



GREATER KOLKATA REGIONAL OFFICE

3, MIDDLETON ROW.

Gr. Floor

KOLKATA – 700 071

TENDER DOCUMENT
FOR
AIR CONDITIONING WORKS
FOR
MOHANPUR BRANCH

NAME OF THE TENDERER:

ADDRESS OF THE TENDERER:

LAST DATE OF SUBMISSION OF TENDER : **15.06.2022 UPTO 2.00 PM**

DATE OF OPENING OF THE TENDER: **15.06.2022 AT 2.30 PM**

PLACE OF SUBMISSION OF TENDER:

OFFICE OF
THE CHIEF MANAGER (OPERATIONS)
UNION BANK OF INDIA
GREATER KOLKATA REGIONAL OFFICE:
3, Middleton Row, Gr. Floor,
KOLKATA – 700 071.

CONSULTANT

urbana

ARCHIECTURE URBANISM INTERIORS

City Office: A/135, Baghajatin, Kolkata-700092

Regd. Office: 23A/4, D.P.P. Road, Naktala, Kolkata-700047

Phn: +91 9477139265

e-mail: urbana.soumyajit@gmail.com

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SECTION – I

NOTICE INVITING TENDER

Sealed tenders on item rate basis are invited by Union Bank of India, GREATER KOLKATA Regional Office from Empanelled Contractors having Sound Technical and Financial capacity for **Air Conditioning works of MOHANPUR BRANCH.**

A) Name of the Work:

Air Conditioning works of MOHANPUR BRANCH

B) Location :

MOHANPUR

C) Estimated Cost :

Rs. 4,10,700.00 (excluding GST)

D) Time of Completion :

15 days from the date of written orders to commence the work or from the date of handing over of the site, whichever is later.

E) Earnest Money Deposit (EMD) :

The tender shall be accompanied by earnest money deposit of **Rs. 8,200.00 (Rupees Eight Thousand Two Hundred Only)** in the form of Crossed Demand Draft/Pay order issued in favour of 'UNION BANK OF INDIA' payable at *Kolkata* without which tender will be liable to rejection. Earnest money deposit in respect of the successful tenderer will be retained & it will become a part of Initial Security Deposit.

F) Initial Security Deposit (ISD):

The successful tenderer to whom the contract is awarded will have to deposit as "initial security deposit" (ISD) a further sum to make up **2%** of the value of the accepted tender including the Earnest Money. ISD may be submitted in the form of Demand Draft/Pay Order / Banker's Cheque. The Initial Security Deposit will have to be made within **7 days** from the date of acceptance of tender, failing which the Bank at its discretion may revoke the letter of acceptance and forfeit the Earnest Money deposit furnished along with the tender.

G) Retention Money:

To be deducted from Progressive running bills **@ 3 %** of the gross value of the Running / Final Bill.

H) Release of Retention Money:

100% after expiry of the Defect Liability period of 1 calendar year. Retention money will not bear any interest.

I) Cost of Tender document:

Rs. 500/- by DD/BC in favour of "UNION BANK OF INDIA" which is not refundable. (Without tender money, tender will be rejected)

J) Availability of Tender Documents:

At office of **UNION BANK OF INDIA, 3, Middleton Row, Gr. Floor, Kolkata - 71**, during working hours from 11 am up to 5 pm (Except Sunday & Bank Holidays) from **:06/06/2022 to 15/06/2022**

K) Date & Place of Submission of Tender :

15/06/2022 up to **2 .00 P.M.** at Premises Department, GREATER KOLKATA Regional Office, Union Bank Of India at 3, Middleton Row, Gr. Floor, Kolkata - 71.

