the arbitration shall be such place as may be fixed by the arbitrator in his/their sole discretion.

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

53. Fall Clause:

If the vendor reduces its price or sales or offers to sell similar system to any other organization during the validity period of the tender at a price lower than the agreed price for Bank of Baroda, then the agreed price will be automatically reduced for all subsequent supplies under the rate contract with effect from the date from which such offers were made to the outsiders and the rate contract will be amended accordingly.

SPECIAL CONDITIONS OF CONTRACT

1. **Location of Site:**

The site is located at **FIRST FLOOR, IRCON INTERNATIONAL LIMITED, PLOT NO.-40A, SECTOR-01, NOIDA, UTTAR PRADESH.**

Dimensions and Levels:

All dimensions and levels shown on the Drawings shall be verified by the Contractor on the site and he/ they will be held responsible for the accuracy and maintenance of all dimensions and levels. If any discrepancy is observed the same shall be brought to the knowledge of Project Architect immediately.

2. **Notice of Operation:**

a) The Contractor shall not carry out important operation without the consent in writing of the Project Architect.

b) If it is found that the two or more persons who are connected with one another either financially or as principal and agent or master and servant have tendered separately under different names, for the same work without disclosing their relation, the tender will be cancelled. Any contract if entered into, under such conditions, will also be cancelled at any time during its currency and earnest money will be forfeited.

3. **Programme of Works and Method of Execution:**

In pursuance of General Condition of Contract, the contractor on starting the work shall furnish to the ARCHITECT a program for carrying out the work stage by stage in the stipulated time. Bar chart etc. on individual work shall be maintained showing the progress regularly. The contractor shall submit to the ARCHITECT regular progress report stating the number of skilled and unskilled labours employed on the works, working hours done, place, type and quality/quantity of work done during the period

4. **Assistance for Employer/ Project Architect:**

The Contractor shall provide for the Employer/ Architect at all times during the Contract including Defects Liability Period, all such men as he/ they may require assisting him/ them in carrying out or checking any measurements, levels, setting out or measuring up of work. The Contractor is also to provide ladders, gangways, etc., and the necessary attendance to move and adopt as directed for inspection or measurement of the works by them.

5. **Work Records**

The Contractor shall maintain full and accurate records of the dimensions and positions of all new work and any other information necessary for the ARCHITECT to be able to prepare complete drawings recording details of the works as constructed. The same may be handed over to the Employer through ARCHITECT as and when required.

6. **Safety of adjacent Structures of Works:**

a) The Contractor shall provide and erect to the approval of the ARCHITECT such supports as may be required to protect efficiently all structures or works which may be endangered by the execution of the works or otherwise take such permanent measures as may be required

by the ARCHITECT to protect the structures or Works. The Contractor will be allocated an area for his/ their plant, stores, and compound workshop and site offices within the site.

b) Work at Night:

If the contractor is required to work at night and/or on Sundays and holidays in order to complete the work within the time schedule the contractor shall provide and maintain at his/their own cost sufficient lights to enable the work to proceed satisfactorily without danger. Approaches to the site also shall be sufficiently lighted by the contractor. No extra payments will be made for night work. Prior intimation and approval should be taken from Employer through Architects/ ARCHITECT in this regard. Any permission etc., from local statutory bodies shall be obtained as applicable at his/their own risk & cost.

c) Reporting of accidents to labour:

The contractor shall be responsible for the safety of persons employed by him/ them on the works and shall report accidents to any of them whenever and wherever occurring on the works, to the Project Architect/ employer who shall make every arrangement to render all possible assistance. This shall be without prejudice to the responsibility of the contractor under the insurance clause of the general conditions of contract.

7. Requisition of Materials:

The Bills of Quantities shall not be used, as a basis for quantities of materials and the Contractor is entirely responsible for assessing the quantities of materials to be ordered. The employer is not bound to supply any materials and EMPLOYER may reset the requisition of materials.

8. Power, Water & Other facilities:

The Contractor shall be responsible to provide within the scope of work all facilities necessary for performance of the work including (but not limited to) water, power, transportation, Labour, tools, and testing equipment and machinery and land at or about the job site (s) for the Contractor's field offices, god owns, Workshops and residential accommodation for Contractor's staff.

The EMPLOYER does not warranty or undertake the provision of any facility aforesaid or otherwise whatever to the Contractor, or assistance in obtaining/procuring the same or other assistance whatever for or in the performance or testing of the work and the Contractor shall not imply by conduct, expression or assurance or by any other means, any promise or obligations on the part of the EMPLOYER contrary to the provision hereof and any such promise or obligation understood by the Contractor shall not be binding upon the EMPLOYER.

Any assistance which the EMPLOYER renders to the Contractor in terms hereof or otherwise relative to the work by provision of any facility, water, power etc. as above shall not for any cause afford a basis or defense to the Contractor for any of his/their obligations under the contract, nor ground for extension of time for completion.

9. Procurement of materials:

a) The Contractor shall procure all materials by his/ their efforts and at his/their own cost and shall be new. The Contractor shall not remove any material from the site without a written authority of the ARCHITECT on completion of the works. The contractor shall

obtain the instructions of the controlling Authorities as to how the surplus materials if any, are to be disposed of.

b) Storage shed:

The Contractor shall at his/their own cost erect and maintain a storage shed on the site having water tight walls and roof for storing his/their material.

10. Temporary Services:

The Contractor shall provide and maintain all temporary services on or about the site including providing required for the execution of the works and shall remove them on completion as decided by Project Architect.

11. Unauthorized Persons:

No unauthorized persons are to be allowed on the site. The Contractor shall instruct all such persons to keep out and shall take steps to prevent trespassing.

12. Keeping Site Clean and clear:

During the progress of the works and when directed by the Project Architect the Contractor shall keep the site clear of all rubbish and debris including that which may be deposited on the site by any sub-Contractor/s until the date of issue of certificate of Completion. The cost of keeping the site clean shall be deemed to have been included for in the rates.

On completion of the works, the Contractor shall at his/their own expense clear away and remove from the site not later than 7 days from the date of completion of works all constructional plant, surplus material, rubbish and temporary works of every kind as required by local statutory authorities if applicable, and leave the entire site and works clean and in a workman like condition. In case of failure by the contractor, the employer under the advice of Project Architect will have the right to get the site cleared at the risk and cost of the contractor to the satisfaction of the Project Architect/Employer.

13. Office Accommodation and store for Contractor on the site:

a. The Contractor shall provide for all necessary storage on the site in a specified area for their materials to avoid like to deterioration by exposure to sun or rain or otherwise. All such stores shall be cleared away and the ground left in good and proper order on completion of this contract; unless otherwise expressly mentioned herein.

b. All materials which are stored on the site. Shall be stacked in such a manner as to facilitate rapid and easy checking of quantities of such materials.

14. Lighting for Works:

The Contractor shall at all times provide approved lighting as required for the proper execution and supervision of the works at his/their own cost.

15. Labour Hutments:

The contractor shall not be allowed to put up any hutments/ temporary structures for accommodating his/ their labour/ staff on site. He/ they shall be required to make his/ their own arrangement elsewhere at his/their own cost. However, if local authorities so permit and

subject to the Contractor arranging for such permission, some space at site which will not come in the way of the permanent construction, temporary construction facilities and offices may be provided to the Contractor at the discretion of the Employer for purely temporary bachelor accommodation or essential/core staff engaged on Emergency or essential services round the clock like security, firefighting.

16. Works Diary:

The ARCHITECT shall keep a diary/Register on the site in which all his/their remarks, instructions, decisions and the essential details, of the work shall be recorded. The Contractor shall assist in keeping the diary by supplying daily information on the works as required by Employer/Project Architect.

17. Progress Report:

The Contractor shall submit regular progress reports to the ARCHITECT in a form as required by him/ them which shall also include progress photographs of the works.

In addition, the Contractor/s shall maintain site records/registers etc. as required and directed by the ARCHITECT/ Employer.

18. PHOTOGRAPHS OF WORK CARRIED OUT:

The contractor shall supply at his/ their own cost a reasonable number of 8” x 4” size card size coloured photographs (3 sets) of the works carried out with each interim Bill as per the instructions of the Architect/ ARCHITECT .In the event of any dispute or termination of contract either by the employer or the contractor as provided in the document elsewhere and the contractor shall arrange to obtain photographs of the works completed upon the date of such termination of the contract.

19. Site Meetings:

Progress and quality evaluation meetings will be held at the site every week. The Contractor/s’ senior representative-in-charge, officials of the project along with his/their site-in-charge and other staff are required to participate in these meetings and ensure all follow up actions.

20. Contractor to Verify Site Measurements:

a) The Contractor shall check and verify all site measurements whenever requested by other specialists, Contractor/s or by nominated or other sub-contractor to enable them to prepare their own shop drawings and pass on the information with sufficient promptness, as will not in any way delay the works. A copy of all such information passed on shall be given to the ARCHITECT.

b) Measurement to be recorded before work is covered up.

c) The contractor shall take joint measurements with the Architect representative before covering up or otherwise placing beyond the reach of measurement any item of work. Should the contractor neglect to do so, the same will be uncovered at the contractor’s expense or in default thereof, and no payment or allowance shall be made for such work or the materials with which the same was executed. No claim for interim bill payment will be entertained unless the bill is accompanied with detailed measurements.

d) Typographic or clerical errors

The Architect clarifications regarding partially omitted particulars or typographical or clerical errors shall be final and binding on the Contractor.

21. Items not covered

a) If any item of work is ordered to execute which is not covered in the contract it will be paid for through deriving from analogous item of the contract and if such item is not available then as per valuation that would be derived on the basis of the actual cost of the materials and labour incurred in carrying out the said work, as specified and directed by Employer/ARCHITECT and as determined by the Employer, plus 15% (Fifteen percent) to allow for Contractor's profit and overhead and other related costs.

b) Any work not carried out as per drawings issued for Execution and Specification and/or instructions or is defective in the opinion of the ARCHITECT shall be demolished and replaced by new work by the contractor to the satisfaction of the Architect and/or CONSULTING Engineer. If the Architect may allow such work to remain the contractor shall accept a reduction in the rate quoted by him/them and/or reduction in the total cost of such works as will be assessed and decided upon by the Architect. Employer's decision on recommendation of ARCHITECT/ Architect shall be final and binding to the contractor.

c) **Substitution/ Variation/ Deviations:** Should the contractor desire to substitute any materials and workmanship, He/they must obtain the approval of the Employer/ Architects in writing for any such substitution well in advance. Materials designated in this specification indefinitely by such term as "Equal" or "Other approved" etc. specific approval of the Employer / Architects has to be obtained in writing.

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

The tender drawings are indicative drawings showing the electrical points and light fittings. Same may undergo some changes during execution as per the functional requirement for which no additional payment shall be made. The payment shall be made as per the actual quantity of points provided.

22. Contract Rates:

The Contract prices and variation rates shall remain firm till final completion of the work and shall be deemed to include all labour, materials, use of plant tools, temporary works and buildings, etc. insurance, sales tax, works contract tax, VAT, local taxes and duties, royalties, service tax, establishment charges, overhead, profit, supervision, transport, loading, unloading, installing, sampling, testing, shop drawing and other charges and every expense incurred in the proper and due execution, completion (including commissioning) and maintenance of the works, and shall be to the full satisfaction and discharge of every Obligation and imposed upon him/them by the contract and nothing extra shall be payable unless so specifically stated in this contract. GST shall be paid by the bank extra on submission of GST invoice by the contractor.

23. Time of Completion & Progress of Works:

The whole of the work as stipulated shall be completed within the stipulated time period starting from the date of the written order by the Employer to commence the work. The work shall generally be preceded in accordance to agreed program of works. Time is the essence of the contract and the works must be completed within the time schedule as indicated in the appendix to the Tender. Any tenderer which disagrees with time schedule of construction and stipulates a longer period is liable to be rejected.

The Contractor shall take all special steps he/they thinks might be necessary to complete the work in the stipulated time including any special plant, equipment, and other materials, Labour etc. and give detailed and specific indication of the same in his/their tender submission and include the cost thereof in his/their quoted rates.

24. Statutory Obligations, Notice, Fees and Charges:
(i)

a) The Contractor shall comply with and give all notices required by any act, any instrument rule or order made under any Act, or of any regulation or by law of Municipal Corporation and other any local body or authority or of any agency which has any jurisdiction with regard to the works or with whose systems the same we are or will be connected (all requirements to be Complied with being referred to in these Conditions as the statutory requirements).

b) If the Contractor finds any divergence between the statutory requirements and all or any of the contract documents or any variation instruction issued in accordance with these Conditions, he/ they shall immediately give to the ARCHITECT a written notice specifying the divergence.

c) If the Contractor gives notice under paragraph (b) of this sub-clause or if Employer/ Architect shall otherwise discover or receive notice of a Divergence between the statutory requirements and all or any of the contract documents or any variation instructions issued in accordance with these conditions, the Employer shall within 7 days of discovery or on receipt of a notice issue instructions in relation to the divergence.

d) If in any emergency compliance with paragraph (a) of this sub-clause requires the Contractor to supply materials or execute work before receiving instruction the Contractor shall supply such limited materials and execute such limited work as are reasonably necessary to secure the statutory requirements. The Contractor shall forthwith inform the Employer/ Project Architect of the emergency and of the steps that he is taking under this paragraph of these conditions.

e) Work executed and materials supplied by the Contractor under sub-paragraph (i) of this paragraph shall be deemed to have been executed and supplied pursuant to Employer instruction in accordance with these Conditions provided that the emergency arose because of a divergence between the statutory requirements and all or any of the documents referred to in these Conditions or any variations, instructions issued in accordance with these Conditions.

f) Provided that the contractor complies with paragraph (b) of this sub-clause, the Contractor shall not be liable to the Employer under this Contract if the works do not comply with the statutory requirements from the Contractor having carried out work in accordance with the documents referred to these Conditions.

(ii) The Contractor shall pay and indemnify the Employer against liability in respect of any

fees or charges (including any rates or taxes) legally demandable under any Act, any instrument rule or order made under any Act, law or any regulation or below of any local authority or of any statutory or agency in respect of works.

25. Materials and Workmanship to be best of the respective kind.

I. All materials, goods and workmanship shall be new and as far as procurable be the best of the respective kinds and standards described in the Contract.

II. The Contractor shall upon being requested, shall submit the documentation to prove that the materials and goods comply with sub clause (1) of this condition.

III. The Employer may issue instructions in regard to the removal from the site of any work, materials or goods which are not in accordance with this Contract. In case the Contractor fails to do so in accordance with the time schedule laid down by the Employer, then the Employer will be at liberty to have these material moved out at the expense of Contractor. Ruling of Employer in this regard will be final and binding under the advice of the ARCHITECT.

26. Samples:

a) Apart from adhering to any special provision made in the specifications regarding submission of samples, the Contractor shall within reasonable time after receipt of Letter of Intent, provide to the Employer samples along with the detailed literature of all materials he/ they propose to use in this contract irrespective of the fact that a specific make/material might have been stipulated. If certain items proposed to be used are of such nature that samples cannot be presented or prepared at the site, detailed literature/ test certificate of the same shall be provided instead. Before submitting the samples/ literature the Contractor shall satisfy himself/ themselves that the material/ equipment for which he/ they is submitting the samples/ literature meet with the requirement of the specification. The Employer/ ARCHITECT shall check the samples and give his/their comments and/or approval to the same. Only when the samples are approved in writing by Employer he/ they shall proceed with the procurement and installation of the same. The approved samples/brochures/literature shall be signed by the Architect for identification and shall be kept on record at Employer's office until the completion and acceptance of the work and shall be available at the site for inspection/comparison at any time. The Contractor shall keep with him/them a duplicate of such approval enable him/ them to process the matter. For items of work where the samples are to be made at the site, the same procedure shall be followed.

The Architect shall give his /their comments/ approval to the samples at his/their earliest convenience. Any delay that might occur in approving of the samples for reasons of its not meeting with the specifications shall be to the account of the Contractor.

b) Testing of work and materials:

The Contractor shall if required by the ARCHITECT, arrange to test materials/proportions of the works at his/their own cost in order to prove their soundness and quality. If after any such test the work is found, in the opinion of the ARCHITECT, to be defective or unsound, the contractor shall pull down and re-erect the same at his/ their own cost.

c) Treasure trove:

Should any treasure, fossils, minerals, or works of art of antiquarian interest be found during excavation or while carrying out works, the same shall be the property of the employer. The

contractor shall give immediate notice to the Architect of any such discovery and shall hand over any such treasure to the employer on demand.

27. Dismissal of Undesirable Persons:

The Employer may issue instructions requiring the dismissal from the works of any person employed thereon without assigning any reason. The decision of Employer in this regard will be final and binding.

28. Access to the Works

a. The Employer/ Employer's representative, Architect/ Architect Representative, ARCHITECT/ representatives and their nominees shall at all reasonable times have access to the works and to the workshops or other places of the Contractor or his/ their sub-Contractor/s/ suppliers where work is being carried out for the Contract. When work is to be so carried out in workshops or other places of a sub-contractor the Contractor shall by a term in the sub-contract incorporate a similar right of access to those workshops or places for the Employer and their nominees/representatives and shall do all things reasonably necessary to make such right effective.

b. Facilities to other Contractor/s:

The Contractor shall give full facilities and cooperation to all other Contractor/s working on site. i.e. civil, plumbing, and other services as directed by the ARCHITECT and shall arrange his/their program of work so as not to hinder the progress of other works. The decision of the ARCHITECT on any point of dispute between the various Contractor/s on this count shall be final and binding on all parties concerned.

29. Employer/ Architect Instruction:

The Contractor shall forthwith comply with all instructions issued to him/them by the Employer/Project Architect in regard to any matter in respect of which the Employer is expressly empowered by these Conditions to issue instructions. If within Five days after receipt of a written notice requiring compliance with an instruction, the Contractor does not comply therewith, then the Employer may Employ and pay other persons to execute any work whatsoever which may be necessary to give effect to such instruction and all cost incurred in connection with such action shall be recoverable from the Contractor by the Employer as a debt or may be deducted by the Employer from any monies due or to become due to the Contractor under this Contract.

All instructions issued by the Employer/Project Architect shall be issued in writing. However any instruction issued orally shall be given immediate effect and shall be confirmed in writing within 7 days.

30. Liquidated Damages:

If the Contractor fails to complete the works within the stipulated period of completion mentioned herein above, the Contractor shall be liable and shall pay to the Employer as pre-estimated damages at the rate indicated in the APPENDIX TO FORM OF TENDER Annexure-I.

31. Termination:

In the event of the Contractor failing to complete the works within the stipulated period of completion as mentioned hereof, the Employer may, notwithstanding anything contained to the contrary in the contract, terminate at any time the contract without being liable in any manner whatsoever to the Contractor, by giving 30 days' notice in writing to the Contractor and proceed to complete or get completed the works which have remained incomplete/not done at the time of such termination at the risk and cost of the Contractor.

32. Contract Price:

The contract prices as indicated in accepted tender value and as detailed in priced bill of quantities shall govern this aspect of the contract.

33. Preparation of building works for occupation and use on completion:

On completion of the work, the contractor shall inform the ARCHITECT in writing that he has finished the work and it is ready for the inspection. He/ they will leave the entire possession of site neat and clean and ready and to the satisfaction of the ARCHITECT/ Employer.

34. Insurance against third party risks:

On commencement of the work, the contractor shall take out and submit to the Employers a suitable insurance policy/ies, the limits of liability of which shall be as follows:

a) Contractor's all risk - 'CAR' policy for the value of contract price and necessary workmen compensation policy valid for the duration of work till the end of DLP.

b) `25 Lakhs (Rupees twenty five lacs only) in respect of any one accident or series of accidents arising out of one event. Contractor shall take out third party insurance for 3 no. of such accidents.

c) `10,00,000/- event / person (Rupees ten Lacs only) in respect of any person.

d) Contractor/s liability & Insurance summary as per Annexure N.

35. All the work shall be carried out as per the detailed drawings and Architect instruction and in stages as desired by the Architect.

******

CONTRACTOR/S LABOUR RULES – REGULATION - (ANNEXURE- 6)

1. **Labour Rules:**

The Contractor shall at all times during the continuance of the Contract, comply fully with all existing Acts, regulations and bylaws including all statutory amendments and re-enactment of State or Central Government and other local authorities and any other enactments, notifications and acts that may be passed in future either by the State or the Central Government or local authority, including Indian Workmen's Compensation Act. Contract Labour (Regulation and Abolition) Act 1970 and Equal Remuneration Act 1976, Factories Act, Minimum Wages Act, Provident Fund Regulations, Employees Provident Fund Act, schemes made under the same Act and also Labour Regulations as revised Health and Sanitary Arrangement for Workmen, Insurance and other benefits and shall keep Employer indemnified in case any action is commenced by competent authorities for contravention by the Contractor. If the Employer is caused to pay or reimburse, such amounts as may be necessary to cause or observe, or for non-observance of the provisions stipulated henceforth on the part of the Contractor, the Architect/Employer shall have the right to deduct from any money due to the Contractor, his/their amount of Performance Security or recover from the Contractor personally any sum required or estimated to be required for making good the loss or damage suffered by the Employer, responsibility in connection with the employees of the contractor, who shall, in no case, be treated as the employees of the Employer at any point of time.

2. **Fair Wages:**

   i. The Contractor shall pay the labourers engaged by him/them on the work not less than fair wage which expression shall mean, whether for time of piecework, the respective rates of wages fixed by the local authorities as fair wages for the area payable to the different categories of labourers or those notified under the Minimum Wages Act for corresponding employees of the Employer, whichever may be higher.

   ii. The Contractor shall, notwithstanding the provisions of a contract to the contrary, cause to be paid a fair wage to labourers indirectly engaged on the Works, including any labour engaged by sub/Contractor/s in connection with the said works as if the labourers had been directly employed by him/them.

3. **Notices:**

   i. The Contractor shall before he/they commences the work, display, and correctly maintain in a clean and legible condition at a conspicuous place on the Site, notices in English and in a language spoken by the majority of the workers, stating therein the rate of wages which have been fixed as fair wages and the hours of work for which such wages are earned and send a copy of such notices to the Architect and Employer..

4. **Record of wages etc.**

The contractor shall maintain records of wages and other remuneration paid to his/their employees in such form as may be convenient and as per the requirements of the ARCHITECT/ Employer/ Architect and the Conciliation Officer (central), Ministry of Labour Government of India, or such other authorized person

appointed by the central or State Government and the same shall include the following particulars of each worker :

i. Name, worker's number and grade;

ii. Rate of daily or monthly wage;

iii. Nature of work on which employed;

iv. Total number of days worked during each wage period;

v. Total, amount payable for the work during each wage period; All deductions made from the wage with details in each case of the ground for which the deduction is made;

vi. Wage actually paid for each wage period.

vii. The Contractor shall provide a Wage Slip for each worker, employed on the Works.

viii. The Wage records and Wage Slips shall be preserved for at least 12 months after the last entry for Inspection of Wage Records.

ix. The Contractor shall allow inspection of the aforesaid Wage Records and Wage Slips to the ARCHITECT and to any of his/their workers or to his/their agent at a convenient time and place after due notice is received, or to the Employer or any other person authorized by him/them on his/their behalf.

x. The Employer/Architect or any other person authorized by them on their behalf shall have power to make enquiries with a view to ascertaining and enforcing due and proper observance of the Fair Wages Clause. He/they shall also have the Power to investigate into any complaint regarding any default made by the Contractor or sub-contractor in regard to such provision.

xi. No party shall be represented by a legal practitioner in any investigation or inquiry under this Clause, unless ARCHITECT/Employer agrees otherwise.

5. Safety Provisions:

The Contractor shall comply with all the precautions as required for the safety of the workmen by the I.L.O. Convention No. 62 as far as they are applicable to the Contract. The Contractor shall provide all necessary safety appliances, gears like goggles, helmets, masks, etc. to the workmen and the staff.

A. <u>SCAFFOLDS</u>

I. Suitable scaffolds shall be provided for workmen for all works that cannot safely be done from the ground, or from solid construction except in the case of short duration work which can be done safely from ladders. When a ladder is used, it shall be of rigid construction made either of good quality of wood or steel. The steps shall have a minimum width of450 mm and a maximum rise of 300 mm. Suitable hand holds of good quality wood or steel shall be provided and the

II. Scaffolding or staging more than 4mtr. above the ground floor, swung or suspended from an overhead support or erected with stationary support shall have a guard rail

properly bolted, braced or otherwise secured, at least 1 m. above the floor or platform of such scaffolding or staging and extending along the entire length of he/they outside and ends thereof with only such openings as may be necessary for the delivery of materials. Such scaffolding or staging shall be so fastened as to prevent it from swaying from the building or structure.

III. Working platforms, gangways and stairways shall be so constructed that they do not sag unduly or unequally and if the height of the platform, gangway or stairway is more than 4 m. above ground level or floor level, they shall be closely boarded and shall have adequate width and be suitably fenced as described in (ii) above.

IV. Every opening in the floor of a building or in a working platform shall be provided with suitable means to prevent the fall of persons or materials by providing suitable fencing or railing whose minimum height shall be 1 Mtr.
Wherever there are open excavations in ground, they shall be fenced off by suitable railing and danger signals installed at night so as to prevent persons slipping into the excavations.

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

VI. A sketch of the ladders and scaffolds proposed to be used shall be prepared and approval of the 'ARCHITECT' obtained prior to construction.

OTHER SAFETY MEASURES

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

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

EXCAVATION & TRENCHING

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

X. The contractor shall take all measures on the site of the work to protect the public from accidents and shall be bound to bear the expenses of defence of every suit, action or other proceedings at law that may be brought by any persons for injury sustained owing to neglect of the above precautions and to pay any such persons or which may with the consent of the contractor, be paid to compromise any claim by any such person.

DEMOLITION

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

a) All roads and open areas adjacent to the work site shall either be closed or suitably protected.

b) No electric cable or apparatus which is liable to be a source of danger over a cable or apparatus used by the operator shall remain electrically charged.
c) All practical steps shall be taken to prevent danger to persons employed from the risk of fire or explosion or flooding. No floor, roof or other part of the building shall be so overloaded with debris or materials as to render it unsafe.

PERSONAL SAFETY EQUIPMENT'S

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

a) Workers employed on mixing asphaltic materials, cement and lime mortars shall be provided with protective footwear and protective goggles.
b) Those engaged in white washing and mixing or stacking of cement bags or any material which is injuries to the eyes shall be provided with protective goggles.
c) Those engaged in welding works shall be provided with welder's protective eyesight lids.
d) Stone breakers shall be provided with protective goggles and protective clothing and seated at sufficiently safe intervals.
e) When workers are employed in sewers and manholes, which are in use, the contractor shall ensure that the manhole covers are opened and are ventilated at least for an hour before the workers are allowed to get into manholes and the manholes so. Opened shall be cordoned off with suitable railing and provided with warning signals or boards to prevent accident to the public.
f) The contractor shall not employ men below the age of 18 years and women on the work of painting with products containing lead or any toxic material in any form. Wherever men above the age of 18 are employed on the work of such painting the following precautions should be taken:
g) No paint containing lead or lead products shall be used except in the form of paste or readymade paint. Paints like vinyl and epoxies having toxic fumes should be applied after following all precautions laid down by manufacturers.
i. Suitable face masks should be supplied for use by the workers when paint is applied in the form of spray or a surface having lead paint dry rubbed and scrapped.
ii. Overalls shall be supplied by the contractor to the workmen and adequate facilities shall be provided to enable the working painters to wash during the cessation of work.

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

HOISTING MACHINES (AIR CONDITIONING SYSTEM)

XIV. Use of machines and. tackle including their attachments anchorage and supports shall conform to the following standards or conditions:

1. These shall be of good mechanical constructions sound material and adequate strength and free from patent defect and shall be kept in good repair and in good working order.
2. Every rope used in hoisting or lowering materials or as means of suspension shall be of durable quality and adequate strength and free from patent defects.

3. Every crane driver or hoisting appliance operator shall be properly qualified and no person under the age of 21 years shall be in charge of any hoisting machine including any scaffolding winch or give signals to operator.

4. In case of every hoisting machine and of every chain ring hook, shackle shovel and pulley block used in hoisting or as means of suspension the safe working load shall be ascertained by adequate means. Every hoisting machine and all gear referred to above shall be plainly marked with the safe working load. In case of a hoisting machine having a variable safe working load, each safe working load and the. Conditions under which it is applicable shall be clearly indicated. No part of any machine or any gear referred to above in this paragraph shall be loaded beyond the safe working load except for the purpose of testing.

5. In case of departmental machines, the safe working load shall be notified by the site Engineer/ARCHITECT. As regards contractor's machines, the contractor shall notify the safe working load of the machine to the ARCHITECT whenever he/they brings any machinery to site of work and get it verified by the ARCHITECT concerned.

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

XVI. All scaffolds, ladders and other safety devices mentioned or described herein shall be maintained in safe condition and no scaffold, ladder or equipment shall be altered or removed while it is in use. Adequate washing facilities should be provided at or near places of work.

XVII. These safety provisions should be brought to the notice of all concerned by display on a notice board at a prominent place at work spot. The person responsible for compliance of the safety code shall be named therein by the contractor.

XVIII. To ensure effective enforcement of the rules and regulations relating to safety precautions the arrangements made by the contractor shall be open to inspection by the Labour Officer, Engineers of the Department or their representatives.

XIX. Notwithstanding the above clause from (i) to (xviii), there is nothing in these to exempt the contractor from the operations of any other Act or Rule in force in the Republic of India.

6. First Aid:

At every workplace, there shall be maintained in a readily accessible place first aid appliances including an adequate supply of sterilized dressings and sterilized cotton wool as prescribed in the Factory Rules of the State in which the work is carried on. The appliances shall be kept in good order and, in large workplaces; they shall be placed under the charge of a responsible person who shall be readily available during working hours.

At large workplace, where hospital facilities are not available within easy distance of the works, First Aid Posts shall be established and be run by a trained compounder. Where large workplaces are remotely situated and far away from regular hospitals, an indoor ward shall be provided with one bed for every 250 employees.

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

At large workplace, there shall be provided and maintained an ambulance room containing the prescribed equipment and in the charge of such medical and nursing staff as may be prescribed. For this purpose, the relevant provisions of the Factory Rules of the State Government of the area, where the work is carried on, may be taken as the prescribed standard.

7. Drinking Water:

In every workplace, there shall be provided and maintained at suitable places, easily accessible to Labour, a sufficient supply of water fit for drinking.

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

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

Regulation 6 - Payment of Wages

II. Wages due to every worker shall be paid to him/them direct. All wages should be paid in current coins or currency or in both.

III. Wages of every worker employed on the Contract shall be paid where the wage period is one week, within THREE days from the end of the Wage period, and in any other case before the expiry of the 7th day or 10th day from the end of the wage period according as the number of workers does not exceed 1,000 or exceeds 1,000.

NOTE: The term "Working Day" means a day on which the work on which the labour is employed is in progress.

Regulation 7 - Register of Workmen:

I. A register of workmen shall be maintained in the Form appended to the regulations and kept at the work site or as near to it as possible, and relevant particulars of every workman shall be entered therein within Three days of his/their employment.

Regulation 8 - Employment Card:

I. The Contractor shall issue an employment card in the Form appended to these regulations to each worker on the day of work or entry into his/their employment. If a worker already has any such card with him/them issued by the previous employer, the Contractor shall merely endorse that Employment Card with relevant entries. On termination of employment, the Employment Card shall again be endorsed by the Contractor and returned to the worker.

Regulations 9 - Register of Wages, etc.:

I. A Register of Wages cum Muster Roll in the Form appended to these regulations shall be maintained and kept at the Work Site or as near to it as possible.

II. A wage slip in the form appended to these regulations shall be issued to every worker employed by the Contractor at least a day prior to disbursement of wages.

Note- The contractor shall reimburse / indemnify any expenses / penalties or like, to the Employer has to incur the same due to the failure / misdeeds / breach of contractor.

10. PROFORMA & ANNEXURES

ANNEXURE – A EMPLOYING CONTRACT LABOUR

ANNEXURE – B REGISTER OF CONTRACTOR/S

ANNEXURE – C NOTICE OF COMMENCEMENT /COMPLETION OF CONTRACT WORK

ANNEXURE – D MONTHLY PROGRESS REPORT

ANNEXURE – E RECEIPT OF MATERIALS AT SITE(MONTHLY)

ANNEXURE – F MEASUREMENT BOOK

ANNEXURE – G RUNNING A/C BILL

ANNEXURE – H SECURED ADVANCE

ANNEXURE – I R. A. BILL CERTIFICATE

ANNEXURE – J PROFORMA OF UNDERTAKING IN CONNECTION WITH PAYMENTSOF ADVANCE ON MATERIALS BROUGHT BY THE CONTRACTOR/S TO THE SITE

ANNEXURE – K CERTIFICATE OF PAYMENT BY ARCHITECT

ANNEXURE – L HINDRANCE REGISTER

ANNEXURE – M EXTENSION OF TIME LIMIT

ANNEXURE – N CONTRACTOR/S LIABILITY AND INSURANCE SUMMARY

ANNEXURE – A

PROFORMA OF APPLICATION FOR REGISTRATION OF ESTABLISHMENT EMPLOYING CONTRACT LABOUR

1. Name and location of the establishment
2. Postal address of the establishment.
3. Full Name and address of the principle Employer
4. Full name and address of the manager or the person responsible for the supervision and control of the establishment.
5. Nature of work carried on in the establishment
6. particulars of Contractor/s and contract Labour
    a. names and address of the Contractor/s
    b. nature of work in which contract Labour is employed or is to be employed
    c. Maximum number of contract Labour to be employed on any day through each contractor.
    d. Estimated date of commencement of each contract work under contractor.
    e. Estimated date of termination of employment of contract Labour under each contractor
7. Particulars of payment enclosed. (Name of the Bank, amount and date)

I hereby declare that the particulars given above are true to the best of my knowledge and belief.

Principal Employer

Seal and Stamp

10. PROFORMA & ANNEXURES

ANNEXURE - B

PROFORMA OF REGISTER OF CONTRACTOR/S

1. Name And Addresses of The Principal Employer _____
2. Name and address of the establishment _____

Sr. No.	Name and address of the contractor	Nature of work on contract	Location of contract work	Period From	Contract To	Maximum Number of workmen employed by the contractor

******

10. PROFORMA & ANNEXURES

ANNEXURE – C

PROFORMA OF NOTICE OF COMMENCEMENT/ COMPLETION OF CONTRACT WORK

1. Name and address of principal employer
2. No. and date of certificate of registration
3. I /we hereby intimate that the contract work _____ (Name of work) given to _____ (Name and address of the Contractor) having License No. _____ dated _____ has commenced/ has been completed with effect from _____(date)/ on _____(date).

Signature of the Principal

Employer

The AIR CONDITIONING SYSTEM Inspector,

_____

_____

_____

******

10. PROFORMA & ANNEXURES

ANNEXURE – D

PROFORMA OF MONTHLY PROGRESS REPORT

Name of work

Progress report for the month

Report No.

Sr. No.	Description	Details of location where works is done	Approximate quantity executed

Sr. No.	Description of work	Date of commencement	Due date of completion	Percentage progress achieved

******

10. PROFORMA & ANNEXURES

ANNEXURE-E

B. SECURITY EQUIPMENT WORK

RECEIPT OF MATERIALS AT SITE

Sr. No.	Description	Opening Balance	Receipt during month	Consumption during month	Closing balance	Total quantity received till date

*****

10. PROFORMA & ANNEXURES

ANNEXURE – F

MEASUREMENT BOOK

Item. No.	Description	Measurements No.			Quantity
		L	B	D/H	

Measurement Book shall be provided by the Employerthrough ARCHITECT. Suitable modification in Measurement book shall be carried out in consultation with Project Architect/ Bank

*****

10. PROFORMA & ANNEXURES

ANNEXURE – G

I – RUNNING A/C BILL

1. Name of Contractor / Agency
2. Name of work
3. Sr. No. of this bill
4. No. and date of previous bill
5. Reference to Agreement No.
6. Date of written order to commence
7. Date of completion as per agreement

Sr. No.	Item Description	Unit	Rate (Rs.)	As per Tender
1	2	3	4	5

Upto previous R/A. Bill		Upto date (Cumulative)		Present Bill		Remarks
Qty.	Amount (Rs.)	Qty.	Amount (Rs.)	Qty.	Amount (Rs.)	
6	7	8	9	10	11	12

Note: 1) if part rate is allowed for any item, it should be indicated with reasons for allowing such a rate

2) If adhoc payment is made, it should be mentioned specifically

Net values since
Previous bill

******

10. PROFORMA & ANNEXURES

ANNEXURE – H

II – ACCOUNT OF SECURED ADVANCE, IF ADMISSIBLE ON MATERIALS HELD AT SITE BY THE CONTRACTOR

No.	Item	Quantity	Unit	Amount	Remarks
1	2	3	4	5	6

Total value of material at site

Secured Advance @ _____% of the above value

CERTIFIED (i) that the materials mentioned above have actually been brought by the Contractor/s to the site of the work and no advance on any quantity of any of this item is outstanding on their security, (ii) that the materials are of imperishable nature and are all required by the Contractor/s for use in the work in connection with the items for which rates of finished work have been agreed upon.

Dated signature of
Site Engineer ARCHITECT
Preparing the bill

Designation _____

Dated signature of Bank's Architects

_____

(Name of the Architects)

_____
Dated signature of Contractor/s

*****

10. PROFORMA & ANNEXURES
ANNEXURE – I

R.A. BILL CERTIFICATE

The measurements on the basis of which the above entries for the running bill no _____ were made have been taken jointly on _____ and are recorded at pages _____ to _____ of measurement book No. _____

_____ _____

Signature and date of Contractor

Signature and date of Architect representative (seat)

The work recorded in the above mentioned measurements has been done at the site satisfactory as per tender drawings, conditions and specification.

Architect

Bank's Engineer

*****

10. PROFORMA & ANNEXURES

ANNEXURE – J

(on`100/- non judicial stamp paper)

PROFORMA OF UNDERTAKING IN CONNECTION WITH PAYMENTS OF ADVANCE ON MATERIALS BROUGHT BY THE CONTRACTOR/S TO THE SITE

The undertaking made this _____ day of _____ 2024_ between the Bank of Baroda _____and having its _____ office at (hereinafter called the Employer) of the one part and _____ (hereinafter called the Contractor/s of the other part).

The Employer and the Contractor/s have entered into an Agreement dated _____ hereinafter called as the said agreement and in terms of clause no. _____ of the conditions in the agreement, the Employer has agreed that the Contractor/s will be paid an advance of ___ % of the cost of non-perishable trade materials brought by the Contractor to the site for consumption in the works at the discretion of the Employer.

The Contractor/s have applied to the Employer that they be allowed advances on the security of materials absolutely belonging to them and brought by them to the site of work. The Employer has agreed to do so on the terms and hereinafter set out.

Now this Letter of Undertaking witnesses that in consideration of the said agreement and in consideration of the amount paid/ payable to the Contractor/s by the Employer and/or any further advances as may be made to the Contractor/s as aforesaid, the Contractor/s hereby agree with the Employer and undertake as under:

i) The amount advanced by the Employer to the Contractor/s as aforesaid and all or any further sum or sums advanced as aforesaid shall be employed by the Contractor/s in or towards expediting the execution of the said works and for no other purpose whatsoever.

ii) That the materials which have been offered to and accepted by the Employer as security are absolutely the Contractor/s own property and free from encumbrances of any kind and

the Contractor will not make any application for or receive a further advance on the security of materials which are not absolutely his/their own property and free from encumbrances of any kind and the Contractor/s indemnify the Employer against all claims to any materials in respect of which an advance has been made to them as aforesaid.

That the materials on the security of which any further advance or advances may hereafter be made as aforesaid (hereinafter called the said materials) shall be used by the Contractor/s solely in the execution of the said works in accordance with the directions of ARCHITECT of the Employer and accordance with the terms of the said agreement.

iii) That the Contractor/s shall take their own cost all the necessary and adequate arrangement for the proper watch, safe custody and protection against all risks of the site of the said works in the Contractor/s custody and on their own responsibility and shall at all times be open to inspection to the Employer's Engineers or any Officer authorized by the Employer. In the event of the materials or any part thereof being stolen, destroyed or damaged, the Contractor/s will further replace the same with other materials of like quality or repair and make good the same as required by the Employer.

iv) That the said materials shall not on any account be removed from the site of the said works except with the written permission of the ARCHITECT of Bank of Baroda.

v) That the advances made by the Employer shall be adjustable as far as possible towards the price payable to the Contractor/s for the above said works under the terms and the provisions of the said agreement provided that if any intermediate payments are made to the Contractor/s on account of work done, then on occasion of each such payment, the Employer will be at liberty to make a recovery from the Contractor/s bill for such payment by deducting there from the value of

the said materials then actually used in the construction and in respect of which recovery has not been made previously, the value for this purpose being determined in respect of each description of materials at the rates at which the amount of the advances made under these presents were calculated.

vi) That if the Contractor/s shall at any time make any default in the performances or observance in any respect of any of the terms and provisions of the said agreement or of these presents, the total amount of advance or advances that may still be owing to the Employer, shall immediately on the happening of such default be repayable by the Contractor/s to the Employer together with interest thereon at 12 % per annum from the date or respective dates of such advance or advances to the date of repayment and with all costs, charges, damages and expenses incurred by the Employer in or for the recovery thereof or the enforcement of this security or otherwise by reason of the default of the Contractor/s and the Contractor/s hereby covenant and agree with the Employer to repay and pay the same respectively to him/them accordingly.

vii) That the Contractor/s hereby charge all the said materials with the repayment to the Employer of the sum or sums advanced as aforesaid and all costs, charges, damages and expenses payable under these presents PROVIDED ALWAYS and it is hereby agreed and declared that notwithstanding anything in the said agreement and without prejudice to the

viii) powers contained therein if and whenever the covenant for payment and repayment hereinabove contained shall become enforceable and the money owing shall not be paid in accordance therewith, the Employer may at any time thereafter adopt all or any of the following courses as he/they may deem best:

a) Seize and utilize the said materials or any part thereof in the completion of the said works on behalf of the Contractor/s in accordance with the provisions in that behalf contained in the said agreement debiting the Contractor/s Account in this regard with the actual cost of effecting such completion and the amount due in respect of advances under these presents and crediting the Contractor/s Account with the value of work done as if he/they had carried it out in accordance with the said agreement and at the rates thereby provided. If the balance is against the Contractor/s, they are bound to pay the same to the Employer on demand.

b) Remove and sell by public auction the seized materials or any part thereof and out of the moneys arising from the sale, retain all the sums aforesaid repayable or payable to the Employer under these presents and pay over the surplus (if any) to the Contractor.

c) Deduct all or any part of the money owing out of the Security Deposits or any sum due to the Contractor under the said agreement.

ix) That except in the event of such default on the part of the Contractor/s as aforesaid, no interest shall be payable on the said advance.

x) That in the event on any conflict between the provisions of these presents and the said agreement, the provisions of these presents shall prevail and in the event of any dispute or difference arising over the construction of effect of these presents the settlement of which has not been herein before expressly provided for the same shall be referred to the **General Manager**, Facilities Management Department, Bank of Baroda whose decision shall be final and no appeal shall lie against his/their decision before any court, arbitrator or authority.

The provision of this Undertaking shall be deemed to be supplemental to the said agreement.

IN WITNESS WHEREOF the Contractor/s have set their hands to these presents the day and year first hereinabove written.

Signed, sealed and delivered by the said Contractor/s in the presence of

Witness: Signature
Name
Address

ANNEXURE - K

PROFORMA OF CERTIFICATE OF PAYMENT BY ARCHITECT

Certificate No. Interim /	Dated	
Client:	Project No.	Building Work/ Interior Work
	Particulars:	
Contractor:	Contract / Letter No.	Dated:
	Contract's Bill No.	Dated:

This is to certify that the amount given below (*) is due to your Contractor/s for the work done by them and / or against materials delivered at site and/or for advance towards contract on the above referred project.

Advance against contract:

Less: Advance adjusted to date

Balance Advance

Advance against material delivered at site

Amount of work done to date

Total

Less: Retention on work done

Less: Previously certified upto

Present Certificate (*)

Rupees _____

The cost of material supplied by you or payments made by you directly if any, and not covered herein above, should be adjusted before making the payment of the certified amount (*)

Necessary Deduction U/S 194C of the Income Tax 1961 and sales tax may be made before paying the above certified amount.

By a copy of this letter, we are intimating the Contractor/s to call on you for the necessary payment.

Remarks, if any

The details of insurance policy are enclosed.