L) Mode of Submission of Tender :

Tenders are to be submitted on the printed forms issued by us. The Contractor should quote the rates in figures as well as in words. Special care should be taken to write the rates in figures only in such a way that interpretation is not possible. The total amount should be written both in figures and in words. In case of figures, the words "Rs" should be written before the figure of rupees and words "P" after the decimal figures e.g. Rs. 2.15 "P" and in case of words, the word "Rupees", it should invariably be up to two decimal places. While quoting the rate in schedule of quantities, the words "Only" should be written closely following the amount and it should not be written in the next line. The amount of each item shall be worked out and the requisite total shall be given. All corrections shall be attested by the initials of the Tenderers. In case of any attested by the initials of the Tenderers. In case of any discrepancy/difference, the rate quoted in words in the original copy of the tender and the amount derived there from shall prevail and be binding. Tenders should always be placed in sealed cover with the name of the project and date of opening of tender written on the envelopes will be received by the

THE CHIEF MANAGER (OPERATIONS)
UNION BANK OF INDIA
GREATER KOLKATA REGIONAL OFFICE
3, MIDDLETON ROW, GR Floor,
KOLKATA – 700 071.

in a sealed envelope of appropriate size containing the documents as under :-

ENVELOPE MARKED NO. – 1 :

Envelope marked No.1 shall contain the following documents:

1. Forwarding letter without mentioning the cost of Tender value arrived at with quoted rates.
2. Earnest money deposit furnished in the form of Crossed Demand Draft/Banker's Cheque drawn in favor of UNION BANK OF INDIA for the amount indicated in the Notice of invitation to tender.

3. Letter of Empanelment.
4. Any other papers the tenderers wishes to submit.

ENVELOPE MARKED NO. – 2 :

Envelope marked No.2 shall contain the following documents :

1. The Tender Document comprising of General Conditions of Contract, Tender Notice, Technical Specifications etc. along with Bill of Quantities duly filled up indicating price (along with Tender drawing).
2. Any condition stipulated herein will not be accepted.

ENVELOPE MARKED NO. – 3 :

Envelope marked No.1 & 2 shall be put in larger envelope of adequate size marked No.3 which shall be properly sealed. This envelope shall be endorsed on the outside face "Air Conditioning works of MOHANPUR BRANCH".

ENVELOPE-1

Containing Earnest money deposit shall be opened first and if the Earnest money deposit is not found as prescribed the tender shall be rejected and other sealed envelope will be returned unopened to the representatives of the concerned tender if present. Then the covering letter without mentioning the tender amount arrived from the quoted rates and other documents as specified herein above will then be scrutinized and comments/conditions which has financial implication will be evaluated by the Architect. Based on the recommendations and evaluation of the Architect the employer may discuss comments/conditions with the tenderers.

ENVELOPE- 2

Containing the priced tender volumes will be opened on the same day.

N) Clarification, if any to be obtained from:

URBANA

City Office: A/135, Baghajatin, Kolkata-700092

Regd. Office: 23A/4, D.P.P. Road, Naktala, Kolkata-700047

Phn: +91 9477139265

e-mail: urbana.soumyajit@gmail.com

The Bank reserves the right to accept or reject any or all the tenders received and to place order on one or more firms without assigning any reason whatsoever. Conditional tenders will be summarily rejected. The notification of award of contract will be made in writing to the successful tenderer only by the Bank.

Yours faithfully,

For and on behalf of,

**The Chief Manager (OPERATIONS)
UNION BANK OF INDIA
GREATER KOLKATA REGIONAL OFFICE
3, MIDDLETON ROW, GR Floor,
KOLKATA – 700 071.**

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SECTION –II
FORM OF TENDER

To
The Chief Manager (OPERATIONS)
Union Bank Of India,
GREATER KOLKATA REGIONAL OFFICE
3, MIDDLETON ROW, GR Floor,
KOLKATA – 700 071.

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Sir,

Reg. : “Air Conditioning works of MOHANPUR BRANCH”.

1. I/we refer to the tender notice issued by your consultants “URBANA” on your behalf for Air Conditioning Works of MOHANPUR Branch in connection with the above.
2. I/We do hereby offer to perform, provide, execute, complete and maintain the work in conformity with drawings, conditions of contract specifications, Bill of Quantities for the sum of Rs..... at the respective rates quoted in the schedule of quantities.

3. I/We have satisfied myself/ourselves as to the site conditions, examined the drawings and all aspects of the site tender conditions. Subject to above, I/We do hereby agree, should this tender be accepted in whole or in part, to:

A : Abide by and fulfill all the terms and provisions of the said conditions annexed hereto.