Enclosures: Bill

Signature ofArchitect

10. PROFORMA & ANNEXURES

ANNEXURE – L

PROFORMA OF HINDRANCE REGISTER

Name of the work : Date of state of work:

Name of Contractor : Period of Completion:

Agreement No. : Date of completion:

Sr. No.	Nature of Hindrance	Date of occurrence of hindrance	Date of which hindrance was removed	Period of hindrance	Signature ofARCHITECT	Remarks
1	2	3	4	5	6	7

ARCHITECT – ARCHITECT

******

10. PROFORMA & ANNEXURES
ANNEXURE - M

APPLICATION OF PROFORMA FOR EXTENSION OF TIME LIMIT

1. Name of Contractor
2. Name of the work as given in the agreement
3. Agreement No.
4. Estimated Tender amount.
5. Date of Commencement of work as per Agreement.
6. Period allowed for completion of work as per agreement.
7. Date of completion stipulated in Agreement.
8. Period for which extension of time has been given previously:

   a) 1st extension vide Architects/ bank letter no. dtd, month, days

   b) 2nd extension vide Architects/ bank letter no. dtd, month, days

   c) 3rd extension vide Architects/ bank letter no. dtd, month, days

   d) 4th extension vide Architects/ bank letter no. dtd, month, days

9. Total extension previously given.

   a) Reasons for which extensions have been given (copies of the previous application

   Should be attached)

10. Period for which extension is applied for:

11. Hindrances on account of which extension is applied for with dates on hindrances occurred and the period for which these are likely to last:

   a) Serial No.

   b) Nature of Hindrance:

c) Date of Occurrence:

d) Period for which is likely to last :

e) Period for which extension required for this particulars hindrance:

f) Overlapping period if any, with to item (e) above

g) Net extension applied for:

a) Remarks if any

12. Extension of time required for extra work

13. Details of extra work and amount involved:

a) Total value of extra work:

b) Proportionate period of extension time on estimated amount put tender

14. Total extension time required for 11 &12:

Submitted to the Architect/Bank

- -

Signature of contractor

Date: *****

ANNEXURE - N

CONTRACTOR'S LIABILITY AND INSURANCE SUMMARY

Sr. No.	Nature and Scope of Risk	Value of Insurance	Validity Period of Insurance	Name of the Insurer	Insurance Policy No.
1.	Loss of damage to works or any part thereof and all materials at site from any cause whatsoever.	100 % of Contract Amount	The policy shall be valid till expiry of Defects Liability Period	The policy shall be in the joint names of the Employer and Contractor/s	
2.	Damage, Loss or Injury to any Person of the Employer or Consultants to including their representatives	Rs. 25.00 Lakhs per claim upto 3 claims	The policy shall be valid till expiry of Defects Liability Period	The policy shall be in the joint names of the Employer and Contractor/s	
3.	Claims under the Workmen's Compensation Act, 1923	As per Govt. Rules	The policy shall be valid till expiry of Defects Liability Period	The policy shall be in the joint names of the Employer and Contractor/s	
4	Third party insurance	Rs 10 lakhs per incidents	Do--	Do--	

Signature of Contractor

Witnesses: Address:

PREAMBLE AND SPECIFICATIONS

The quantities given in this schedule of quantities are approximate and subject to variations without vitiating the contract.

Pricing

The rate for each item of work shall, unless expressly stated otherwise, include the following (but not limited to the list given below) for the completion of works in all respects as per conditions of Contract, technical specifications, drawing etc.:

All taxes such as Octroi, Sales tax, Work Contract Tax, Royalties, Transportation, Freights, Packing and forwarding charges Insurance etc.,

All requirements and expenses for completion of work as per Rules and Regulations of Local Bodies, State Government and Central Government of India.

All materials, equipment, accessories, consumable, controls and instruments, tools, tackles, plants, scaffolding/ double scaffolding Labour, maintenance, fixing, cleaning, making good hauling, hoisting etc., Waste on material and Labour. Loading, Unloading, handling/double handling, setting out protection from weather, temporary supports, platforms etc., and the maintenance, of the same, dismantling of temporary works, disposal of debris and all other Labour necessary for the execution of works. Testing the installation as often as necessary, Contractors to arrange for all special instruments and tools required for such testing.

Painting of all equipment, pipes, and supports etc., as per color codes to be decided for various systems.

Apportion of costs for general facilities to be used by the Contractor's staff such as lifts, electricity, telephones etc. during execution if such facilities are provided by other contractors and who arrange for such facilities in the first instance. Fees for testing the materials, equipment or overall installation by appropriate authorities. Supervising Civil/ Masonry / Carpentry Works done by other agencies on behalf of the Bank for Interior contractor. All requirements of specification and drawings. Description of work given in the schedule of quantities is a brief description and shall be read in conjunction with specifications and drawings. Removal of POP covering and carting away all unwanted material including POP.

The rates quoted by the Tenderer will be deemed to be for the finished work complete in all respects with accessories, fitting, mounting arrangements normally provided with such equipment and/or needed for execution, completion, safe operation of equipment as required through they may not have been specifically mentioned in technical specifications, drawings and/or schedule of equipment.

All minor Masonry, Carpentry and Civil works such as cutting opening in Masonry Walls, Internal Partitions, Chasing on walls, etc. and making good the same to match existing works shall be provided by the contractor, whenever asked for by the Project Architect.

SCHEDULE OF QUANTITIES

All items of work contracted for shall be executed strictly in accordance with the description of the item in the Schedule of Quantities, relevant drawings and specifications read in conjunction with the appropriate Indian Standard specifications and conditions of the contract

and established Engineering practices.

The rate for each item of work included in the schedule of quantities shall unless expressly stated otherwise include cost of: All materials, fixing materials, accessories sequence of operations, appliances, tools, plant equipment, transport Labour and incidentals required and completion of the work called for in the item and as per specifications and drawings completely. Wastage on materials and Labour Loading transporting, unloading, handling as necessary, hoisting to all levels, and setting, fitting and fixing the position, protecting, disposal of debris as directed and all other Labour necessary and to fully complete the job in accordance with contract documents, good practice and recognized principles of trade laid down in codes of practice. Liabilities, obligations and risks arising out of conditions of contract.

All requirements of specifications, whether such requirements are mentioned in the item or not shall be provided for the specifications and drawings where available are to be read as complimentary to any part of the schedule of quantities and any work called for in one shall be taken as required for all similar items. In the event of conflict between Schedule of Quantities and other documents including the specifications the most stringent among them shall apply and the interpretations of the consultants/owner shall be final and binding.

The Contractor shall be paid for the actual quantity of work executed by him in accordance with the drawings at the accepted rates.

This schedule shall be fully priced and the extensions and totals duly checked. The rates for all items shall be filled in INK. The entries under amount column shall be rounded off to the nearest Rupee.

No alterations whatsoever is to be made either to the description of items in the Schedule of quantities or specifications unless such alterations, is clarified in writing by the consultant/owner. Any such alterations, notes or additions shall unless clarified in writing be disregarded when tender documents are considered. Any observation on BOQ should be made in the letter accompanying technical bid for proper consideration and on disfiguring or overwriting in the documents is permitted.

In event of an error occurring in the amount column of the schedule, as a result of wrong extension of unit rate and quantity, the unit rate quoted by the Tenderer shall be regarded as firm and the extensions shall be amended on the basis of rates.

All errors in totaling in the amount column and in carrying forward totals shall be corrected.

Unless otherwise stated, all measurements shall be taken in accordance with Indian standard for building of Measurements IS 1200 latest revision effective on the date of measurement for interior items as applicable.

Any errors in quantity of items from the contract schedule shall not vitiate this contract but shall be corrected and deemed to be a variation by the Project Architect/Owner.

DRAWINGS AND DATA

Within two weeks of placement of order/letter of intent contractor shall furnish the following data in triplicate for approval by Project Architect/Owner.

General arrangement drawing of the equipment on orders showing plan, elevations, and sectional views, mounting details.

Bill of materials.

Descriptive catalogues, characteristic curves, duty point efficiency factor and technical particulars of all the various equipment offered.

SPARE PARTS AND MAINTENANCE FOR MATERIALS SUPPLIED

Tenderer shall offer along with the bid, duly recommended by manufacturer set of spare parts required for a period of 1 year's continuous operation. Itemized unit prices with exact quantities recommended for these spares shall be separately indicated for consideration of the Owner/Consultant.

DOCUMENTS MUTUALLY COMPLIMENTARY

The several documents forming the contract are to be read as mutually complementary to each other and in case of

ambiguities/ discrepancies, the same shall be explained and clarified by the Consultant/Owner to the Contractor in what manner the work is expected to be carried out to meet the end requirements.

INSTRUCTIONS DURING EXECUTION

On the advice of the Owner, the consultants may issue further drawings and written instructions, details, directions and explanations collectively referred to as "Site instruction" in regard to:

Variations for modification of the design, quality or quantity of works as addition or omission or substitution of any works therein.

Any discrepancies in the drawings or between the schedule of quantities and/or specifications and/or drawings. Removal from the site any material brought by the contractor and substitution of any other materials therefore. The dismissal or removal from work of any person employed thereupon.

Removal/re-examination of any works executed in case of doubt of any nature.

Opening up for inspection of any work covered up without proper tests by the Project Architect.

Oversight on the part of the Project Architect/his assistant to disapprove any defective work or material shall not prejudice the Owner/Consultant, thereafter to disapprove such work or materials and to order pulling down, replacement, removal breaking up or reconstruction.

The Contractor shall make his own arrangement for the engagement of all Labour and shall be responsible for regulating their service conditions, work conditions in conformity with all Acts, Regulations, Rules or order of competent authority under relevant laws in force during the pendency of the contract.

Contractor shall indemnify the Owner from all claims relating to the workers/ staff/ sub-contractors, Salaries, Wages, Overtime, Leave, Provident Fund, Medical facilities, gratuity, Bonus or any other claim as applicable and stipulated in any statutory provisions, rules or order of competent authority.

All materials so far as procurable shall be of the reputed make in the category of manufacture and bear the stamp of quality of the Bureau Standards wherever applicable. The contractor shall furnish documentary proof, test certificates and guarantees as relevant

to such materials from manufacturers, which shall match with the date of procurement.

MASONRY: Rate shall include for provision of

Work at all heights, depth and in all situations and to all shapes and profile and all necessary works like staging, ladders, platforms, double staging etc. all are required for proper execution of works. Hacking and roughening of concrete or other surfaces coming in contact with masonry for bondage, cutting bricks/blocks, wastage etc.

Raking out joints to specified depth either for plaster or pointing or finishing the joints flushes as the work proceeds, all as directed.

Bedding and pointing wall-plaster, lintels, sills etc. in or on walls, bedding and pointing doors, windows and like in cement mortar.

Making openings for pipes, conduits, ducts etc. and closing the same after completion of such works and finishing as directed.

Providing at exact locations and to exact sizes pre-designated openings.

Forming chases for edges for concrete floors or other units, for scaling in of waterproofing layers, etc.

Providing cement concrete blocks (1:2:4) at doorjambs where required to receive expansion bolts/holdfasts etc.

Building in holdfasts and or inserts, supplied by the engineer.

Keeping the work well wetted for 10 days.

Bricks/blocks to be wetted before use.

Bailing out, pumping out or otherwise removing all water, which may accumulate from all causes. Sampling and testing of any other material during the course of work as and when directed.

Plaster Rates shall include for provision of:

Work at all levels, heights and to all situations and profiles. Double scaffolding, working platforms etc.

A coat of neeru plaster soon after the curing period is over.

Work in narrow widths and small quantities unless special provision is made to the contrary.

Preparation to the surfaces by raking out joints in brick or by hacking the concrete surface and wetting the surface before plastering wherever required.

Thickness of plaster exclusive of the thickness of key i.e. grooves and open joints in brickwork, stone work etc.

Chamfers of any width, internal and external rounded angles and chases and forming sharp and clean edges as shown.

Curing, protection and cleaning of all surfaces.

Keeping all plastered surfaces well wetted for at least 7 days.

PAINTING AND POLISHING

The rates shall include for provision of:

Works at all heights and use of all scaffolding quantities, ladders, cradles etc. necessary for execution work and for inspection.

Preparing surfaces to receive finishing coats, such as brushing to remove all extraneous materials and fungus growth, if any, preparing, scraping, washing and rubbing etc.

Puttying, sand papering and dusting of surfaces in between coats where applicable. Work on cornices, narrow bands and widths, recesses grooves etc. Finishing to approved matt texture and/or stipple finish etc. complete as directed. Spreading and removing, covering to doors window. Floors, fittings, ducts, pipes etc. to protect them from splashes Washing floors, cleaning glass, joinery, electrical fittings, ducts. Pipes etc. ofdrops and splashes and leaving premises clean and tidy.

FLOORING, DADO, SKIRTING AND WALL FINISHES

The rates shall include for provision of:

Use and waste of all temporary fillets, side-forms, templates, moulds, straight edges etc. Washing of coarse and fine aggregates, wherever required by the consultants.

Final preparation of the base, sub-grade or sub-floor including minor trimming of the base to remove slight undulations if necessary. Cleaning and watering the surfaces immediately before laying the floor. Providing bedding layer of mortar as specified, in case of slabs, tiles etc. to correct levels of slopes as called for. Cutting, rubbing and polishing surfaces and edges where applicable. Rounding off corners, edges and junctions of floors with skirting or dado and also cutting recesses where required to accommodate recessed skirting. Forming rounded recess in floor where called for. Providing grooves where shown on drawings. Work in narrow widths, bands, cornices, and strips and to profiles shown at all heights, levels, and locations and in small quantities, unless otherwise mentioned.

Curing, protecting and cleaning all finished surfaces as specified. Work on any surface such as bricks, concrete, stone etc. Providing grooves at the junction of plaster with other finishes as called for.

Scoring surfaces of plaster for key where the surface is not required to be finished fair. All samples of finishing materials shall be got approved prior to use. Keeping the work well wet for at least 7 days. Cutting tiles/slabs to require size/shapes providing holes etc. before laying. Hand polishing, machine polishing, cleaning tiles with acid. All marble work e.g. flooring, cladding, skirting, dado etc. shall have white cement based mortar in bedding and grouts.

All ceramic tiles shall be of 1st quality. All stone flooring to be protected by POP covering with plastic base.

CARPENTRY AND JOINERY

Rate shall include for provision of:

Unless otherwise specified, the quoted rates shall be for all joinery work with approved Indian Teakwood, Steam

Beech wood free from all defects and kiln seasoned and preservatives treated and shall be got tested in laboratory and approved before placing or applying primer coat. The rate shall also include for applying two coats of Solignum paint to the face of frames in contact with masonry or concrete and the like.

The rate quoted shall include for fixing on masonry/RCC members and for 300 x 40 mm x 6 mm finished MS holdfasts embedded in P.C.C. (1:2:4) blocks of 230 x 150 mm size and of width to suit the thickness of masonry wall or for anchor fasteners, coach screws etc. of adequate size for fixing to RCC members, as

Care shall be taken to thoroughly clean the hardware, fittings, glass panes, doors, etc. of the waste cement marks, left over paint marks etc.

The rate shall include for providing temporary supports etc., for fixing of frames and shutters at all levels.

The rate quoted shall be inclusive of any chiseling work, raking of sides, sills, soffits, if required and making good the surface.

The sizes mentioned are for finished items. Also the rate quoted shall include for:

Plaining and finishing smooth all faces of various faces as required.

All screws, nails, pins, key and such other fixing accessories.

Cutting rebates, Grooves etc. in frames/shutters as required or as directed. Approved glue or adhesive for all joinery work.

Providing seasoned Burma T.W., beech wood best quality, beading, trimmings, beads, weather bars etc. as called for. Providing rough grounds as per drawings.

Providing as per schedule/drawings all hardware, fittings and fixture like, latches, hinges, and tower bolts etc. locks and other items as indicated for fixing such items supplied by the Engineer-in-charge at no extra cost.

Solignum treatment to all hidden wooden members and all board or ply faces coming in contact with masonry or concrete faces where retarding treatment is not called for.

Providing and applying pink primer to all wooden surfaces till the same are painted/polished.

Filling and finishing neat gaps around frames, doors, windows etc. with approved mastic. Work at all heights and locations.

Wherever painting is specified it includes painting the surfaces with three coats of first quality synthetic enamel paint of approved shade and make over a coat of wood pink primer.

Wherever polishing is specified it include polishing the surfaces with two or more layers of French spirit polish, with approved additives, strainers to get even shade over a coat of primer of approved chemicals.

All plywood and blackboard edges where exposed shall be finished with teakwood Lipping.

Unless otherwise specified, all door shutters specified are to be solid core flush door shutters, with topping bonded with phenol formaldehyde and confirming to relevant Indian Standards.

METAL WORK

The rates shall include for provision of:

All steelwork shall confirm to IS-800 and rolled steel to IS-226 and IS-1977. All pressed steel sections shall be heavy duty.

Supplying all materials, fabricating, hoisting and fixing in position complete with expansion fasteners, coach screws, hold fasts, screws etc. and for RCC(1:2:4) blocks of adequate size as directed.

Glazing of windows, ventilators, doors should be as approved by Project Architect.

Supplying and fixing all hardware of specified and approved type and make, confirming to standard practices followed by approved manufacturer.

Door, windows, rolling shutters, fire doors shall be fabricated by approved manufacturer.

Member's joints shall be mechanically cut to length mitered and electrically welded with true corners. Providing Silicon sealant in gaps between frames and masonry/concrete faces after erection.

Painting with a coat of zinc chromate's primer and three coats of synthetic enamel paint of approved make including supplying putty to obtain even and smooth finish.

Before fabrication, the contractor must take approval of the Project Architect for type of sections, hardware, glass etc. to be utilized. He should take actual measurements at site and fabrication shall be done accordingly.

Providing necessary coupling, transoms and mullions wherever required as per rel evant I.S. code (I.S. 1038). SPECIFICATIONS GENERAL

These specifications are for work to be done, items to be supplied and materials to be used in the works as shown and defined on the drawings and described herein all under supervision and to the entire satisfaction of the Project Architect& owner.

The workmanship is to be the best available and of a very high standard, use must be made of specialist tradesmen in all types of work and necessary allowance must be made for the same in the rates quoted.

The materials and items to be provided by the contractor shall be the best of their respective kinds as specified in the tender and in accordance with the samples approved, where materials or products are specified in these specifications and/or Bill of Quantities by the name of the manufacturer of the brand name, trade name or catalogue reference, the contractor will require to obtain prior approval of the Project Architect and owner for using substitute material or product. The contractor shall produce all invoices, vouchers or receipted accounts for any materials if called upon to do so by the Architect/ Consultant and owner.

Samples of all materials are to be submitted to the Project Architect/owner for his approval before the contractor orders or delivers in bulk in the site. Samples together with their packing are to be provided by the Contractor free of charge and approved samples will be retained by the owner and designer for comparison with the materials which will be delivered

to the site.

Should any materials be rejected by the Project Architect/owner, they will be removed from the site at the Contractor's expense. Also the contractor will be required to submit specimen finishes of colors, fabrics, etc. for approval ofProject Architects/ owner before proceeding with the works. Should it be necessary to prepare shop drawings, and then four copies of such drawings shall be submitted for approval of the Project Architect who will retain two copies, all at the Contractor's expenses.

Timber generally is to be the best of its kind, well and property seasoned, of natural growth, free from work holes, large loose or dead knots or other defects and sawn die square and not to suffer from warping, splitting or other defects through handling.

The hardwood is to be Hollock or red Marandi with moisture contents not more than 20%. Teak is to be the best quality from Dandeli free from soft heart, worm and bee holes, and weighing not less than 50 lbs. per cubic foot with maximum moisture contents of 12%. Teak veneers and flitches shall match each other throughout and, where possible, shall match existing flitches in the building. The particleboard shall be of high density, equal or superior quality to that laid in the I.S. 3478 and as approved by the Project Architect. The blackboard shall be of the following I.S. Specification or such approved adhesives shall be used: -I.S. 851 - 1957: Synthetic Resin adhesive for construction work in wood.

I.S. 849 - 1957: Cold setting case in glue for wood. Where glued joinery and carpentry work is likely to come into contact with moisture, the glue shall be waterproof. The use of animal glues will not be permitted.

Flush doors of hollow framed core insulated construction shall be constructed with 4" wide stiles, top and bottom rail, one 4" wide horizontal intermediate rail and two 4" wide diagonal braces, filled in solid with approved rigid type polyurethane doors shall be constructed with one 3" wide and one 5" wide stile, 4" wide top and bottom rail, one 4" wide horizontal intermediate rail and 2" wide diagonal braces; filled in as described before.

Flush doors of hollow framed core construction shall be constructed with 3" wide stiles and top rails, 5" wide bottom rail, two 6" wide horizontal intermediate rails with beehive core of 1" wide filling pieces at 4" centers both ways and blocked out as necessary for lock and hinges. All horizontal members shall have 1/4 dia. borings.

All doors shall consist of selected hardwood properly jointed together and they shall be covered on both sides with 3/16" teak veneered plywood or as specified. Each door is to be lipped all around with 1/2" teak twice-rebated edging tongued to the stiles and rails and mitered. The doors are to be the full thickness as specified. The lipping on the meeting stiles of folding doors shall be increased to take the rebate as specified.

Frames to doors, windows, etc. shall be of hardwood or teak as specified and to the required sizes with all necessary moldings with mortised and tennoned joint, lead and teak pins and secured in position as specified.

Shelves generally shall be constructed of plywood with edgings of 1" teak tongued on.

Timber is to be cut to the required sizes and length as soon as practicable after the works are begun and stored under cover so that the air will circulate freely around it. Joinery is to be prepared immediately after the finalizationofthe contract, framed up (but not boned) and stored until required for fixing in position, when it is to be bonded and wedged up. Any portion that warps or develop shakes or other defects are to be replaced before wedging up. The whole work is to be framed and finished in a proper workman like manner, in accordance

with the detailed drawings, and fitted with all necessary metal ties, straps, bolts, screws, etc. Turning bonded joints are to be cross-tongued with teak tongues and where over 1/2" thick, to be double cross tongued. Joiner's work generally is to be finished with fine sand papered surfaces unless otherwise specified.

Templates, boxes and moulds shall be accurately set out and rigidly constructed so as to remain accurate during the time they are in use.

Grounds are to be clean sawn, free from large knots, splayed as required and plugged and fixed to walls, etc. at 1'-6" centers unless otherwise specified.

Wood plugs are to be cut on the twist. Patent wall plugs or plastic fillings may be used in lieu of wood plugs with the prior approval of the Project Architect.

All unexpected surfaces of timber, e.g. false ceilings, backing fillets, backs of door frames, cupboard framing, grounds, etc. are to be treated with two coats of Atlas `A' or other equal and approved timber preservative before fixing or bedding.

The service stations, bar counters, shelving, etc. shall be generally constructed of plywood as described and specified properly housed, grooved tongued, glued, blocked and screwed together and entirely to the satisfaction of the Project Architect.

The chairs, tables, etc. shall be generally constructed of teak, foam rubber and fabric as described and specified, properly housed, grooved, tennoned, tongued, glued, blocked and screwed together in the manner of good quality furniture and entirely to the satisfaction of the Project Architect& owner. A prototype sample of all custom made pieces must be prepared and submitted to the Project Architect for his owner's approval before proceeding with the work in quantity.

HARDWARE & METAL:

The hardware throughout shall be of approved manufacture and supply, well made and equal in every respect to the approved samples to be deposited with the owner and Project Architect. For the purpose of approval of samples, the contractor may be required to produce and provide to the Project Architect, samples from many different sources and should allow in his rates for the same.

Fittings generally shall have satin chrome or anodized finish unless otherwise stated and shall be suitable for their intended purpose of use.

Screws are to match the finish of the article to be fixed and to be round or flat headed or counter sunk as required.

The bronze and brass surfaces shall be covered with thick grease or other suitable protective material renew as necessary and subsequently clean off and clear away on completion.

Aluminum and stainless steel shall be of approved manufacture and suitable for its particular application generally, the surfaces of all aluminum shall have an anodized finish and the quality and finish both shall comply with the samples approved by the Project Architect& owner.

All steel, brass, bronze, aluminum and stainless steel articles shall be submitted for test for strength, if so, required by the Project Architect& owner, at the contractor's expenses.

All brazing and welds are to be executed in a clean and smooth manner, rubbed down and left in the flattest and tidiest way, particularly where exposed.

Chromium plating shall be in accordance with B.S. 1224 or as per approved specifications for "normal outdoor conditions", and shall be on a base material of copper or brass.

GLAZIER

All glass to be approved manufacture complying with is: 3548-1966, or as per approved quality and sample, to be of the quality specified and free from bubbles, smoke wanes, air holes and other defects.

The compound for glazing to metal is to be a special non-hardening compound manufactured for the purpose and of a brand and quality approved by the Project Architect& owner.

In cutting glass, proper allowance shall be made for expansion each square of glazing to be in whole sheet. On completion, clean all glass inside and out, replace all cracked, scratched or broken panes and leave in good condition to the satisfaction of the Project Architect& owner.

PAINT & POLISHING

All materials required for the works shall be of specified and approved manufacture, delivered to the site in the manufacture's containers with the seals, etc. unbroken and clearly marked with manufacturer's name or trade-mark with a description of the contents and color. All materials are to be stored on the site of the works.

Spray painting with approved machines will be permitted only if prior written approval has been obtained from the Project Architect. No spraying will be permitted in the case of priming neither coats nor where the soiling of adjacent surface is likely to occur. The nozzle and pressure to be so operated as to give an even coating throughout to the satisfaction of the Project Architect. The paint used for spraying is to comply generally with the specification concerned which is to be specifically prepared by the manufacturer for spraying. Thinning of paint made for brushing will not be allowed. Wood preservation shall be so lignum or other equal and approved impregnating wood preservative, and all concealed woodwork shall be so treated. All brushes, tools, pots, kettles, etc. used in carrying out the work shall be clean and free from foreign matter, and are to be thoroughly cleaned out before being used with a different type of class of material.

All iron or steel surfaces shall be thoroughly scrapped and rubbed down with wire brushes and shall be entirely free from rust, mill scale, etc. before applying the priming coat.

Surfaces of new woodwork, which are to be painted, are to be rubbed down, knotted and stopped to the approval of the Project Architect& owner.

Surfaces of previously painted woodwork which are to be repainted shall be cleaned with soap and water, detergent solution or approved solvent to remove dirt, grease, etc. whilst wet the surfaces shall be flatted down with a suitable abrasive and then rinsed down and allowed to dry. Minor areas of defective paint shall be removed by scrapping back to a firm edge and the exposed surface touched in with primer as described and stopped with putty. Where woodwork has been previously painted or polished and is to be newly polished, the same shall be prepared with scrapping, burning off or rubbing down.

Surfaces of previously painted metal which are to be repainted shall be cleaned down and flatted down as described in surfaces of previously painted woodwork. Minor areas of defective paint and any rust and loose scale shall be removed completely by chipping, scrapping and wire brushing back to the bare metal and touched in with primer as described.

PLASTER

Cement/lime plaster for internal surfaces shall be applied in two coats, as follows:

Undercoat 3/8" thick composed of 1 part cement, 4 parts lime putty, 12 parts clean washed sane, measured by volume, the whole laid evenly, straightened with a rule and scratched to form key.

Finishing coat 3/8" thick composed of 1 part cement, 3 parts lime putty, 6 parts clean washed sand, measured by volume, troweled with a steel trowel to a smooth or textured finish in accordance with samples approved by the Project Architect. A minimum period of 7 days must elapse between the application of undercoat and finishing coat. The total thickness of the plaster must not exceed 3/4".

Rough rendering shall be composed of cement and sand (1:4) floated to the thickness required to fill in voids behind facings, dubbing out to uneven surfaces, etc. Dubbing out must not under any circumstance exceed 1" in thickness at any point.

Screeds and backings shall be composed of cement and granite fine or sane (1:3) and shall be properly laid to rules and floated to a surface suitable to receive the finishing's specified.

Mixing of lime/cement plaster, cement rendering and screeds shall be carried out with machine driven roller-pan mixers of a type and size approved by the Project Architect. For smaller quantities, or in exceptional circumstances, the Project Architect may require or approve mixing by hand on a clean dry floor or platform.

Measurement of all constituents is to be made by means of gauge boxes. Gypsum plaster shall be of approved manufacture, delivered to the site in the manufacturer's sealed bags or drums, bearing the name of the manufacturer and the brand of plaster are to be in accordance with B.S.1191 for the following types -

Undercoat plasters are to be borrowing or "slow setting browning" of class "B", type a - retarded semi-hydrates.

Finishing plaster used on undercoats is to be of Class `B' type b - retarded semi-hydrates or class "B" type c – dual purpose plaster.

Finishing plaster used or plasterboard is to be of "Board finish" type, Class "B", type b - retarded semi-hydrates. Keep's Cement is to be dual-purpose type in accordance with class "B", type c.

Plaster of Paris to be in accordance with class "B".

Joints of brickwork, etc. are to be thoroughly raked out and loose particles of mortar, etc. brushed out to form key for plaster. Concrete work generally is to have a coat of "spatter dash" applied to form key for plaster, etc. The concrete shall be dampened immediately after removal of formwork and "spatter dash" consisting of 1 part of cement and 2 1/2 parts coarse sand (by volume) mixed to the consistency of a thick slurry, thrown on with a hand trowel to thickness not exceeding 1/4". The "spatter dash" shall be waited one hour after application and left to harden.

All paving, wall linings, etc. are to be adequately covered up and protected until the completion of the works. The whole of the finished work to be cleaned off and left in a sound and perfect condition to the satisfaction of the Project Architect& owner. Where particularly, required, paving will not be laid until completion of all other work.

Gypsum plaster to surface of concrete or brickwork is to be two-coat as follows: Undercoat composed of one part "browing" or slow setting browning plaster as described above with two parts of sand, the whole laid on evenly, straightened with a rule and scratched to form a key.

Finishing coat to be as described above, applied neat of with an admixture of not more than 25% volume by lime putty, troweled with a steel trowel to smooth even surfaces.

The total thickness of two-coat work must no exceed 1/2".

Gypsum plasterboard shall be of approved manufacture and in accordance with B.S. 1230. Consisting of a core of set gypsum plaster in accordance with B.S. 1191 sandwiched between two sheets of heavy paper to a nominal thickness of 3/8". Plasterboard is to be nailed to timber bearers with 1 1/4" * 12 S.W.G. galvanized screws with 3/8" dis. heads, spaced about 6 inches apart and not less than 3/4" from the edges and ends. Nailing is to commence at the centerof the board. Boards are to be spaced 1/8" to 1/4" apart at the joints and end joints are to be staggered to break bond. The boards are to be fixed and cleaned at least 24 hrs. Before the application of plaster and in no circumstances

should it be wetted before plastering.

Gypsum plasterboard is to be prepared for plastering by filling the joints with `board finish' gypsum plaster as described above and pressing into the plaster, dry reinforcing jute scrim cloth 3 1/2" wide troweled as flat as possible. When the plaster to the scrim joints has set, thin coat of neat gypsum plaster is to be applied over the whole surface to level up followed immediately by a finish coat to a total thickness of 3/16". The finish coat when almost set is to be troweled to a smooth surface using as little water as possible applied with a brush. The admixture of lime with gypsum plaster will not be permitted. Internal wall tiling is to be of a quality and equal to samples approved by the Designer as suitable for the standard of work required. Tiles are to be of `A' Grade. Indian manufacture size 4 1/4" * 4 1/4 * 6mm thick cushion edge colored egg shell glazed tiles fixed complete with rounded nosing tiles to external angles or as specified. The tiles are to be soaked in clean water and brushed on the underside with a cement slurry before bedding on a cement and sand (1:3) and painted in neat white or colored cement.

Paving composed of cement and sand (1:3) are to be toweled smooth with steel trowel or floated with a wooden hand float as required.

Dividing strips of brass, stainless steel or plastic as specified and on approval, shall be provided and bedded to, finished flush with finished floor levels between different types ofpaving or where abutting wood floors.

Stone flooring and cladding should be of dimensions, quality and color as specified and shall conform to the relevant I.S. specification samples of stone materials should be got approved by the Designer/Client prior to installation allowed without extra charge, unless such variations are made after conduits, cables, etc. are fixed.

All cables shall be of 1st quality manufacturer and the Main Contractor will be required to submit a samples of wiring materials to the Designer & owner, for their approval before commencing the installation.

GENERAL SPECIFICATIONS FOR "UPHOLSTERED" FURNITURE:

TIMBER: All timbers used are to be of top quality, free from knots, shakes, and worm holes, and with a moisture content of not more than 12% depending on the climatic conditions prevailing at the site.

Timbers which are completely hidden, that is when covered by upholstery material, can be of local hardwood, except where this interfaces with the strength of the product, as in the case of a leg or arm which is part covered and part finished.

JOINTS: All joints shall be standard, mortise and Tennon, dowel, dovetail, and cross halved. Nailed or glued butt joints will not be permitted. Screws, nails, etc. will be of standard iron or wire unless stated otherwise on drawing. Where mortise and tenon joints are used, tenons should fit the mortise exactly. Where screws show or a finished surface, these will be sunk, and the hold plugged with a wood plug of the same wood and grain of the finished surfaces, unless otherwise. Nails on finished surface will be neatly punched and the hole filled with wood filler to match the color.

UPHOLSTERY: This will be of first class standard workmanship with webbing, no sag springs, coiled springs, padding and filling as specified on drawing. Covering fabrics will be sewn, tufted, and corded as shown on the drawing.

CUSHION VENTS: Brass or Aluminum "cushion vents" should be installed at the back or under side of seat

Cushions (especially those covered in leather, vinyl plastic or very tightly woven fabric) to allow air to escape easily and to prevent torn seams.

MATERIALS : Finished timber shall be of the type specified, furnishing fabrics, color, pattern, substance to be as specified, no variation of this will be permitted unless with prior approval of the Designer & owner.

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

Only first class workmanship will be accepted. All legs to furniture will be fitted with nylon glides or castors as specified on the drawing. Full size drawings or prototype samples are to be submitted to the Designer for prior approval if requested.

ELECTRICAL INSTALLATION:

The whole of the electrical installation shall be carried out by a major registered licensed Electrical Contractor's firm.

The electrical installation shall include for the supply of the whole of the materials and the work of fixing, necessary for the complete installation. The work shall be carried out in strict accordance with the latest edition of the Regulations for the Electrical Equipment of Buildings issued by the Institute of Electrical Engineers I.E. rules and to the satisfaction of and in accordance with rules, regulations, and requirements of the supply company and the Fire department all to the entire satisfaction of the Project Architect& owner.

The positions of all points and equipment shown on the drawings shall be assumed to be correct for the purposes of tendering, but it is the main contractor’s responsibility to check the exact positions on the site before commencing the works.

NOTE: This specification is of the general type only and must be used in conjunction with the drawing of the particular item being made. Anything shown on the drawing and not in the specification must be compiled with, and vice versa.

GENERAL SPECIFICATION FOR CASE OF "CABINET" FURNITURE.

TIMBER: All timbers used are to be of top quality free from knots, shakes, wormholes, and with a moisture content of not more than 12% depending on the climatic conditions prevailing at the site.

JOINTS: All joints will be standard, mortise and tenon, dovetail, duel, cross halved, mitred, tongued and grooved and rebated. Nailed and glued butt joints will not be accepted.

FASTENINGS: Screws, nails, blots, will generally be iron or wire, except in the following examples. "Outdoor

Furniture" fastenings will be of brass or other non-corrosive metal. In hardware, they will match the finish of the hardware item.

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

PLYWOOD: Used mainly for the body-work of this furniture, shall be Green ply, century or multi ply as per approved make suitable for

Veneering, painting or bonding plastic laminate. It shall be a resin bonded, specification, "marine", brand or

Equivalent. Exposed edges will be finished with a piece of solid wood, tongued, grooved and glued, or as detailed.

HARDWARE: Hinges, locks, latches, door tracks, etc. shall be as specified, and as far as is possible of specified manufacture. In any variation of this the quality of the substitute shall be equal to or better than the originally specified, and the sample should be submitted to the designer\owner for prior approval.

METAL: Where metal lags, frames, sheets, etc. are used, these shall be welded, brazed, bolted or riveted as

Required and on finished surfaces welding, brazing and reverting shall be neatly smoothened so that no evidence of this is apparent on the final finish of the metal which will be as specified on drawing.

On all legs wood or metal, nylon glides or heavy duty castors as indicated, are to be installed.

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

NOTE: This specification is of a general type only and must be used in conjunction with the

drawings of the

Particular item being made. Anything showing on the drawing, but not in the specification must be complied with and vice versa.

SPECIAL NOTES

1. All laminate shall be1.0mm thick on vertical surfaces & 1.5 mm on horizontal surfaces unless otherwise specified.

2. All hardware like multipurpose locks, hinges, handles, magnetic catches etc. shall be used only after written approval of samples.

3. Rates of all furniture items including three coats of synthetic enamel paint/sprit polish etc. as specified in the BOQ.

4. Each cabinet shall be powder coated/SS handle, Godrej, lock/spring loaded hinges brass ball catches and shutter to be fixed using ½"x3/4" continuous hinges of approval quality unless otherwise specified.

5. Where ever not specified all exposed surfaces of partition and other wood work shall be finished with three coats of synthetic enamel paint/polish in natural shade as applicable. Nothing extra shall be paid for the same.

GENERAL SPECIFICATIONS FOR ELECTRICAL WORK

1 GENERAL

1.1 The entire electrification work shall be carried out by licensed Electrical Contractors in accordance with these specifications without any extra cost.

1.2 For site supervision the contractor must depute a qualified electrical engineer. The contractor shall employ only experienced and licensed wiremen to do the electrification work.

1.3 The work shall conform to relevant Indian Standard Specifications the I.E. Acts and Rules and the requirements of Local Electrical Authority.

1.4 When the installation is complete, the same shall be tested with the 500 /1000 volts Megger in the presence of the Architect / Consultant and the results shall be entered into the test certificate as per the format available with Local Electrical Authority.

1.5 Contractor shall submit to the client 3 sets of test certificates for the installation.

1.6 The contractor shall carry out all civil works connected with the electrical job. The contractor shall repair and make good the damages caused by him to the civil structure while executing the electrification work. The foundations for the panel board and for the poles, grouting of frames in the wall, erection of D.B./switchboards in the wall/chasing the walls/floor for embedding the conduits and boxes etc. are all to be carried out by the contractor including making good the damaged civil work.

1.7 The Contractor has to submit shop drawings for the Electrical Distribution Boards and the conduit layout to the Project Architects for their approval before starting the work. Also one set ofapproved sample of the materials have to be kept at site.

1.8 The Project Architect will issue the drawings to the Contractor for carrying out the work.

1.9 The Electrical Contractor, his wiremen and supervisors shall be qualified and have a valid license while quoting as well as during the course of work.

1.10 Statutory Approval

The electrical contractor shall obtain the approval for the electrical works carried out by the contractor i.e. electrical panels, substation works, earthing and internal electrification as required.

2.0 SCOPE OF WORK

The scope of work shall be generally as given in the schedule of items and as mentioned below:-

A. Supply, Installation, Testing and Commissioning of the following:

i. All Electrical Panel & Distribution Boards

ii. All Mains and Sub-Main wiring/cabling between various Distribution Boards.

iii. All Circuit and sub-circuit wiring for lights, light and power outlets, Air Conditioning and Exhaust fans in False Ceiling/wooden partition

walls/floor/columns/brick or concrete walls/MS Channels.

iv. Earthing System for the entire Electrical Installation.

v. Conducting& wiring for Computer & Telephone System in False Ceiling/wooden partition walls/ floor /columns/ brick or concrete walls/M.S. channel.

vi. All types of lighting fixtures, Ceiling fans and Exhaust fans.

vii. Providing floor channels and Junction Boxes for drawing data cabling and power wiring for work stations.

viii. Installation of substation equipment

ix. Substation Equipment Layout etc.

X Getting the approval from the electrical inspector for the works carried by the contractor

B) Testing and commissioning of the entire Electrical Installation including Telephone system.

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

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

NOTES

1. All items of work under the contract shall be executed strictly in accordance with the description of the item in the Schedule of Quantities, relevant drawings and Specifications read in conjunction with the appropriate Indian standard Specifications, Indian Electricity rules as amended up to date and Conditions of Contract.

2. The rate for each item of work included in the Schedule of Quantities shall unless expressly stated otherwise, include cost of:

a. All materials, fixing materials, accessories, operations, appliances, tools, plant, equipment, transport, Labour and incidentals required in preparation for, in the full and entire execution and completion of the work called for in the item and as per specifications and drawings completely.

b. Wastage on materials and Labour.

c. Loading, transporting, unloading, handling/double handling, hoisting to all levels, setting, fitting and fixing in position, protecting, disposal of debris and all other Labour necessary in and for the full and entire execution and to fully complete the job in

accordance with contract documents, good practice and recognized principles.

d. Liabilities, obligations and risks arising out of conditions of contract.

e. In the event of conflict between schedule of quantities and other documents including the specifications, the most stringent shall apply and the interpretation of the Chief Architect shall be final and binding.

3. The Contractor shall be paid for the actual quantity of work executed by him in accordance with the drawings at the contract rates.

4. All errors in totaling the amount column and in carrying forward totals shall be corrected.

5. Unless otherwise stated all measurements shall be taken in accordance with Indian Standard Electrical Installation in building Method of Measurement IS 5908 latest revisions/ additions.

6. Necessary liaison shall be done by the Contractor with the local authority for obtaining temporary and permanent electrical connection and installation of all meters etc. The contractor shall submit and prepare all test reports and other documents to the local authorities in consultation and on behalf of the Client.

7. On the completion of the work the Contractor shall submit to the Owner layout Drawings indicating the complete Electrical Installation as installed. These Drawings shall in particular give the following information.

i. Run and size of conduit, location of inspection/outlet boxes.

ii. Number and size of wires in each conduit.

iii. Location of switches, outlets, DBs, Telephone, Call Bell and Music outlets etc.

iv. Layout and particulars of mains and sub-mains and cable route etc.

v. Schematic diagrams for the complete Electrical System.

vi. Complete Earthing System with size ofEarthing conductors.

vii. Layout and particulars of the Telephone and Computer system.

viii. Substation Equipment Layout.

TECHNICAL SPECIFICATION

1 SPECIFICATIONS FOR INTERNAL WIRING

1.1. SYSTEM OF WIRING:

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

1.2. GENERAL

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

1.3. MATERIALS:

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

M.S. CONDUITS:

M.S. conduits shall be solid drawn or lap welded conduits. Stove enameled inside and outside with minimum wall thickness of 1.6 mm for conduits upto 25 mm diameter and 2.0 mm wall thickness for conduits 32 mm diameter and above. PVC conduits to be used for concealed work for all systems except Fire Alarm & Computer system where M.S. conduits shall be used. PVC conduits shall conform to Indian Standards IS: 9537(Part-3)-1983 -Specification for conduits for Electrical Installation (Part-I) General Requirements.

PVC CONDUITS:

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

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

6.0		-	6	6	8	-
10.0		-	-	3	4	-
16.0		-	-	-	3	5
25.0	-	-	-	2	3	-

1.4 PVC CONDUIT ACCESSORIES & CONNECTIONS:

The accessories used for PVC conduits shall conform to Indian Standards IS: 3419-1988-(Specification for fittings for non-metallic conduits).PVC conduits shall be joined by means of screwed or plain couplers. Where there are long runs of straight conduits, inspection boxes shall be provided at intervals as approved by the consultant. The threads of the pipe and sockets shall be free from grease and oil. It shall be thoroughly cleaned before making the screwed/plain joints. Proper jointing materials as recommended by manufacturers shall be used for jointing of PVC pipes. Use PVC couplers and connectors for PVC pipe connections and terminations in boxes. All the joints shall be fully water tight. Junction boxes and running joints shall be provided at suitable places to allow for subsequent extensions if any, without undue dismantling of conduit system. As far as possible diagonal run of conduits shall be avoided. Junction between conduit and adapter boxes, back outlet boxes, switch boxes and the like must be provided with entry spouts and smooth PVC bushes. Joints between conduit and iron clad Distribution Boards or control gear shall be effected by means of conduit couplers into each ofwhich will be coupled smooth PVC bush from the inside of box or case. Conduit system shall be erect and straight as far as possible. All jointing methods shall be subject to the approval of the consultant.

BENDS IN CONDUITS:

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

Separate conduits shall be provided for the following system.

i) Lights, Ceiling fans, Exhaust fans & 5A Light sockets.

ii) Power sockets & A/C outlets

iii) Telephone System

iv) Television, Computer & Music system

v) Emergency System.

vi) Public Address System

vii) Fire Alarm System.

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

i) Lights, Ceiling fans, Exhaust fans & 5A Light sockets.

ii) Power sockets & A/C outlets

iii) Telephone System

iv) Television, Computer & Music system

v) Emergency System.

vi) Public Address System

vii) Fire Alarm system .

1.5 FIXING CONDUITS:

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

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

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

1.6. PROTECTION

To minimize condensation or sweating inside the conduit pipes all outlets of conduit system

shall be adequately ventilated as directed and approved by the Consultant. All screwed and socketed connections shall be adequately made fully water tight by the use of proper jointing materials i.e. Troponin for PVC conduits & white lead for metal conduits.

1.7. SWITCH-OUTLET BOXES AND JUNCTION BOXES

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

1.8. INSPECTION BOXES

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

1.9. TELEPHONE SYSTEM

Conduits, junction boxes, draw boxes, outlet boxes and covers to boxes for telephone system shall be as described under relevant clauses elsewhere in these specifica tions. Conduits for telephone system shall be at least 150 mm away from the electrical conduits. The conduits for telephone wiring shall be of specified size and shall be terminated at outlets as indicated on the drawings. Telephone system conduits shall have 2 mm diameter galvanized steel pull wires installed. Necessary Junction boxes to be provided for easy drawing of the Telephone wires from each unit to the Telephone Tag Box and from the Tag Box to the open ground.

1.10. CONDUCTORS

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

1.11. BUNCHING OF WIRES

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

1.12. DRAWING OF CONDUCTORS

The drawing and jointing of copper conductor wires shall be executed with due regard to the following precautions, while drawing insulated wires into the conduits. Care shall be taken to avoid scratches and kinks which cause breakage of conductors. There shall be no sharp bends.

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

PVC insulated copper conductor wire ends before connection shall be properly soldered (at least 15mm length) with special Cu solder for copper conductor or shall be properly crimped with copper lugs/sockets as the case may be. Strands of wires shall not be out for connecting to the terminals. All strands of wires shall be soldered at the end before connection. The connecting brass-screws shall have flat ends. All looped joints shall be soldered and connected through terminal block/connectors. The pressure applied to tighten terminal screws shall be just adequate, neither too much nor too less. Conductors having nominal cross sectional area exceeding 6.0 Sq. mm shall always be provided with cable sockets.

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

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

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

shown on drawings.

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

1.13. JOINTS

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

1.14. MAINS AND SUB-MAINS

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

1.15. LOAD BALANCING

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

1.16. COLOR CODE OF CONDUCTORS

Color code shall be maintained for the entire wiring installation; red, yellow, blue for three phases and “off”

Circuit black for neutral and green for earth (or bare earth wire)

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

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

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

iii) Weight of conductor ..... 2.52 Kg/Km minimum. iv) Resistanceof conductor at 20 degree... 60 Ohms/Km,

v) Radial Thickness of PVC insulation....0.3mm + 0.05mm uniform

vi) Radius Thickness of PVC sheathing.....1.2mm uniform + 0.2mm

vii) Overall diameter of insulated conductor. 1.2mm uniform

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

1.18. **MOUNTING HEIGHT DETAILS**

1.18.1 The bottom of the light/fan switch board shall be at 1.0 meter above the finished floor level unless otherwise specified.

1.18.2 All plugs and socket outlets shall be of 5/6 pin type and the appropriate pin of socket shall be connected to the earthing system.

1.18.3 In case of light and fan circuit only 5 pin 5Amp socket outlets shall be used. 6 pin 15A socket outlets shall be provided only on power circuits. The switch controlling the socket outlet shall be adjacent to it. 6 pin 15 A socket outlets shall be located at the levels as indicated below unless otherwise specified.

a In Kitchen at 300 mm above kitchen platform or FFL as per the location shown on the drawings.

b In the bathroom at 1800 mm above FFL but Mirror lights shall be above Mirror of wash basin.

c In all other rooms at 150 mm above FFL unless otherwise specified.

1.18.4 All Bracket light fittings, unless otherwise specified shall be at a height of 2.1 meters above the floor level unless otherwise specified for some locations.

1.18.5 Unless otherwise specified, the ceiling fans shall be hung at 2.75 meters above the finished floor level.

1.18.6 Lamp holders in bath rooms are to be shrouded with insulating materials and fitted with protective shield.

1.18.7 All live conductors are to be insulated and safe guarded to avoid danger.

1.19 M.S.CONDUIT ACCESSORIES & CONNECTIONS:

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

Proper jointing and cleaning materials as recommended by manufacturers shall be used for jointing and cleaning of M.S. pipes. Use M.S. couplers and connectors for M.S.pipe connections and terminations in boxes. All the joints shall be fully water tight. 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 ofconduits shall be avoided. Junction between conduit and adapter boxes, back outlet boxes, switch boxes and the like must be provided with entry spouts and smooth M.S. bushes and M.S. Checknuts. Joints between conduit and iron clad Distribution Boards or control gear shall be effected by means of conduit couplers into each ofwhich will be coupled smooth M.S. bush from the inside of box or case. Conduit system shall be

erect and straight as far as possible. All jointing methods shall be subject to the approval of the Consultant.

M.S. CONDUIT CONNECTIONS:

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

FAN BOX DETAILS

The Fan Box shall be 100 mm x 100 mm x 75 mm deep, M.S. box made of 2.0 mm thick M.S. sheet, having 12 mm dia M.S. rod, bend at center to support the fan, top screwed cover etc. as per the approval of the Project Architects.

2 CABLES

2.1. GENERAL

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

2.2. MATERIAL

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

2.3. JOINTS IN CABLES

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

2.4. JOINTING BOXES FOR CABLES

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

2.5. JOINTING OF CABLES

All cable joints shall be made in suitable approved cable joint boxes. Jointing of cables in the joint boxes and the filling in of compound shall be done in accordance with the best practice in trade, in accordance with manufacturer's instructions and in an approved

manner. All straight Joints shall be done in epoxy mold boxes with TROPOLIC/ M-Seal resin or approved equal. All terminal ends of conductors shall be heavily soldered up to at least 50.0 mm length.

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

2.6. CABLES TERMINATION

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

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

All the M V Panels, Sub-Distribution Boards(SDB) & Final Distribution Boards(FDB) shall be suitable for operation on 3 phase, 4 wire, 415 Volts, 50 cycles, neutral grounded at transformer and short circuit level not less than 31 MVA at 415 volts.

The MV Panel, SDBs & FDBs shall comply with the latest edition of relevant Indian Standards and Indian Electricity Rules and Regulations. All Panels and Distribution boards shall be fabricated by the contractor by using specified components as per the specifications given below:

6.1. CONSTRUCTION FEATURES

The Distribution Boards and Panels shall be metal enclosed sheet steel cubical, indoor, dead front, floormounting type. The distribution boards shall be totally enclosed, completely dust and vermin proof. Gaskets between all adjacent units and beneath all covers shall be provided to render the joints dust proof. Panels and Distribution boards shall be preferably arranged in multitier formation. All doors and covers shall be fully gasketed with foam rubber and/or rubber strips and shall be lockable. All MS sheet steel used in the construction of distribution boards and Panels shall be 2mm 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 slag grounded off and welding pits wiped smooth with plumber metal.

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

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

Panels and distribution boards shall be provided with removable sheet steel plates at top and bottom to drill holes for cable entry at site. MV Panel shall be of Extendible type.

The Panels and SDBs shall be suitable for IP 42 protection.

6.2. CIRCUIT COMPARTMENTS

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

6.3. INSTRUMENT ACCOMMODATION

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

6.4. BUS BARS & BUS BAR CONNECTION

The bus bar and interconnections shall be of electrolytic Copper of 99.9 % purity of rectangular cross sections suitable for full load current for phase bus bars and full rated current for neutral bus bar and shall be extendible on either side. Minimum 200 Amps capacity bus bars shall be provided in the distribution boards. The bus bars and interconnections shall be insulated with PVC heat shrinking sleeves and color coded. The bus bars shall be supported on unbreakable, non-hygroscopic insulated SMC supports at regular intervals to withstand the forces arising from short circuit in the system. All bus bars shall be provided in a separate chamber and properly ventilated. The current density of copper shall be 1.6 Amps per Sq. mm cross sectional area of Bus bar.

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

Automatically operated safety shutters to screen the live cluster when the breaker is withdrawn from cubicle is to be provided. All connections between bus bars and switches and between switches and cable alley terminals shall be through solid copper strips of proper size to carry full rated current and insulated with PVC heat shrinking sleeves. All the M V Panels and SDBs shall be completely factory wired, ready for connection. All the terminals shall have adequate current rating and size to suit individual feeder requirements. Each feeder shall be clearly numbered from left to right to correspond with wiring diagram. All the switches and feeders shall be distinctly marked with a small description of the service installed. Minimum width of busbar Alley shall be 300 mm and that of cable alley shall be 450 mm.

6.5. TERMINALS

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

6.6. WIRE WAYS

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

6.7. CABLE COMPARTMENTS

Cable compartment of adequate size shall be provided in the Sub Distribution Boards for easy termination of all incoming and outgoing cables entering from bottom or top. Adequate proper supports shall be provided in cable compartments to support cables. All incoming and outgoing switch terminals shall be brought out to terminal blocks in the cable compartment.

6.8. METERS

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

6.9. CURRENT TRANSFORMERS

Where ammeters are called for CT's shall be provided for current measuring more than 60 Amps. Each phase shall be provided with separate current transformer of accuracy class I and suitable V.A. Burden for operation of associated metering. Current transformers shall be in accordance with IS: 2705-1964 as amended upto date and Cast Resin Type.

6.10. INDICATING PANEL AND METERING EQUIPMENT

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

6.11. MOLDED CASE CIRCUIT BREAKERS (MCCB)

MOLDED CASE CIRCUIT BREAKERS (MCCB): MCCB's shall be in accordance with S: 2516-1985 & IEC 157-1 with the latest amendments. It shall be enclosed type made of Heat resistant high strength, flame retarding, thermosetting material rated for 500 V, 50 Hz. It shall have three position indicators 'ON', 'OFF' & 'TRIP' at top, bottom & middle position. It shall be provided with shunt trip and additional 2 Nos. NO & NC contacts. The minimum breaking capacity of MCCB's shall be 20 KA upto 100 AMPS rating and 35 KA for MCCB'sabove 100 AMPS rating upto 200 A and 50KA for MCCB's above 200 A. All MCCB's shall have door operatinghandle (Rotary Operating Handle). The short circuit with standing capacity shall be ICS Rating and not ICU Rating.

6.12. EARTHING

Copper earth bars of 25mm x 3mm shall be provided for MV Panel and SDBs for the full length and connected to the frame work of the Panel and SDBs.

Provision shall be made for connection from this earth bar to the main earthing bar on both side of the Panel and SDBs.

6.13. PAINTING

All sheet steel work shall undergo a process of degreasing pickling in acid, cold rinsing, and

phosphate, passivating and then sprayed with a high corrosion resistant primer. The primer shall be baked in an oven. The finishing treatment shall be by application. Two coats of synthetic enamel paint of approved color and powder quoted. The seven Tank process shall be adopted.

6.14. LABELS

Engraved anodized aluminum labels shall be provided on all incoming and outgoing feeder switches. Circuit diagram showing the control wiring shall be pasted on inside of the panel door and covered with transparent laminated plastic sheet. The Label shall indicate the name of the feeder, the specific area it is feeding, ampere rating and the cable size it is receiving. The Labels shall be provided on the backside of the Panel in case of back access. All the SDBs and Panels shall be subject to tests specified in relevant Indian Standards and test certificate shall be furnished.

6.15. SHOP DRAWING

Before fabricating the Panels and the SDBs/FDBs the contractor has to submit shop drawing with the wiring diagram for all the Panels and SDBs/FDBs to the Consultant and get approval from the Consultant.

6.16. INSPECTION

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

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

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

All final distribution boards shall be provided with MCB's. TPN final distribution boards shall consists of 3 rows of single pole MCB's for each circuit, and each phase shall be connected to the incoming supply through double pole MCB isolator. Separate neutral bus bars shall be provided for each phase in the case of TPN Distribution Boards. In case Earth Leakage Circuit Breaker (ELCB) has to be provided in Final Distribution Boards then on the incoming side instead of DP MCB Isolator a DP ELCB shall be provided of Current rating same as that of DP MCB Isolator and current sensitivity maximum of 100mA. The ELCB shall conform to IS: 12640 - 1988 (Residual Current-Operated Circuit Breakers-Specifications) Solid links between MCB Isolator and backed by HRC fuse/ Rewritablefuse and Neutral bus bar shall be provided. The Neutral shall be looped from one phase to another through DP Isolators. MCB's shall be provided on the phase or live conductor of each circuit and a neutral bar for the earthed neutral. The individual MCB in each row shall be detachable

without disturbing the row of MCB's. Phase separation barriers of 3mm thick Bakelite sheet shall be provided between the bank of MCB's fitting 3mm thick Bakelite sheet cover shall be provided for each phase. There shall be ample space behind the bank of MCB's to accommodate all the wiring. All the internal wiring of final distribution Boards shall be concealed behind 3mm thick Bakelite sheet. All the distribution boards shall be completely factory wired, ready for connection. 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 wiring diagram. All the switches and circuits shall be distinctly marked with a small description of the service installed. A four way 60 A Brass/Copper neutral link shall be provided with terminals suitable to receive 16 sq mm stranded copper wires with end sockets. The final Distribution Boards shall be fabricated as per consultants design.

POINT WIRING

The rates for all point wiring items shall include:

1. Conduits, Conduit specials, bushes and other fittings concealed or exposed as called for.

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

3. Providing and fixing approved fixing devices, saddles and grouting the same as required for exposed conduits.

4. Fabrication and Supply of G. I.boxes for switches, ceiling fan hooks, Exhaust fans outlet and lighting fixtures with 1.6 mm thick sheet steel.

5. Providing and fixing junction boxes with 3mm Hylam or 3mm/5mm thick Perspex sheet cover duly painted from inside to match the colorof the walls. All Junction boxes shall be MS only.

6. All fixing accessories such as clips, brass screws/brass washers raw plugs etc.

7. All work & material necessary (including circuit wiring from DB to first tapping point of each circuit with 2.5 Sq.mm wires) in complete wiring of a switch circuit of any length from the distribution board to the following via the switch: a) Ceiling rose b) Connector c) Back plate d) Socket outlet e) Lamps Holder f) Any other terminal outletboxes g) Ceiling fan and Exhaust fan.

8. Switch, socket outlet as called for.

9. Cable/wire as required up to lamp holder.

10. All metal boxes and boards concealed or surface mounted including those required for housing fan regulators.

11. All accessories necessary to complete wiring as specified.

12. FRLS PVC Insulated stranded Copper conductor earth wire for fixtures, switch outlet boxes and third pin of 5/15Amp. Socket to common earth.

13. Painting all exposed M.S. conduits, outlet boxes and junction boxes.

14. M.S. conduit for concealed and exposed wiring.

15. 2 mm dia G.I. pull wires in conduit work, wherever necessary.

16. The switch plate shall be made ofI.S. I. grade Urea Formaldehyde Molding powder. The base of the switches shall be made from high heat resistant phenol formaldehyde powder. The cost of switches shall include the cost of cover plates, cadmium fixing screws etc.The switches/sockets shall be rocker operated.

17. Separate Earth wire shall run along with each circuit both for power and light Circuits.

18. Cutting of floor and making good for carrying conduits also.

19. Numbering of Circuits with ferrules for all circuits at both ends.

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

CONDUCTING& WIRING FOR TELEPHONE & COMPUTER SYSTEM

The rates for conduit work shall include:

1. All necessary specials and fittings.

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

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

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

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

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

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

8. Painting all inspection, junction and outlet boxes.

9. PVC conduit for concealed conduit wiring.

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

11. Supply and fabrication of G.I. outlet boxes.

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

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

EARTHING

The rates for earthing items include:

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

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

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

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

5. Effecting adequate and proper interconnections.

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

CABLES, MAINS AND SUB-MAINS

The rates for all items of work shall include:

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

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

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

4. Effecting adequate and proper connections at terminations.

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

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

7. clamping to supports where laid in trenches.

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

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

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

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

DISTRIBUTION BOARDS:

The rates for the following items of work generally include:

1. The supporting rigid steel frame work.

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

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

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

5. Effecting adequate and proper connections.

6. Effecting proper bonding to earth.

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

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

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

Provide 6 Amps. SP MCB for Light Points Circuits, 20 Amps. SP MCB for Power Circuits and 32 Amps. SP MCB for1.5 Ton AC Unit .

FIXING OF LIGHTING FIXTURES AND FANS:

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

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

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

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

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

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

d. Bonding with common earth wires.

3. Drilling holes in supports where required.

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

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

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

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

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

9. Use G.I. suspenders and clamping to the slab with dash fasteners (4 per fitting),

including turn buckle arrangements for adjustable heights for hanging. They should be the same suspenders as used for hanging the False Ceiling grid ceiling.

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

FIRE DETECTION AND ALARM SYSTEM

SCOPE

The scope of this section covers design, manufacturers, supply, installation, connecting,

testing and commissioning of conventional type fire detection and alarm system.

The work include supply, installation, testing and commissioning of:

M S conduit work with all accessories.

Complete wiring in existing concealed/surface conduits

Photoelectric type smoke detectors.

Rate of rise cum fixed temperature heat detectors.

Manual alarm stations.

Response indicators.

Main control and indicating panel/zonal panel.

A high degree of operational safety, high quality and well designed detectors, signal panels and auxiliary equipment shall be accepted. Supplier shall confirm that the electronic components used in alarm and indicating panels are of standard manufacturers and are approved type, also the name of the manufacturer shall be indicated.

The Contractor shall obtain clearance and approval from the Local Fire Authorities, the insurance company insuring the building or any other agencies whom approval is required.

STANDARDS

For Spacing of detectors	BS	:	Code of Practice CP 1019, Section 2.7
For sensitivity of smoke detector	BS	:	5446 – 1977
For control and indicating panel	IS	:	2189 – 1988

For smoke Detector	IS	:	11360 - 1985
For Heat Detector	IS	:	2175 – 1988

OPERATING VOLTAGE
220 volts AC + 10% 50 cycles (single phase) and 24 volts DC +- 10%

ETECTORS IN GENERAL
COMPATIBILITY

All automatic fire detectors shall be inter changeable without requiring different mounting bases nor alternations in the signal panel.

RESPONSE SPECTRUM

Combustion gas detectors shall respond to both visible and invisible aerosols, size and colour of the aerosols shall not have a decisive influence on the response of the detector.

SENSITIVITY

On average, 30 mgr of burned material per cu.m (as measured in a 1 cu.m chamber) shall release an alarm.

POWER CONSUMPTION

Each detector shall use the minimum of power, for economic circuits, so that it shall be possible to connect atleast 20 detectors per zone. Distance upto 1000 meters from detector to signal panel shall not influence the number of detectors per zone.

BUILT-IN-RESPONSE INDICATOR

Each detector shall incorporate indicator “LED” at the base of the detector which shall light up on actuation of the detector to located the detector which is operated. The detector shall not be affected by failure of the response indicator lamp.

RESPONSE INDICATORS

It shall be possible to provide a secondary response indicator for the detector outside the closed room.

MAINTEANCE

All detectors shall be fitted either with plug-in system or bayonet type connections only, from the maintenance and compatibility point of view.

CONSTRUCTION

The detector shall be vibration and shock proof. When disassembling for cleaning purpose, its components must not be damaged by static over voltage.

ATMOSPHERIC AND THERMAL DISTURBANCES

The detector shall also be designed as to be practically immune to environmental criteria such as air currents, humidity, temperature fluctuations, pressure and shall not release false alarm.

CONTINUOUS OPERATION
An alarm release shall not effect a detector's good functioning. After resetting the alarm the detector shall resume operation without re-adjustment of any kind.

ADAPTABILITY TO AMBIENT CONDITIONS
Detectors shall be designed for adaptability to humid and explosion endangered locations.

PHOTOELECTRIC SMOKE DETECTORS

Smoke detectors shall connect with two wires to one of the Fire Alarm Panel Loops. The detectors shall use the photoelectric (light-scattering) principal to measure smoke density and shall, on command from the control panel, send data to the panel representing the analog value for smoke density. The detectors shall be ceiling mounted type and shall include a twist-lock base.

The detectors shall provide dual alarm and power LEDs. Both LEDs shall flash under normal conditions, indicating that the detector is operational and in regular communication with the control panel. Both LEDs may be placed into steady illumination by the control panel; indicating that an alarm condition has been detected. An output connection shall also be provided in the base to connect an external remote alarm LED.

The area covered by each smoke detector shall be as per IS-2189.

Detectors shall be suitable for an operating temperature 0 degree C to 55 degree C and Relative humidity of 0% to 95%.

Detectors shall be suitable for a supply voltage of 17 to 28 V DC without affecting the sensitivity.

The detector shall have the approval of UL/FM/VDS/LPC only.

THERMAL DETECTORS

Thermal detectors shall connect with two wires to one of the Fire Alarm Panel loops. The detectors shall use an electronic detector to measure thermal conditions caused by a fire and shall, on command from the control panel, send data to the panel representing the level of such thermal measurements. The detectors shall be ceiling-mounted type and shall include a twist-lock base.

The detectors shall provide dual alarm and power LEDs. Both LEDs shall flash under normal conditions. Both LEDs may be placed into steady illumination by the control panel, indicating that an alarm condition has been detected.

Detectors shall be suitable for an operating temperature 0 degree C to 22 degree C and relative humidity of 0% to 95%.

Detectors shall be suitable for a supply voltage of 17 to 28 V DC without affecting the sensitivity.

The detector shall have the approval of UL/FM/VDS/LPC only.

MANUAL CALL STATIONS

Manual Call stations shall be provided to connect to the Fire Alarm Panel loops.

Manual stations shall be constructed of high impact LEXAN sheet with clearly visible operating instructions provided on the cover. The word FIRE shall appear on the front of the stations in raised letters. Press/back stations with reset table capacity shall be acceptable.

Stations shall be suitable for surface mounting as shown on the plans, or semi-flush mounting, and shall be installed not less than 42 inches, nor more than 48 inches above the finished floor unless otherwise specified by applicable building codes.

RESPONSE INDICATOR

Response indicator shall be LED (light emitting diode) type, and shall indicate when a detector senses the fire.

REPEATER PANEL

Repeater panels are to be provided at remote location for monitoring the health of FAS. It should have 2 line 40 inches character display along with CEO status indicator. Battery backup shall be provided as an in-built feature and all information will be presented in clear English language. It shall be suitable for operation from 0 degree C to 49 degree C and shall be flush mounted.

ELECTRONIC HOOTERS

All Hooters should be able to provide at least a minimum of 3 different tones, which should be user configurable. The minimum decibel level of each hooter should be 90db at 1 mtr. All hooters should be UL/FM listed.

The Electronic Hooters shall be housed in MS enclosure of 1.5 mm sheet metal.The Hooters shall be with built on oscillator & amplifier.The Hooters shall give wailing sound whenever it received 24 V supply from panel on receipt of Fire signal.

The MS box shall be painted with Fire Red (Power Coated)

MAIN FIRE ALARM CONTROL PANEL

Control Panel

The control cabinet shall be dust proof and shall be provided with a glass door with lock and key to prevent tempering by unauthorized persons.

The control circuit shall consists of glass epoxy (PCB) printed circuit board, silver plated and treated with protective layer of special lacquer for protection against corrosion.

The alarm circuitry shall be 100% solid state without the use of any relays anywhere in zone card.

The zone cards shall be modular and interchangeable.

Every zone shall have individual control for test acknowledge and any zone shall be isolated without effecting the working of the other zones in the panel.

Sounder silencing control shall be provided which shall remain in visual indication at the same time making the panel from to receive alarm from any other zone without the need for resetting the entire panel.

Silencing switches/push buttons – the system shall be so designed that once an alarm has been given it shall continue till the alarm sounder is switched off. The silencing switches/push buttons in their 'OFF' position shall give an indication of this fact on the main control panel or transfer the alarm signal to supervisory sounders under the supervision of the responsible person so that they may put use of the smallest number of call points. Operation of silencing switch shall not prevent sounding of alarm from any other zone simultaneously.

Central control and indicating panel shll be suitable for conventional Fire Detection and Alarm System and shall comply with IS:2189-1988.

Control panel shall support the following Fire-Detection components.

Smoke Detectors

Detectors (Both fixed & rate of temperature rise type)

Manual Call Stations

System shall be completely backed up against Mains failure for atleast 8 hours and shall be suitable for the following types of batteries.

Lead acid Maintenance free.

Lead acid non-maintenance free

Lead acid semi-maintenance free

Nickel Cadmium.

System shall be self diagnostic and shall cover the following:

Components/Modules of the fire panel.

Faulty detectors

Missing detectors

Open circuit short circuit conditions of the detector cable.

Suitable indication shall be given on the panel.

Zone wise annunciation of alarm by using:

Buzzer Sounders

BATTERY

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

Battery Charger

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

Construction features

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

Input

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

Output

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

CABLES

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

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

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

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

A) AIR DISTRIBUTION SYSTEM:

1.0 GENERAL:

Supply, fabrication, installation and testing of all sheet metal/aluminium ducts & supply, installation, testing and balancing of all grilles, registers and diffusers, in accordance with these specifications and the general arrangement shown on the drawings.

Duct work shall mean all ducts, casings, dampers, access doors, joints, vanes, stiffners, hangers and supports etc.

All ducts shall be fabricated from galvanised steel sheets of the following thickness as indicated in schedule of quantities & as described in the IS:655 with latest edition.

2.0 RECTANGULAR DUCT:

Dimensions of Ducts	Gauge G.I	Aluminium	Type of Joints	Type of Bracings
Upto 600	24	22	G.I. Flange at 2.5 Centre	Cross Bracings
601 to 750	24	22	25 x 25 x 3 mm angle iron frame with 6mm dia nuts and bolts.	25 x 25x 3mm MS angles bracing at 1500 mm from joints.
751 to1000	22	20	25x25x3mm angle iron frame with 6mm dia nuts and bolts.	25 x 25 x 3mm MS angle bracing at 1500mm from joints.
1001 to1500	22	20	40x40x5 mm angle iron frame with 8mm dia nuts and bolts.	40 x 40 x 3mm MS angle bracing at 1500mm from joints.
1501 to2250	20	16	50x50x3 mm angle iron to be cross braced diagonally with 10 mm dia nuts & bolts at125 centre.	40 x 40 x 3mm MS angle bracing at1200mm from joints or 40x 40x 3mm MS angle diagonal brancing.
2250 and above	18	14	50x50x6 mm angle iron frame 10 mm nuts & bolts at125 mm centre.	50 x 50 x 3mm MS angle bracing at 1200mm from joints or 50x 50x 3mm MS angle diagonal bracing

Sheet metal ducts shall be fabricated out of galvanized steel sheets conforming to BIS 655, BIS 277, BIS 737 & SMACNA. Sheets used shall be produced by Hot dip process and galvanizing shall be Class VIII- Minimum Average Coating 120 gm/ Sq.mm as per BIS 277: 1992.

3.0 HANGERS FOR DUCT:

Duct Size(mm)	Spacing(M)	Size of MS angle	Size of rod dia(mm x mm) (mm)
Up to 750	2.5	40 x 3	10
751 to 1500	2.0	40 x 3	12
1501 to 2250	2.0	50 x 3	15
2251 to Above	2.0	50 x 3	15

4.0 FABRICATION:

All ducts shall be fabricated and installed in workman like manner, generally conforming to IS 655. Round exposed ducts shall be die formed for achieving perfect circle configuration.

a) Ducts so identified on the drawings shall be acoustically lined with thermal insulation as described in the section `Insulation' and as indicated in schedule of quantities. Duct dimensions shown on drawings are overall sheet metal dimensions inclusive of the acoustic lining, where required and indicated in schedule of quantities.

b) Ducts shall be straight and smooth on the inside with neatly finished joints. All joints shall be made air tight.

c) All exposed ducts within conditioned spaces shall have slip joints - no flanged joints. The internal ends of slip joints shall be made in the direction of air flow. Exposed ducts, where required or as indicated in Schedule ofquantities, shall be painted with two coats, of enamel paint of approved color. Ducts and accessories within ceiling spaces, visible from air conditioned areas shall be provided with two coats of mat black finish paint.

d) Changes in dimensions and shape of ducts shall be gradual. Curved elbows, unless otherwise indicated, shall have a center line radius equal to one and a half times the width of the duct. Air turns shall be installed in all vanes, arrangedto permit the air to make the turn without appreciable turbulence. Suitable vanes shall be provided in duct collar to have uniform/ proper air distribution.

e) Ducts shall be fabricated as per details shown on drawings. All ducts shall be rigid and shall be adequately supported and braced where required with standing seams, tees, or angles of sample size to keep the ducts true to shape and to prevent bulking, vibration or breathing.

f) All sheet metal connections, partitions and plenums required to confine the flow of air to and through 18g GI/16 gauge aluminum, thoroughly stiffened wth25 mm x25mm x 3mm angle iron braces and fitted with all necessary doors as required to give access to all parts of the apparatus. Access Doors shall be not less than 45cm x 45cm in size.

5.0 INSTALLATION:

All ducts shall be installed generally as per the drawings and in strict accordance with approved shop drawings to be prepared by the Contractor.

i. The Contractor shall provide and neatly erect all sheet metal work as may be required to carry out the intent, of these specifications and drawings. The work shall meet with the approval of Owner's site representative in all its parts and details.

ii. All necessary allowances and provisions shall be made by the Contractor for beams, pipes, or other obstructions in the building, whether or not the same are shown on the drawings. Where necessary to avoid beams or other structural work, plumbing or other pipes, and/or conduits, the ducts shall be transformed, divided or curved to one side, the required area being maintained, all as per the site requirements.

iii. If a duct cannot be run as shown on the drawings, the contractor shall install the duct between the required points by any path available, in accordance with other services and as per approval of Owners site representatives.

iv. All duct work shall be independently supported from building structure. All horizontal ducts shall be rigidly and securely supported, in approved manner with trapeze hangers formed of MS rods and angle iron under ducts at not greater than 2 meter centers. All vertical duct work shall be supported by structural members at each floor. Air conditioning contractor shall supply and install 50mm cube MS boxes with 10mm dia steel rod passing through box, all given two coats of red oxide paint, the MS rod tied with reinforcement bar at point of suspension shall be neatly exposed and opening subsequently filled with plastic compound after duct hangers are installed.If duct is passing through in such areas where space between ceiling slab to false ceiling is more than 1500 mm than duct should be supported by wall mounted brackets of 40 x 40 x 3 mm angle.

v. Ducting over furred ceiling shall be supported from the slab above, or from beams, after obtaining approval of Owner's site representative. In no case shall any duct by supported from false ceiling hangers or be permitted to rest on false ceiling. All metal work in dead or furred down spaces shall be erected in time to occasion no delay to other contractors on the building.

vi. Where metal ducts or sleeves terminate in wood work, tight joints shall be made by means of closely fitted heavy flanged collars. Where ducts pass through brick or masonry opening and wooden frame work shall be provided within the opening and crossing ducts provided with heavy flanged collars on each side of wooden frame work, so that duct crossing is made leak-proof.

vii. All ducts shall be totally free from vibration under all conditions of operation. Whenever duct work is connected to fans, air handling units or blower coil units that may cause vibrations in the ducts, ducts shall be provided ofclosely woven, rubber impregnated double layer asbestos/canvas or neoprene coated fiber glass fire resistant flexible connection. The flexible connections located close to the unit, in mutually perpendicular directions. The flexible sleeve at least 10cm long securely bonded and bolted on both sides. Sleeve shall be made smooth and the connecting duct work rigidly held by independent supports on both ends. The flexible connection shall be suitable for pressures at the point of installation.

viii. Air conditioning unit and exhaust fans shall be connected to duct work by inserting at air inlet and air outlet a double canvass sleeve. Each sleeve shall minimum 150 mm securely bolted to duct and the connecting duct work rigidly held in line with unit inlet or outlet.

6.0 SPLITTERS AND DAMPERS:

All dampers shall be opposed blade type dampers of robust construction and tight fitting. They shall be made of G.S. sheet minimum 16 g thick and shall have brass bushes. The design, method of handling, and control shall be suitable for the location and service required.

Dampers shall be provided with suitable links, levers and quadrants as required for their proper operation control or setting devices shall be made robust, easily opera table and accessible through suitable access doors in the ducts. Every damper shall have an indicating device clearly showing the damper position at all times. Handles will be provided with extended arms to account for insulation thickness.

Dampers shall be placed in ducts and at every branch supply or return air duct connection, whether or not indicated on the drawings, for the proper volume control and balancing ofthe system.

7.0 FIRE DAMPER:

All supply/return air duct or path at AHU room wall or slab crossing shall be provided with fusible link type fire damper. The fire rating shall be of 90 minutes fire damper blades and outer frame shall be formed of 1.6mm galvanized sheet steel. The damper blade shall be pivoted spindles in self lubricated bronze bushes, stop seals shall be provided on top and bottom of the damper housing made of 16g galvanized sheet steel. Side seal shall be provided to preventing fire leakages.

8.0 SUPPLY AND RETURN AIR GRILLES:

Supply and return air grilles shall be M.S. or anodized extruded aluminum construction with individually adjustable bars as shown on drawings and indicated in schedule of quantities. Supply air grilles shall be generally double deflection type, with removable key operated volume control dampers. Return air grilles shall be generally double deflection type similar to supply air grilles but without dampers. All supply and return air grilles behind wooden frame shall be single deflection type with one way bars only, the supply air grilles being provided with removable key operated volume control dampers. Mild steel supply and return air grilles shall be factory coated with rust resistant primer and shall be finished with two coats of paint as per client's choice. Aluminum supply and return grilles shall be powder coated and to have colorof client's choice or extruded aluminum as per bill of quantities. For fixing of grilles in the walls HVAC Contractor has to provide 50 mm x 50 mm wooden frame ofkale wood. The frames have to be given coating of fire retardant paint. Nothing extra shall be paid on this account

9.0 SUPPLY AND RETURN AIR DIFFUSERS:

Supply and return air diffusers shall be shown on the drawings and indicated in schedule of quantities. The supply air diffuser shall be provided with removable key operative volume control dampers. Mild steel diffusers/dampers shall be factory coated with rust resistant primer. These shall be finished with two coats of paint as per client's choice.

Aluminum supply and return air diffusers shall be powder coated and to have colorof client's choice or shall be extruded aluminum.

i. Round or Rectangular Diffusers:

Supply/return air linear diffuser shall be M.S. or Extruded aluminum construction, square, rectangular, or round diffusers with flush fixed pattern or adjustable flow pattern. Diffusers for different spaces shall be selected in consultation with the Project Architects. Supply air diffusers may be equipped with fixed air distribution grids, removable key-operated volume control dampers, and ant smudge rings as per requirements of schedule of quantities.

ii. Linear Supply air/ Return Air Grilles:

This shall be M.S. or extruded aluminum construction with fixed horizontal bars at 15 dig inclination and flange on both sides. The thickness of fixed bar louvers shall be at least 5.5mm & angle shall be 20mm/30mm inside. The grilles shall be suitable for concealed fixing volume control damper of extruded. Aluminum construction with black anodized finished shall be provided in SA duct collars.

10. LINEAR DIFFUSER:

Liner diffuser shall be extruded aluminum construction multi-slot type with air pattern controlled provided in each slot. Supply air diffusion shall be provided with volume damper in each slot of the supply air diffuser. Plenum shall be provided for each supply air diffuser.

The Material of Grilles shall be as follows:

i. All grilles shall be selected in consultation with the Client/Project Architect. Different spaces shall require horizontal or vertical face bars, and different width of margin frames.

ii. All grilles shall have a soft, continuous rubber gasket between the periphery of the registers and the surface on which it has to be mounted. The effective area of the registers shall not be less than 75

percent.

iii. Grilles shall be adjustable pattern as each grille bar shall be pivot able to provide pattern with 0^0 to 100^0 horizontal arc and upto 30^0 C deflection up or down. Bars shall hold deflection settings under all conditions of velocity and pressure. Extruded aluminum grilles shall have fixed bars.

iv. Bars longer than 45cm shall be reinforced by set-back vertical members of approved thickness.

The material thickness of grills, diffuser, and damper shall be as follows:

Diffuser	MS	Aluminum
a) Frame	20 gauge	18 gauge
b) Louvers	20 gauge	18 gauge
Grills:		
a) Frame	20 gauge	18 gauge
b) Louvers	26 gauge	24 gauge
V.C. Damper:		
a) Frame	20 gauge	18 gauge
b) Louver	26 gauge	24 gauge

v. Fresh air intake and extract louvers:

All the louvers shall be rain protection type and shall be fabricated from extruded aluminum section. The louvers shall additionally be provided with heavy duty expanded metal (aluminum -alloy) bird screed. 50 mm x 75 mm wooden frame made out ofkale wood to be provided by HVAC contractor free of cost for fixing of louvers.

vi. Testing & Balancing:

After the installation of the entire air distribution system is completed in all respects, all ducts shall be tested for air leaks before painting the interiors of conditioned spaces air distribution system shall be allowed to run continuously for 48 hours for driving away any dust or foreign material logged within ducts during installation.

B) **THERMAL/ACOUSTIC INSULATION:**

GENERAL:

Scope of this specification comprises of supplying, installing, testing and commissioning of insulation on duct, pumps, chilled water piping, chillers, expansion tank, AHU room and duct lining.

1.0 DUCT INSULATION:

Resin bonded, glass wool, pre-laminated with aluminum foil. The thermal conductivity of glass wool shall not exceed 0.024 Kcal/hr.sqmdeg C (0.19 BTU in/HrSq.ftdeg F at 10 deg C - mean temperature and density shall not be less than 48 kg/m3.

1.1 Thickness of Insulation:

a. For Duct passing through return air areas = 25 mm

b. For Duct passing through non air conditioned space = 50 mm

c. Treated fresh air duct = 50 mm

1.2 Application: (For unexposed duct)

- Clean the surface of duct and apply coat of Black Japan paint of approved make applied @ 7 Sq. Mtr/Kg.

Fix the insulation material of required thickness before adhesive dries up. All longitudinal joint will have an overlap of minimum 50 mm followed by coveringfirmly by 75 mm width aluminum sticking tape to seal all transverse & longitudinal joints. Where the duct is exposed to atmosphere material shall be same as for ducts not exposed to atmosphere but without aluminum foil.

Application: (For exposed duct)

a. Cleaning the surface of ducts with wire brush to remove dirt, rust etc.

b. Applying a coat of adhesive.

c. Fixing the expanded polystyrene insulation.

d. Cover the insulation with 2 nos. polystyrene shall 500g and seal the joint with black Japan.

e. Fixing 24 x 3/4" Hexagonal wire netting tied with G.I. wire.

f. Finally applying sand cement plaster in ratio 1:3 in two layers each 10mm thick.

g. Paint it to required color with brush.

1.3 Duct Lining:

- Clean the inner surface of duct which is to be lined with wire brush to remove the dirt.

- Fixing 25 mm x 25 mm/50 mm GI frame work of 22 gauge 600mm distance screwed with the duct and making size as per requirement.

- Apply a cold setting adhesive compound over the frame/duct.

- The adhesive shall be nonflammablevaporproof,odorless type.

Fixing insulation material of specified thickness overlapped with R P Tissue paper over it and then covering the material with 24 gauge perforated aluminum sheet & should have 2-3 mm dia perforation at 3 to 4 mm center to center distance with the help ofself-tapping screws and shall be neatly finished to give true surface finish.

TECHNICAL SPECIFICATION FOR SANITARY / WATER SUPPLY WORK

1.1 Salt Glazed Stone ware Pipes

Stoneware pipes shall be salt glazed, free from cracks, deformities and imperfections in glazing they shall be cylindrical, straight and to standards dimensions. They shall be made of hard burnt stoneware of dark grey color and thoroughly glazed and shall give sharp color more when struck with a light hammer. The pipes shall conform to the requirements of Indian Standard no. IS:651-1980 and shall be of Perfect Potteries of Dalmia or approved equivalent make.

1.2 Cement Concrete Pipes

Cement concrete pipes where called for on the drawing shall be centrifugally spun reinforced cement concrete pipes. Pipes shall be perfectly sound, cylindrical, straight with uniform bore through out. Cracked or wrapped pipes with uneven texture shall not be used. Pipes shall be of NP2 class manufactured by Indian Rume Pipe Co. or approved equivalent and shall conform to Indian Standard IS:458-1971. Adequate number of suitable collars as required shall also be supplied along with the pipes.

1.3 Cast Iron Pipes

C.I.Pipes where called for on the drawings shall be good tough quality dark grey on fracture and capable of being worked with a drill or file . CI pipes and fittings shall be sound with smooth inner and outer surface free from laps, pinholes and other imperfections and shall ring clearly when struck all over with a light hard hammer. The CI pipes shall be provided with a coating of tar or similar material. The coating shall be smooth and tenacious and hard though not to flow when exposed to a temperature of 77 degree centigrade but not so brittle at temp. of 0 degree centigrade so as to chip off when lightly scribed with a pen knife. CI water main pipes shall conform to Indian Standard IS:1536 and IS: 1537 the fittings shall conform to Indian Standard IS:1538. Pipes and fittings for drainage (soil, waste, and vents) shall conform to IS:3989-1870 and /or IS:1729-1864 as specified. The pipes shall be of socket & spigot type.

1.4 Galvanized Iron Pipes

Galvanized Iron pipes and fittings where called for on the drawings shall be of galvanized mild steel or galvanized wrought iron. The pipes shall be medium or heavy class as required as per item. Galvanization of pipe shall conform to IS 4736. The fittings shall be ‘R’ brand fittings.

All pipes and fittings shall be of heavy class manufactured by Indian Tube Company or Bharat Steel Tubes. The fittings shall be R brand fittings for all as approved (heavy class) ISI make. The pipes and fittings shall conform to Indian Standard IS:1239 Part I and Part On delivery to site, the pipes shall be painted with one coat of approved set aside primer.

1.5 Copper Pipes

Copper pipes where called for shall be light gauge copper pipes suitable for hot water distribution. The fittings shall be of copper other compression type or capillary type. The pipes and fittings shall be obtained from an approved manufacturer. The pipes shall generally conform to Indian Standard IS:1545-1969.

1.6. PVC Pipes

PVC pipes where called for small be either unplasticised PVC pipes or high density polythene pipes supplied with appropriate fittings. The pipes & fittings shall be of 10 Kg per Sqm pressure class.

PVC pipes shall be handled with care and stored in a place protected from the sun. All PVC pipes and fittings shall be manufactured by NOCIL or WOVIN or approved equivalent. PVC pipes and fittings shall conform to Indian Standards IS: 4958-1972 or IS: 4958-1968.

1.7 Asbestos Cement Pipes

Asbestos cement pipes for drainage purposes shall conform to Indian Standard IS:1626-1960. The pipes shall be perfectly sound, strength, free of cracks with a uniform bore through out. The pipes shall be of socket & spigot type. Asbestos cement pipes for water supply shall conform to Indian Standard IS:1992-1960 and of approved make to be approved by Architect. Suitable fittings as recommended by the pipe manufacturer shall also be supplied along with pipes.

1.8 **Sanitary Fixtures**

All glazed vitreous china Sanitary ware fixtures shall be of best Indian make of approved manufacture conformity to IS:2556. These shall be nonporous and fully vitreous with all the visible portions perfectly glazed and should be absolutely free from hairline cracks, pinholes and local depressions. These shall have perfectly symmetrical uniform and smooth curves.

1.9 **Water Supply Fittings**

All supply fittings, including mixing fittings and accessories shall be brass/ copper, heavy chromium plated of the make and design specified. The fittings shall be cast fittings of screw type, machined and threaded properly for fixing to the supply pipes. The plating shall conform to Indian Standard IS: 4827-1968.

The fittings shall be supplied complete with chromium plated matching flanges, nuts and extension piece of required lengths. Metallic washers where required shall also be of chromium plated brass. All bib cocks and top cocks shall conform to Indian Standard IS : 781 – 1967, pillar cocks to filler, shower arm, rose, spouts and other fittings shall match the supply fittings and screws shall be similar to fittings . All washers shall conform to Indian Standard IS : 4326-1967.

1.10 Waste Fittings

All waste fittings, (waste, chain, pop-up, overflow, spreaders, caps etc) shall be of brass/ copper, heavy chromium plated of the make and design specified and matches the supply fittings. They shall conform to Indian Standard IS : 2963 – 1964.

1.11 Bottle Traps

Bottle trap (for wash basins, sinks, urinals etc) shall be deep seal (minimum 6cm seal, cast brass bottle traps, heavy chromium plated. All bottle traps shall be provided with suitable cleaning eye, extension piece, flare nuts-all chromium plated. Bottle traps shall be of approved make and design. Traps for wash basins shall be 32mm (1 – ¼") for sinks and urinals 40mm (1-1/2inch dia).

1.12 Wall Flange

Wall flange shall be provided on all walls, floors, columns etc. wherever supply and disposal pipes pierce through them. These wall caps shall be of chromium plated brass supply fittings the receiving pipes and shall be large enough to cover the punctures properly.

1.13 Valves

All valves (gate, globe, check) shall be either all brass or gun metal valves suitable for the particular service. All valves shall be of the particular duty and design called for similar to leader or approved equivalent valves shall be tested to 21 kg/Sqm pressure at manufacturer's works.

Valves shall either be of screw type or flange type with suitable flanges and non corrosive bolts and gaskets. Tail pieces as required shall be supplied along with valve. Gate, globe and check valves shall conform to Indian Standard IS : 778-1971 and non return valves to swing check type reflex non return valves IS : 5312 (Part I 1969).

Sluice Valves

Sluice valves where called for shall be flanged sluice valves or GI body. The spindle, wall seat and edge nuts shall be of non metal. They shall generally have rising spindle and shall be of the particular duty and design called for. The valves shall be supplied with suitable flanges, non corrosive bolts sand asbestos fiber gaskets. The valves shall be of Kirloskar make or other approved equivalent as specified Sluice valves shall conform to Indian Standard IS : 7090 – 1969 and IS : 2906 – 1969.

Ball Valves with floats

Ball valves with floats to be fixed in storage tanks shall consist of cast brass lever arms having copper balls (28 SWB) screwed to the arm integrally. The copper ball shall have bronze welded seams. The closing / opening mechanism incorporating the piston & cylinder shall be of a non – corrosive metal and include washers. The size and construction of ball valve and float shall be suitable for desired working pressure operating the supply system. Ball valves shall be supplied with brass hexagonal blackouts to secure them to the tanks and a socket to connect the supply pipe. Al ball valves with floats shall conform to Indian Standard IS : 1703 – 1968. The polyethylene float shall conform to IS : 9762.

Floor Traps and Urinal Traps

Floor traps and urinal traps shall be of CI of the size required of approved design incorporating a deep seal (6 cm minimum) and venting device unless otherwise indicated. The traps shall be supplied with a specially CI extension piece with required number of sockets in appropriate directions to receive the waste/ soil pipes from wash basin / bath tub / urinal.

1.14 **Fire Hydrant Landing Valves**

Fire hydrant landing valves shall be of gun metal, 63mm dia instantaneous coupling type with blank caps. They shall be with single or double outlet 'as called for' where indicated all hydrants shall be supplied with standard stand posts. All fire hydrants shall conform to Indian Standard IS: 909 – 1965 and IS : 936-1965 and stand pipes to IS : 5714 – 1970. All hydrants shall be of approved make and designs and should carry fire insurance Association approval.

1.15 **LAWN HYDRANTS**

Lawn hydrants shall be of 2.5cms size unless otherwise indicated. All hydrants shall be provided with gate valves and threaded nipple to receive hose pipes where called for lawn hydrants shall be located in masonry chambers of appropriate size as indicated.

1.16 **Water Meters**

Water meter of approved make and design shall be supplied and installed at locations as shown. The water meters shall meet with the approval of the local supply authorities. Suitable valves and chambers to house the meters shall also be provided along with meters.

1.17 Pipe Hangers Brackets etc.

Sturdy hanger, brackets and saddles of approved design shall be installed to support all pipe lengths which are not embedded over their entire run. The hangers and brackets shall be fabricated from suitable MS rolled sections. The hangers and brackets shall be adjustable heights and painted with red oxide primer. Clamps, collar & saddlers to hold pipes shall be provided with suitable gaskets. The brackets and hangers shall be designed to carry the weight of pipes safely. All pipes and fittings shall be secured near every joint and half way through every pipe length, unless otherwise specified.

1.18 Grating for floor traps, Urinal traps & floor drains.

Grating made of 3mm thick brass heavily chromium plated shall be installed to cover all floor traps and floor drains. The gratings shall be of size required and the square or circular in shape as called for. The gratings shall be supplied complete with matching chromium plated brass screws and brass rings to fasten the gratings to the floor in traps.

1.19 **Insulation Material**

The material for insulation shall be vermin proof fiber glass wool. The material shall have a thermal conductivity value of K = 0.404 MW/CM/Co and a density not less than 25 kg per cum. Samples of insulating material shall be submitted for approval.

1.20 **Pipe Sleeves**

Adequate number of sleeves pipe insert (s) of CI or mild steel shall be provided where pipes cross through concrete, masonry and similar work. The pipe inserts shall be of a size larger than the pipe to be housed. The pipe inserts shall be of a size larger than the pipe to be housed. The pipe inserts shall have a flange welded in the center around its circumference. In order to provide water tight and secure fixing into the structure, the pipe inserts shall be provided with removable 1 plug to keep foreign matter out till installation of the service pipe across the sleeve.

1.21 **COWLS**

Cowls or cast iron of proper size shall be supplied to cover all open terminals of soil,

waste, vent & rain water pipes. The cowls shall be of the indicated design, vent away type, bitumastic coated and provided with a tail piece to fit smoothly in the receiving pipe.

2. **LAYING AND JOINING OF PIPES**

2.1 Alignment of Grade

All pipes shall be laid true to alignment and gradients as shown on the drawings. No deviations from the lines, depths of cuttings or gradients called for on the drawing shall be permitted without the approval in writing by the Architect/PMC. In subzero temperature regions the pipes shall be laid below frost level.

2.2 Setting out Trenches

The contractor shall set out all trenches, manhole and such other works to true gradient and alignment as called for. He shall provide the necessary instruments for setting out and specification of the same.

All trenches shall be laid to true grade and in straight lines and as shown on the drawings.

The trenches shall be laid to proper levels by the assistance of boning rods & eight rails which shall be fixed at intervals not exceeding 10 meters or as directed by the Architect.

2.3 **Excavation trenches for pipes**

The trenches for pipes shall be excavated with bottoms formed to levels and gradients as

shown on the drawing, or as directed by the Architect to sort & filled in ground the Architect may require the trenches to be excavated to a greater depth than shown on the drawings and to fill up such additional excavation with concrete 1:5:10 consolidated to bring the excavation to the required levels as shown on the drawings.

All excavation shall be properly protected where necessary by suitable timbering as

approved by the Architect/PMC. Excavations below water table shall be done after dewatering of the trenches. No blasting shall be allowed without prior approval in writing from the Architect/PMC. It shall be carried out under through and competent supervision with the written permission of the appropriate authorities taking full precautions connected with blasting operations. All excavated earth shall be kept sufficiently clear of the trenches.

2.4 Protection of Existing pipes etc.

All pipes, water mains, cables etc met in the course of excavations shall be carefully protected and supported. Care shall be taken not to disturb the cables. The removal of which shall be arranged by the contractor.

2.5 Back filling

Refilling of the trenches shall not be commenced until the length of the pipes therein has been tested and approved.

2.6 Welding

All welding shall be executed only by skilled, qualified, certified welders utilizing standard tools and accessories. Welding shall be done strictly as per Indian Standard IS : 6227 – 1966 and IS : 023-1964.

The operation of surfaces, the welding process and finishing of the joints shall be subject to the approval of the Architect/Engineer. All welded joints shall be structurally sound and absolutely seal poof.

2.7 Drilling & Cutting

Drilling & cutting or installed pipe work and masonry shall be restricted to absolute minimum. Where such cutting and drilling is unavailable, it shall be executed only with prior permission of the Employer/Architect/PMC.

All cutting and drilling shall be predetermined and suitable sockets and specials shall be

employed to effect necessary connections. All cutting & drilling shall be executed by skilled workmen with proper tools.

The disturbed surface shall be restored to the satisfaction of the Employer/Architect/PMC.

2.8 **Marker Plates**

Marker plates indicating the particular service installed shall be provided along the route

of pipe trenches. Marker plates shall be of mild steel with the type of service and the direction of flow painted on it. The markers shall be set firmly in a concrete base and installed at all corners and turning points. Over straight runs, markers shall be spaced at 100 meter center generally.

2.9 **Laying of pipes & jointing of pipes**

a. General : The pipes shall generally be laid with sockets leading uphill and shall

rest on solid and even foundations for the full length of the barrel. To accommodate sockets, depressions shall be formed in the foundation sufficiently deep to allow ample space for the pipe jointer to work right round the pipes. Each separate pipe shall be individually set for line and levels as described under ‘Alignment and Grade’

and Selling out. Pipes shall always be installed in accessible positions except where absolutely and necessary and indicated the pipes shall be installed in wall chase / floor.

b. Salt Glazed Stoneware pipes : The laying & jointing of stoneware pipes shall be executed in accordance with code of practice for laying of glazed stoneware pies IS :4127:1967. Salt glazed stoneware pipes shall be jointed as follows:

Tarred gasket shall be first wrapped round the spigot of each pipe and the spigot shall be placed into the socket of the pipe previously laid. The pipe shall then be adjusted and fixed in the correct position and the gasket caulked tightly home so as not to fill more than quarter of the total depth of the socket. The remainder of the socket shall then be filled with a mixture of cement mortar 1:1 one part of cement & one part of washed fine sand.

When the socket is filled, a fillet shall be formed round the joint with trowel making an angle of 45degrees with the barrel or the pipe after the joint is made. Any extraneous material shall be removed from the inside of the joint with a suitable scrapper. The newly made joint shall be protected until set from sun, drying winds, rain or dust. The joint shall be cured by keeping it continuously damp for seven days. The inside of the pipes shall be left absolutely clear in bore & free from cement mortar or any other obstruction.

The joint shall be tested to a test pressure of 100 cms for two hour without developing leaks / fall in pressure. Before commencing of test, the pipeline shall be filled with water and maintained for 24 hours under head is 0-.6m water. In case of leaks the piping shall be re-done in such portion and the test repeated till achieving satisfactory result.

d. Cast Iron Pipes : CI pipes shall be laid and jointed in conformity with the code of practice for laying of cast Iron pipes IS : 3114-1965. CI pipes shall be jointed by best quality caulking lead free from all impurities. In wet trenches, joints shall be made with lead wool. The spigot shall be centered in the adjoining socket by tightly caulking in sufficient turns of tarred gaskin to leave unfilled the required depth of socket for lead. Where the gaskin has been caulked tightly home, a jointing ring shall be placed round the barrel and against the face of the socket. Melton lead shall then be poured into fill the reminder of the socket in one operation. The lead shall then be solidly caulked with suitable tools by hammering right round the joint to make up for the shrinkage of the molton metal on coping and shall preferably finish 3mm behind the socket face.

Lead for caulking shall conform to IS : 782 – 1966 . The quantity of lead to be filled per joint in various sizes of CI pipes shall be as follows:

i) **Drainage Pipes**

50mm (2”) pipe ---------- -- 0.7 Kg / joint (35mm deep)

80mm (3”) pipe ---------- -- 1.2 Kg/ joint (40mm deep)

100mm (4”) pipe ----------1.5 Kg/joint (45mm deep)

150mm (6”) pipe ---------- 2.4 Kg/joint (45mm deep)

ii) **Water Main Pipes**	**Lead / Joint**
80mm (3”) pipe	1.8 Kg
100mm (4”) pipe	2.2 Kg

125mm (5”) pipe	2.6 Kg
150 mm (6”) pipe	3.4 Kg
200mm (8”) pipe	5.0 Kg

The joints and pipes laid for water supply system shall be tested to a pressure of 12 Kg/sq.cm for two hours without developing leaks/ fall in pressure , the drainage pipe lines and joints shall be tested to a head of 150 cms for two hours without developing leaks / fall in pressure. In case of leaks the piping shall be redone in such portion and the test repeated till achieving satisfactory result.

e. Glavanised Steel Pipes :Glavanised steel pipes shall be jointed with screwed and

socket joints using screwed fittings. Care shall be taken to remove any burr from the ends of the pipes after thread cutting. White lead or an equivalent jointing compound of proprietory make shall be used, according to the manufacturer’s instructions. With a grummet of a few strands of fine yarn while tightening. Compounds containing red lead shall not be used because of the danger of contamination of water. Any threads exposed after jointing shall be painted with bituminous paint to prevent corrosion.

Pipes & joints laid for water supply system shall be tested to a pressure of 7 kg per sq cm and that of fire fighting system to a pressure of 10.50 kg per sq cm for two hours without developing leaks/ fall in pressure. In case of leaks the piping shall be redone in such portions and the test repeated till achieving satisfactory result.

f. Mild Steel Pipes : Mild steel pipes & fittings shall be generally

jointed by welding unless otherwise satisfied. All welding shall be done by qualified welders in accordance with Indian Standard IS : 824 –1964. All welded joints shall be tested to a pressure of 15 kg per sq. cm. For two hours without developing leaks/ fall in pressure. In case of leaks the piping shall be redone in such portions and the test repeated till achieving satisfactory result.

g. Copper Pipes : Copper pipes and fittings shall be binded either by compression joints or capillary joints as recommended by the pipe manufacturer. Screw threading shall not be done. Connections to pillar cocks, stop cocks and other water fittings shall be affected by using standard coupler as recommended by manufacturers where capillary joints are used, proper grade of solder as recommended by the manufacturer shall be utilized. Compression joints shall be tested to a pressure of 7 kg per sq. cm. For two hours without deeloping leaks/ fall in pressure.

In case of leaks the piping shall be redone in each portions and the test repeated till achieving satisfactory result. Copper pipes shall be held in position by brass on copper clips. The piping should be supported at an interval of 150 cms by approved saddles. Proper tools & suitably trained labor shall be employed for laying and jointing copper pipes.

h. **PVC pipes** : PVC pipes and fittings shall be laid and jointed by skilled workmen strictly as per the instructions of manufacturer. The installed piping system shall be subject to a low pressure testing of 4 kg./ sq.cm and then to high pressure testing of 7 kg./ sq.cm. without developing leaks/ fall in pressure pipes and joints shall be tested to a pressure of 7 kg per sq. cm. without developing leaks/ fall in pressure.

i. **Asbestos Cement pressure pipes** : AC pressure pipes shall be laid & jointed as per manufacturer’s instructions. Suitable specials, CI detachable joints, joint collars, rubber rings, mild steel bolts and cement concrete thrust pads shall be provided adequately to ensure tha the piping system perform efficiently under the working conditions. The asbestos pressure pipes and joints shall be tested to a pressure of 7 kg per sq cm without developing leaks / fall in pressure.

j. **Pipe Insulation** : All pipe work and fittings shall be brushed and cleaned. All dust, dirt, mortar and oil removed. The pipes shall then be cleaned with chemical solution suitable for the material of the pipe. Where insulation is to be applied over copper pipes, fiber glass wool of suitable thickness shall be applied over the entire run of piping. In case of mild steel and galvanized pipes. The pipes shall first be given a cost of Zinc Chromate

primer followed by two coats of approved synthetic enamel paint. Insulation consisting of fibre glass wool of suitable thickness shall then be applied over the piping system.

Fiber glass shall have a density of 25 Kg/cm. and the value of 0.404 MW/CM/Co. Polythene sheets shall then be wrapped round the above and held in position by galvanised chicken mesh. Cement plaster 1:3 (1 Cement: 3 Coarse washed sand) shall then be applied over chicken mesh in two coats to a minimum thickness of 20mm.

The thickness of insulation to be applied shall be as follows:-

Sizes of pipes / fittings	**Thickness of Insulation**
a. 15mm / 20mm dia	20 mm
b. 25mm , 32mm & 40 mm dia	25 mm
c. Over 40mm dia	40 mm

The insulation shall be continuous over the entire run of piping, fittings & valves. The insulation shall be applied only after the piping systems are satisfactorily tested for the desired working pressure. The completed insulation shall restrict the heat loss heat gain in the piping system to the absolute minimum. The total heat gain or heat loss by the insulated piping system shall not exceed thirty per cent of the heat gain or heat loss by a similar uninsulated piping system.

Insulation work shall be carried out by skilled workmen special trained in this kind of work

VALVES

Valves shall be provided at accessible locations on every branch from main lines as shown in the drawings. In case of valves with screwed female inlet/ outlet, each valve shall be provided with a union on either side and installed in piping system. On external lines, valves shall be installed in brick masonry chambers wit a frame and cover as shown in the drawings.

3.0 PIPING SYSTEMS – INSTALLATION, INSPECTION AND TESTING

Soil, Waste, Vent &Antisyphon pipes

Unless specified otherwise all soil and waste pipes in shafts, ducts and in concealed locations e.g (false ceiling) shall be of sand CI pipes, and that located in basement floor / service floor shall be of CI spun pipes class ‘LA’.

The soil pipe shall be of minimum diameter of 100mm and waste pipes 80mm. Pipes shall be fixed by means of stout clamps in two sections, bolted together built into the walls

wedged and neatly pointed as directed and approved by the Employer/Architect/PMC keeping 50mm distance from the walls.

Where indicated, the soil & waste pipes shall be continued upwards without any diminution in its diameter without any bend or angle to the height shown in the drawings.

Unless specified otherwise soil and waste pipes from urinal / wash basin / sinks upto the floor trap shall be of GI medium class pipes. All the traps of water closets and urinal traps shall be provided with antisyphon / vent pipes as shown in the drawings and as directed by the Employer/Architect/PMC. All terminal manholes shall be provided with vent pipes. This may be dispensed with if the upper floor soil stacks connecting to such manholes are vented. All soil, waste and vent pipes shall be given two coats of approved paint.

3.1 All connection between soil, waste & ventilation pipes & branch pipes shall be made by

using pipe fittings with inspection doors & cleaning. The doors shall be provided with

3mm thick rubber insertion packing and when closed and bolted shall be air and water tight.

Where soil, waste and ventilating pips are accommodated in shafts/ ducts, adequate to cleaning eye shall be provided.

3.2 Cold water supply Pipes

A water supply piping system to cater for all domestic, requirements shall be installed as

called for on the drawings. Unless specified otherwise the piping system shall consist of

galvanised steel pipes and fittings of medium class and CI spun pipes and fittings of

water mains (Class LA quality). As far as possible, all piping inside the buildings shall

run in shafts or ducts provided for this purpose. No unsightly exposed runs will be permitted. Outside the buildings, the piping shall be installed as far as possible 60cm. below finished grade. Where called for all galvanised steel piping embedded either in trenches or in concrete and masonry fiber glass tissue sheathing laid in bitumen. Gate valves (built into chambers were required) shall be provided as indicated on the drawings to regulate the flow of water.

The piping shall be given two coats of approved paint as mentioned under painting and color coding. All CI pipes buried on an embedded shall be given two coats of bitumastic paint.

Water Storage Tanks

The water storage tanks to be provided shall be fabricated from 10 gauge galvanised sheet steel or mild steel electrically welded, stiffened adequately with angle iron frames and rigidly built. The tanks shall be of sizes and capacities called for the capacities mentioned are net excluding boards. The water storage tanks shall be painted internally with two coats of Shalimar special purpose paint. All paint being applied over a coat of primer. Suitable rolled steel joints (duly painted) and supporting brick masonry pillars shall also be provided. All tanks shall be provided with necessary inlet, outlet, overflow, drain out connections including float valves and ball cocks. All holes shall be punched or cut neatly to correct size and provided with suitable brass check nuts and bushes to receive connection. The punctures shall be made leak proof after the connections are effected. All tanks shall be provided with suitable mosquito proof manhole covers of adequate size to facilitate cleaning and maintenance. (Overflow and vent pipe openings shall be provided with brass puff grating.

Hot Water Supply

A hot water supply system consisting of galvanised steel pipes and fittings of heavy class (C) shall be installed by the contractor. In walls, these shall be wrapped with 1mm thick fiber glass tissue set in bitumen. Adequate number of expansion fittings shall be provided to take care of expansion and contraction. Air locks releasing devices & dewatering / blows / off devices at suitable points shall also be provided in the piping system.

The completed hot water piping system shall be tested to the test pressure mentioned

under laying of pipes for two hours without any fall in pressure. The insulated piping

system shall be given two coats of approved paint.

Rain Water Pipes

Rain water down takes shall be galvanised mild steel pipes or CI pipes as called for in drawings. The fittings & specials for the pipes shall be of the same materials as the pipes. The installation of rain water pipes shall be carried out as described in relevant clauses under laying & jointing of pipes. Rain water pipes shall be given two coats of approved paint.

Storm Water Drainage

Contractor shall install a storm water drainage system as called for in the drawings. The system shall consist of RCC NP2 class pipes.

Colour Code Identification

All piping shall be colour coded as per IS 2065 – 1972.

4. ANCILLARY STRUCTURE

4.1 Manhole

Excavation, filling back and ramming, disposal of surplus earth, preparation or bottoms and sides etc shall be carried out as described earlier under trenches for pipes. Manholes shall be of sizes and depths as called for in drawings. The manhole shall be built on a base of concrete 1:2:4 (1 Cement : 2 Coarse Sand : 4 aggregate) of 150mm thickness for manholes from 1500mm depth to 2500 mm depth and 300mm thickness for manholes of depth greater than 2500mm.

The walls shall be of brick / stone work of thickness as shown in the drawings in cement mortar 1:3 (1 Cement: 3 Coarse Sand). The joints of brick / stone work shall be raked and plastered internally and externally with cement plaster 1:3 (1 Cement : 3 Coarse Sand) to a thickness of 13mm and finished with a coat of neat cement provided in the bottom of manholes, semi circular channels of the same diameter as the pipes. Above the horizontal diameter the sides of channel shall be extended vertically to the same level as the crown of the outgoing pipe and the top edge shall be suitably rounded off. The branch channels shall also be similarly constructed with respect to the benching but at their junction with the main channel an appropriate fall suitably rounded off in the direction of flow in the main channel shall be given. Rungs of CI of suitable dimensions shall be provided in all manholes over 800mm depth. These rungs shall be set at 30cms intervals in two vertical rungs at 380 mm apart horizontally. The top rung shall be 450mm below the manhole cover. Unless otherwise mentioned manholes shall be constructed to requirements of Indian Standard IS : 4111 (Part – I) 16/ “Code of Practice for ancillary structures in sewerage system manholes”. All manholes shall be constructed so as to do water tight under test. All angles shall be rounded to a 75mm radius. The benching at the sides shall be carried up in such a manner as to provide no edgement for any splashing in case of accidental flooding.

Manholes covers and frames shall conform to the requirements of Indian Standard IS : 1726 – 1960 . Manhole covers with frame shall be of CI of an approved make. The covers and frame shall generally be double seat of 600 x 450mm or 500mm dia of 50 kg or 116 kg in weight. Where manholes are located in driveways and such other areas, the covers & frames shall be 560mm dia or 255 kg.

4.2 Gully Traps

Gully trap where called for on the drawings at the feet or all waste pipes shall be salt glazed gully traps of approved make with 100mm or 150 mm dia outlet. The gully trap shall be embedded in CC 1:2:4 and a masonry chamber of internal size 300mm x 300mm shall be built around upto ground level and plastered with CM 1:3 and finished with floating coat of neat cement. All gully trap and in the top a cast iron sealed cover 300mm x 300mm weighing 7.3 kg shall be provided.

4.3 Grease Traps

Grease traps shall be provided on kitchen waste before it confluence with the main sewer lines. Grease traps shall be built in brick masonry and shall generally have the same specification of manholes. The sizes & locations shall be as shown in the drawings. Grease traps shall be provided with drop inlet, drop outlet and baffle wall. Grease trap shall be provided with 2 nos. double seal manhole cover and frame.

4.4 Catch Basin

Catch basin shall be of sizes and depths as called for in the drawings and shall be

provided in the locations as shown in the drawings. Catch basins shall be provided with

CI grating with frame for effective collection and disposal of surface storm water.

4.5 Intercepting Tap

Building sewer line connection to main Municipal sewer shall be made through Intercepting trap provided in the manhole as shown in the drawing. Intercepting trap shall be of approved make salt glazed stoneware with suitable outlet

fitted with brass airtight stopper with galvanised iron chain. The intercepting traps shall

be set in and surrounded with cement concrete 1:2:4 150mm thick built into brick work

and connected to drain.

5. SANITARY AND FITTINGS

5.1 Installation of Fixtures & Fittings

All plumbing and sanitary fixtures and fittings shall be stored in covered stores and handed carefully to prevent damage. The sanitary fittings shall be installed at the correct assigned positions as shown on the drawing and as directed to the Architects and shall fully meet with the aesthetic and symmetrical requirements as demanded by the Employer/Architect/PMC. Fixtures shall be installed by skilled workmen with appropriate tools according to the best practice in the trade. Manufacturer's instructions shall be followed for the installation of fixtures.

Fixtures in all toilets shall be standard height mounted rigid, plumb and true to alignment. The outlets of water closet pans and similar appliances shall be examined to ensure that outlet ends are abutting properly on the receiving pipes before making the joint. It shall be ensured that the receiving pipes are clear of obstruction. When fixtures are being mounted, attention shall be paid to the possibility of movement and settlement by other causes. A check shall be made to ensure that necessary anchoring devices have been provided for supporting water closets, lavatory basins, sinks, flushing cisterns and other appliances. Where the built in types of brackets are used, they shall be securely fixed to the slabs and walls by approved means. It shall be ensured that while fixing the approved means, it shall be ensured that while fixing the fixtures and fittings no tool marks or scratch are developed.

5.2 Protection of fixtures

Care shall be taken at all times, particularly after fixing to protect fixtures from damage.

All offices shall be temporarily plugged during progress of work to prevent obstruction.

Fixtures shall be finally cleaned to the satisfaction of the Employer/Architect/PMC.

6. MISCELLANEOUS WORKS

6.1 Connection to RCC water tanks

The contractor shall provide all inlets, outlet, washouts, vents, ball ducts, overflow, control valves and all such other piping connections including level indicator in water storage tanks are called for:

Suitable float controls of an approved make, securely fixed to the tank and set in a position that water inlet into the tank is cut off when filled upto the full water line. The water level in the tank shall be adjusted to 25mm below the line or the overflow pipe. Full way gate valve of approved make shall be provided as near, the tank as practicable on every outlet pipe from the storage tank except the overflow pipe.

The overflow pipe shall be placed as to allow the discharge of water being readily seen. The overflow pipe shall be of size indicated. A stop valve shall also be provided on the inlet water connection to the tank.

The outlet pipes shall be fixed above the bottom of the tank as indicated. A washout pipe shall be provided at the bottom of the tanks towards which the floor of the tank is stopping to enable the tank to be emptied for cleaning.

6.2 Connections to Pools and Cooling Towers etc.

The contractor shall provide water supply and waste disposal connections to the various pools and cooling towers as shown on drawings.

6.3 Connection to Mechanical Equipment Supplied by other Agencies

All inlets, outlets, valves, piping and other incidental work connected with installation of all mechanical equipments supplied by other agencies shall be carried out by the contractor in accordance with the drawings, requirements for proper performance of equipment, manufacturer's instructions and the directions of the Employer/Architect/PMC.

The equipment to be supplied by other agencies consist mainly of kitchen, laundry, air

conditioning, boiler, water treatment, sewerage treatment, swimming pool and other similar equipments. The connections to the various equipments shall be either with union or with flange. The work of effective connections shall be executed in consultation with and according to the requirements of equipment supplies under the directions of Employer/Architect/PMC. The various aspects of connection work shall be executed in a manner similar to the work of respective trades mentioned elsewhere in these specifications.

6.4 Disinfection of Piping System and Storage Tanks

Before commissioning the water supply system, the contractor shall arrange to disinfect the entire system as described in the succeeding paragraph. The filtered water and thoroughly flushed out. The storage tanks shall then be filled with water again and disinfecting chemical containing chlorine added gradually while tanks are being filled to ensure through mixing. Sufficient chemical shall be used to give the water a dose of 50 parts of chlorine to one million parts of water. If ordinary bleaching powder is used, the proportions will be 150 grams of powder to 1000 liter of water. The powder shall be mixed with water to a creamy consistency before being added to the water in the storage tank. If a proprietary brand of chemical is used. The proportions shall be specified by the makers. When the storage tank is full, the supply shall be stopped and all the taps on the distributing pipes opened successively, working progressively away from storage tank.

Each tap shall be closed when the water discharge begins to mell of chlorine. The storage tank shall be filled up with water from supply pipe and added more disinfecting chemical in the recommended proportions. The storage tank and pipe shall then remain charged at least for three hours. Finally the tank and pipes shall be thoroughly flushed out before any water is used for domestic purposes.

7. MODE OF MEASUREMENT

7.1 Pipes

All pipes viz stoneware RCC, AC, PVC, GI, MS,CI water main pipes etc shall be measured in linear lengths along the center line inclusive of all fittings e.g. elbows, tees, bends, reducers, bushes, unions etc . The rates shall include also the cost towards hangers, clamps, making chase / holes in walls / labs and bringing them to original condition and shape. Deductions in length of pipes shall be mad eon account of manhole chambers. Unless specified otherwise excavation and refilling shall be measured separately.

7.2 Fixtures

All fixtures shall be measured in numbers along with the fittings as specified in the respective items of schedule. The rate of fixtures shall also include cost towards mounting brackets, painting to brackets, excavation and bedding concrete.

7.3 Brass / Chromium Plated fittings etc.

All the fittings shall be measured in numbers with the accessories as specified in the respective items of schedule.

7.4 Valves

Valves shall be measured in numbers; these shall be of flagged type or down type as specified in the schedule. Rate of flagged valves shall also include cost towards the flange provided on both the sides on pipes, gaskets, drilling holes and providing bolts and nuts.

7.5 Ancillary Structures

All ancillary structures viz. Manhole, gully traps, valves chambers, catch basins shall be measured in numbers, including all the items specified in the schedule against the respective items. Earth work in excavation and refilling for ancillary structures shall be measured separately.

Earthwork in Excavation and back filling

All the excavations involved for laying of pipes and for ancillary structures shall be measured under this item. Width of excavation for pipe laying shall be internal diameter of the pipe plus 30 cms subject to a minimum width of 50 cms . Depth shall be as indicated in the drawings.

The rate for item excavation shall also include cost towards back fitting and spreading as specified in schedule.

C) LIST OF APPROVED MAKES/AGENCIES:

The tenderer shall quote his rates on the basis of the price of the brand/ make stipulated in the item of works as described in BOQ, specifications and furnished in Technical data. The owner reserves the right to select any of the brands indicated in the "List of Approved Makes/Agencies" in case of delay in delivery of ordered `make of item'. The contractor cannot claim anything extra if the owner changes the make/agencies but within the list of approved make.

The names of manufacturers are mentioned in order of preference. The Contractor shall quote rates for materials of first preference only and that the Contractor has satisfied himself regarding the availability of the materials and that only materials called for under first preference shall be supplied and installed. In the event of the materials of makes called for are not available and alternative makes are approved (by the Architect/Bank) for incorporation in the work, the rates quoted shall be suitably amended based on the price variation between the specified makes and alternative makes on the day the alternative makes are accepted.

List Of Approved Makes For Civil, Carpentry & Electrical Works
(All materials shall be ISI mark)

Make / Specification Detail

Sr. No.	LIST OF NOMINATED MATERIALS & SUPPLIERS	SUGGESTED MAKE LIST
1	**INTERIOR WORK**	
	MDF / Plywood	NUWUD / Century / Asain / Archid /GREENPLY or equivalent
	Laminated sheet	Archidlam National/ Formica/ Greenlam/MERINO
	Veneer	Green / Duro / Century / Timex / Anchor or equivalent
	Particle board (only for modular w/s & storage Unit)	Archidply /Greenlam/Century equivalent ISI make
	Acrylic sheet	ICI, GE or equivalent ISI make
	Marine grade plywood	Century, Kitply, Greenply, Anchor, Orchid, Prince
	Adhesive	Fevicol / Araldite/Anchor or equivalent
	Solid Surfaces (Curion)	DUPOINT/HI-MAC/ STARON OR equivalent
	Marine grade Block Board	Century, Kitply, Greenply, Anchor, Orchid or equivalent
	Flush Door	Century, Kitply, Greenply, Anchor, Orchid or equivalent
	Polish	Asain / Dulex or equivalent
	Latex	MM Foam or equivalent ISI make
	High density foam	U Foam or equivalent ISI make
	Locks	Godrej / Haffle / Hettich / Ebco or equivalent
	Storage Hardware	Godrej / Haffle / Hettich / Ebco or equivalent
	Screws / Nails & other accessories	GKW / Nettleford or equivalent
	False Flooring	Kebao , Armstrong , AMF or equivalent
	Vinyl Flooring	Armstrong ,gerflor, Eurotex ,
	Carpet	Unitex, Armstrong,
	Wooden laminated flooring	Pergo / Armstrong / Euro / Squarefeet or equivalent
	Plain/Toughened glass	Saint- Gobain, Indo Asahi , Modi or equivalent
	Hardware for general staff areas	Dorma / Euro/ Ozone / Enox / Ebco /Hamco or equivalent
	Hardware for main Glass doors (patch fittings)	Dorma / Euro/ Ozone / Enox / Ebco /Hamco or equivalent
	Door Closers (general use)	Dorma / Euro/ Ozone / Enox / Ebco /Hamco or equivalent
	Floor springs (general use)	Dorma / Euro/ Ozone / Enox / Ebco /Hamco or equivalent
	Floor springs for main glass doors	Dorma / Euro/ Ozone / Enox / Ebco /Hamco or equivalent
	Aluminium Sections for Paritions	Jindal / Tata steel or equivalent
	False Ceilings: Gypsum	India Gypsum / Saint Gobin / Asia
	False Ceilings: Grid (As Approved)	Armstrong / AMF or equivalent
	False Ceilings: Grid (Metal Ceiling)	Unimech / AMF / Armstrong /
	GI Sections	India Gypsum / Saint Gobin / Jindal or equivalent
	Acoustical False Ceilings: Mineral fiber board	Armstrong, Hunter Douglas / Peritex or equivalent

	POP Punning	Gyprock / India Gypsum / Birla
	Paint	Asian / Nerolac / Dulex / Berger or equivalent
	Exterior Paint	Asian / Nerolac / Dulex / Berger or equivalent
	ACP (Exterior / Interior)	Alstone / Eurobond /Alucobond
	Cylicon	G E / Dow corning / Wacer
	Rolling / Vertical Blind	Vista / Peritex / Winfab / MAC or equivalent
	Frosted Film	Garware or equivalent
	Aluminum Skirting - 50mm	Jindal or equivalent
	Water Proofing	Pidilite or equivalent
	HardWood	Salwood / Teakwood/kapoor
	Automated Rolling Shutter	Gandhi Automation/Toshi Automatic Systems/Akash RollingShutter
	Glass	Saint Gobin / equivalent
2	**Plumbing**	
	CP Fitting	Jaquar /Hindware or equivalent
	Sanitary Ware	Hindware / Cera / Parryware or equivalent
	Sanitary Fittings	Jaquar /Hindware
	Geyser	Bajaj / Sphere Hot / Crompton /Racold / V Guard / Havells
	Stainless Steel sink	Nirali / Diamond or equivalent
	C.I. Pipe	Bengal Iron Corporation or equivalent ISI make
	Urinal Partition Glass	Merino / Saint Gobain/ Modi / Asai
	GI Pipe	Tata/ Jindal / Zenith or equivalent
	CP Fitting	Pince /Astral or equivalent
	PVC & CPVC Pipe	Pince /Astral or equivalent
3	**Civil Work**	
	Ceramic Tiles/vitrified homogeneous glazed tiles.	HR Johnson, Kajaria, Nitco,ASL or equivalent
	Cement	Ultratech , ACC , JK Cement , Ambuja
	Chemical Pasting (Tiles)	Pidilite , Fosroc , Eurokart
	Steel	Sail ,Tisscon , Ispat , Tata
4	**Electrical**	
	Light Fittings	Philips / Wipro / Osram / Havells / Cromption G.
	MCCB, MCB , RCCB, DB, ICTPN TP, HRC Fuse, cahnge overswitch, switch fuse Unit	L&T, ABB, Legrand, Siemens, Schneider
	FRLS insulated Elec. Wire/ cable armourd, unarmourd, Sheathed,unSheathed, flexible LT cable, Multi core, single core cable, flat cable	Finolex/Ploycab/Havells/RR kabel/KEI
	PVC conduit(HEAVY DUTY ONLY)	CAP/Finolex/Polycab
	PVC insulated copper conductor Wires	Finolex/ Polycab/RR Cable
	Distribution Box	Legrand/ Schneider/ ABB/Siemens
	MCB & MCCB	Legrand/ Schneider/ ABB/Siemens/L&T

	Bus bar	Jindal/ Indalco/ Century
	M.S. CONDUITS AND ACCESSORIES	BEC /AKG /ESC
	Light Fixture & Lamps	Philips/ Wipro Osram / Havells / Cromption G./ Halonix
	HT cable	Polycab/Havells
	Modular Switches, Sockets	ABB/ Legrand/ MK/ANCHOR/ELLEYS/ROMA
	DLP Trunking	Legrand/Schneider or equivalent
	Power cable	CCI/ Skytone/ Universal/ LAPP/ Torrent
	End Termination	Raychem/ Mahindra/ELMEX
	PANEL	Crompton/L&T/C&S
	Fan	Crompton/Havells/Bajaj/Usha
	Raceway & Alu. Trunking	Tata/Jindal/Zenith
	Casing Caping	Finolex/Cap or equivalent
	Weather proof socket outlet with MCB	ABB/MDS/LEXIC/Neptune/Elcon- Clipsil, Siemens, Schneider(Merlin Gerin)
	Miniature Circuit Breaker	ABB/MDS/LEXIC/ Clipsil/Siemens/HPL
	Earth Leakage Circuit Breaker	MDS/LEXIS/Siemens/HPL
	LT Cables / Control Cables	Skyton/ Finolex/polycab
	MCB Distribution Boards in sheet steel housing (doubledoor)	ABB/MDS/LEXIC/Siemens/HPL
5	**Distribution**	
	MV Contractor/Timer/Relays/Starters	Legrand/ Schneider(MG)/ ABB/Siemens/L&T
	Moulded case circuit breakers	Legrand/ Schneider(MG)/ ABB/Siemens/L&T
	SFU/Fuses	HPL/ L&T. Siemens, GE Power, Schneider (MG)
	ACB	Schneider(MG)/ ABB/Siemens/L&T
	Single Phase Preventer (Current base)	L&T, Minilec
	Raising Mains & Tap Off (Power coated)	Zeta, C&S, Siemens
	MV Switcheboards (Powder Coated)	Tricolite Electrical Industries, conlec Enginners Pvt. Ltd, Vidyut Control Pvt Ltd., Trinitron Milestone Switchgear, Unilec Ltd, Madhu Electrical Advance Electro Control Pvt Ltd.
6	**Low Tension System**	
	Light & Fan Wire	Polycab, Finolex, Havells
	Telephone Wires	Delton, Skyline, Finolex, Rallison, Batra Henley
	Telephone Tag Blcoks	Krone / Pouyet/ TVS
7	**Cables and Accessories**	
	1100Volts grade Cables	CCI, Universal, Fort Gloster, Polycab, RPG (Asian), Nicco
	Cable Lugs	Dowells

	Cable compression Glands	Peeco/ Comet, Stripwell, Siemens

	Cable Trays / Cable ladders	Slotco, Bharti, RICCO, Pilco, MM Enterprises Slotco
	MV Panels(TTA)	Siemens Cpan/ ABB R2K/ Schneider Blockset
	Copper Conductor Communication / Signal Cable	Bon Ton/Finolex/ Skytone/polycab
8	**Metering & Protection**	
	Cast Resin current transformers	Gilbert Maxwell, Kappa AE,Precise
	Meters (Digital)	L&T Roshab, Automatic Electric, Siemens, Socomex
	Selector switches	HPL/L&T Salzer, Kaycee
	Indication lamp	L&T Vaisno Teknic
	KWH Electronics Digital Meter	Secure, L&T, Enercon, Socomec- HPL
9	**EPABX**	
	Exchange/ Console Panel	Copper connection, Flash Hymax, Accord CG, Tata Telecom,Panasonic
	CVT	Logicstat, Blue Bird, Selvon, Max Power
	UPS	HPL- Socomec, Tata Liebert, APC, Invensys, Copper Connection
	Hand Set	Beetel, Tataphone, Crompton
	Tape off	Cat Vision, Shyam
10	**Electrical Items**	
	Panel Switch Gear & related Item	
	LT Panel/Bus Duct	By any Panel manufacturer who process C.P.R.I. certificate forspecified fault level & IP level protection
	Fuse Disconnector switch/switch fuse unit	L&T, Siemens/ Schneider/ABB/Legrand
	Ammeter Voltmeter	AE/L&T/MECO/Rishab
	Digital Meters/ Intelligent Multifunctional Digital meter	AE/HPL/CONZERV
	Selector Switch, Push button switch / emergency switch	KAY CEE/ L&T/ Siemens/ Schneider
	Indication Lamp	AE/L&T/Siemens/ Schneider
	CT's	L&T / AE/ Kappa
	AT's	L&T/Siemens/ Schneider/ legrand
	Voltage stabilizer for air conditioner (4/5KVA)(170-270V)	V Guard/Microtek
	Air Conditioner - Split Inverter AC(5 star) - (.75 ton -1ton,1.5 ton,1.8ton-2ton)	**Daikin/Blue Star/ Carrier**
	Air Conditioner - Cassette Inveter AC(5/4/3 star) - (2, 2.9 ton - 3.5 Ton)/ VRV System	**Daikin/Blue Star/ Carrier**
	insulation for refrigerant pipe	Armacell / Urobatex /vidoflex
	Copper refrigerant pipe	Rajco/Mandev/Mahflow
	UPVC drain piping	Supreme/Astrals/Finolex
	Propeller type exhaust fan	Kruger/ havells/ Marathan/Orient/Usha/Bajaj

11	Transformer	
	Distribution Transformer	Jindal /Areva/ Muskan/Alstrom
	11 or 33 KV VCB	Crompton/ Alstom/ ABB
	HT Termination & Jointing kit	Ray Chaem / Mahindra/ ELMEX
	Cable Glands	Dowells / Siemens/Braco
	Lugs & Thimbles	Dowells / Johnson
	Upto & including 11KV cables (ISI markes)	CCI/ Skytone/ Gloster/ Havells
	Insulating Mats	ISI Marked
	Capacitor Bank (ISI marked)	GE Power/ BHEL/EPCOS/ L&T
	Lightning Arrestor	Altas/ Alstom/ GE power
	Protection & Other Relay	ABB/ Siemens/ Schneider/ L&T/ Allen Bradley
12	**Internal Wiring Related Works**	
	MCB/ELCB/RCCS/Isolators (ISI) marked MCB DB	L&T Siemens/ Schneider/ Legrand
	PVC Conduit	CAP / BEC/ Seiko/ AKG
	PVC insulated copper wire (ISI marked)	Skyline/ Finolex/ Havells/ Ploycab
	Telephone Cable	Skytone/ Delton/ NICCO/Polycab/ Finolex
	Switch, TV & Telephone socket & boxes (Modular Type)	CPL/ Legrand/ABB/Anchor
13	**Miscellaneous Items**	
	Lightning Protection Unit	Erico/ Pheonix/ INDELEC
	Relays	L&T/ABB/Siemens/BCH
	Contractors	L&T/ GE Power/BCH/ Siemens/ABB
	Changeover switch	C&S/Havells/ L&T/HPL
	KWH, PF, Frequency meter	BHEL/ AE/Havells/ L&T/ALSTOM
	Push Buttons	L&T/ Siemens
	Timers	L&T/ Legrand/ Schneider/Siemens/GE
	Timer Switch	L&T/ Legrand/ Schneider/Siemens/GE
14	**Networking**	
	Switches	Brocade/Cisco/Digi-Link/3Com/Nortel/Foundry/D-Link
	Patch Panel,Patch cord and I/o	Digi-Link / Tyco(AMP) /Schneider/D-Link
	Cable	Digi link/Clipser/National/Polycab/Lapp/Finolex
	Racks	ComRack / HCL / ValRack / APW President
15	**Modular**	
	Extruded aluminum sections	Hindalco, Sant aluminum, Midi extrusions
	Pre laminted particle board	Action Tesa, Associate Décor, Asis, Century (interior grade -2)
	PVC lipping	Rehau, Dalkin
	Hinges/storage and pedestal locks/minifix fittings/slidingchannels etc.	Ebco, hafele, Hettich or equivalent
	8 mm Glass	Modi, Saint gobain, Asahi
	Door locks for cashier cabin	Godrej, Enox, Doorset, Ultra, Ebco
	Hydraulic door closer	Yele, Enox, Everite, Ebco

	Powder coating	Paramount, Narolac
	Fabric for panel	Response
	MDF	8mm / 10mm / 12mm / 18mm MDF

Sr. No	Description	Specification	Manufactures
1.	Parallel flange Beams (H / I Beams)	As per Design	Jindal / ESSAR/ Sail
2.	Geared Motors with Brake	ISO 9000 Certified manufacturers only	LHP/ sAMYUNG (KOREA)
3.	Steel Plates	Various thick nesses as required	Jindal / Ispat / sail
6.	Sheet	Up to 1.6 mm	Essar / Ispat/Jindal
7.	Chains		T. I. Diamond / Albros/Renold (Rolon)
8.	C' Channels, Square tubes & Popes	Various sizes as required	TATA / SAIL Vizag
9.	Welding rods		Advani / Manglam
10.	(Control Panel)		As Per Standard design
11.	Wires & Cables		RR Kabel / national / gloster
12.	Contactors		L & T, Merlin Gerin TELEMECHANIQUE OR equivalent
14.	Wire Ropes		Usha Martin

* Raw material source to be approved by the Engineer-in-charge.

Note:-In case of shortage or scarcity or non-availability of material from above mentioned manufacturers, Engineer-in-charge may approve the fresh / new manufacturers after the testing of material.

NOTE: - The above technical specifications described are minimum tender conditions.

Vendors are requested to fill their offered specification in the above Table.

TENDER BILL OF QUANTITIES ATTACHED SEPARATELY.