B : Complete the work within **15 days**, as stipulated in two or three shifts if considered necessary by the consultants at no extra cost to the Employer.

4. I/We have deposited Earnest Money of Rs..... in the form of Crossed DD / PO /BC No. Dated which, I/We note, will not bear any interest and is subject to forfeiture solely at Bank's discretion :

i. If the work is not commenced by me/us within **7(seven) days** from the date of issue of formal work order.

Or,

ii. If the offer is withdrawn within the validity period of acceptance.

iii. If the contract is not executed within **90 days** from award of contract.

5. I/We understand that you are not bound to accept the lowest or any tender you receive.

6. The acceptance of this tender shall constitute a binding of any contract and any failure as mentioned in item 4 above 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 to claim extra cost / expenditure incurred by them from us.

7. Our Bankers :

i)

ii)

iii)

8. Name of partners / directors of our firm :

I.

II.

III.

IV.

Yours Faithfully,

Signature.....

Name

Designation.....

SECTION – III

GENERAL RULES AND INSTRUCTIONS FOR THE GUIDANCE TO TENDERERS

Tenders are invited on behalf of **UNION BANK OF INDIA, GREATER KOLKATA REGIONAL OFFICE**, 3, MIDDLETON ROW, Gr Floor, KOLKATA – 700 071, for **"Air Conditioning works of MOHANPUR BRANCH"**. Contract document consisting of the plans, specifications, bill of quantities and drawings of various classes of work to be performed and set of conditions of contract to be complied with can be downloaded from the **UNION BANK OF INDIA website**.

1. The site of the work is available. The intending tenderer shall visit the site and make himself thoroughly acquainted with the local site condition, nature and requirements of the work, facilities of the work, facilities of transport condition, effective labour and materials, access and storage for materials and removal of rubbish etc.
2. As the entire work is to be completed in all respects within the stipulated period of **15 days** and to achieve the target date of entire completion if be required /essential, the work for day and night shifts have to be carried out by the tenderer/contractor, for that at no extra cost, charges shall be paid to the contractor by the employer. While quoting rates, in addition to above, whether mentioned or not the rate shall always include the charges for day to day removal of debris/spoils

from site in conformity with the local Municipal rules. Bank's normal work shall not be jeopardized in any way for undertaking the work. Contractor shall include in his quoted rate for supplying the plastic sheets/tarpaulin to cover Banks materials as protection against getting damaged either due to dust or water while executing the work. Tenders in only printed forms issued by the consultants should be placed in sealed covers addressed to. The tenderers should quote in figures as well as in words the rates, and amount. The language for filling tender documents shall be in English. The amount for each item should be marked out and requisite total given. The initials of the tenderers with the seal of the firm shall attest all corrections. In case any discrepancy /difference is found on checking between rates quoted by the contractor in words and figures or in the amount worked out by him, the following procedure shall be followed:

- A. When there is a difference between the rates in figures and in words, the rate, which corresponds to, the amounts worked out by the contractor, shall be taken as correct.
 - B. When the contractor does not work out the amount of any item or it does not correspond with the rate written either in figures or in words, then the rate quoted by the contractors in words shall be taken as correct.
 - C. When the rate quoted by the contractor in figures and in words tallies but the amount is not worked out correctly rate quoted by the contractor shall be taken as correct and not the amount.
 - D. Amendments as mentioned above shall be based on the tender marked original only.
3. Special care should be taken to write the rates in figures as well as in words and the amounts in figures only. In such a way that interpolation is not possible. Amount should be written in figures. In case of figures the words "RS". Should be written before the figures of rupees and words paise after the decimal figures, e.g. Rs 2.15 and in case of words, the word "Rupees" should precede and the word "Paise" should be written at the end, unless the rate is in whole rupees and followed by the words "only", it should invariably be up to two decimal places. While quoting the rate in schedule of quantities, the word "only" should be written closely following the amount and it should not be written in the next line.
 4. The acceptance of a tender will rest with **UNION BANK OF INDIA, GREATER KOLKATA REGIONAL OFFICE**, which does not bind itself to accept the lowest tender and reserves to itself the authority to reject any or all the tenders received without assignment of any reason. All tenders in which any of the prescribed conditions are not fulfilled or incomplete in any respect are liable to be rejected. The bank reserves the right to accept the tender in full or in part and the tenderer shall have no claim for revision of rates or other conditions if his tender is accepted in parts.
 5. Canvassing in connection with tenders is strictly prohibited and tenders submitted by the contractors who resort to canvassing will be liable to rejection.
 6. An item rate tender containing percentage below /above will be summarily rejected. However, when a tenderer voluntarily offers a rebate for payment within a stipulated period, this may be considered.
 7. On acceptance of the tender, the name of the accredited representative(s) of the Contractor who would be responsible for taking instructions from the Employer / Consultant shall be communicated to the Employer / Consultant.
 8. GST or any other tax on materials or on finished work in respect of this contract whether in vogue or likely to be imposed in future, shall be payable by the Contractor. The Employer will not entertain any claim whatsoever in this respect at any time. Rates should include all these taxes.
 9. No employee of the Employer is allowed to work as a Contractor for a period of two years of his retirement from Employer services, without the previous permission of the Employer. This contract is liable to be cancelled if either the Contractor or any of his employees is found at any time to be such a person who had not obtained the permission of the Employer /Consultant as aforesaid before submission of the tender or engagement in the Contractor's service.

10. The tender for work shall remain open for acceptance for a period of **6 months** from the date of opening tenders. If any tenderer withdraws his tender before the said period, then the employer shall be at liberty to forfeit the earnest money paid along with the tender.
11. The tender for the work shall not be witnessed by a contractor or contractors who himself /themselves has / have tendered or who may and had/have tendered for the same work. Failure to observe this condition would render tenders of the contractors tendering as well as witnessing the tender liable to summary rejection.
12. It will be obligatory on the part of the tenderer to tender and sign the tender in all pages documents.
13. The Earnest money deposit of the contractor whose tender is accepted shall be forfeited in full in case he does not start the work by the stipulated date mentioned in the letter of award.
14. The Earnest money deposit of unsuccessful bidders will be refunded to them WITHOUT ANY INTEREST within **7 days** from the date of award of work to the successful bidder.
15. A certificate of completion shall accompany the final bill from the consultant. Payment of final bill shall be made after deduction of retention money as specified which sum will be refunded in the manner as stated conditions. In acceptance of payments of the final bill by the contractor would indicate that he will have no further claim in respect of the work executed.
16. **CLEARING SITE ON COMPLETION**
On completion of the work the contractor shall clear away and remove from the site all constructional plant, surplus materials, rubbish and temporary work of every kind and leave the whole of the site and the work clean and in workmenlike conditions to the satisfaction of the employer /consultant.
17. **TERMS OF PAYMENT**
 - a) 50% may be claimed in the form running bill, against the value of work executed.
 - b) 47% may be released after entire work is completed and handed over to the satisfaction and certification of the consultant.
 - c) 03% to be released after the defect liability period of 12 months, without any interest.
18. **IDLE LABOUR**
Whatever the reasons may be no claim for idle labour ; additional establishment cost of hire and labour charges of tools and plants would be entertained under any circumstances.
19. **LIQUIDATED DAMAGE**
The contract period / completion time is the essence of the contract and in case the contractor fails to complete the entire work within the stipulated completion time, the clause of 'Liquidated Damage' shall be imposed at the rate of One percent (1%) per week or part there of the total value of the contract / order till the work is being completed subject to maximum of Ten percent (10%) of the total value of the work. It is agreed that this is a genuine pre-estimate of the loss / damage which will be suffered on account of the delay / breach on your part and this amount shall be payable on demand without their being any proof of the actual loss / damage caused by such delay / breach. In addition to this, the BANK will be at liberty to terminate the contract and get the work completed through any other agency at the contractor's risk and cost.
20. **ESCALATION**
No Escalation of price will be permitted.
21. **TERMINATION OF CONTRACT BY EMPLOYER**
If the contractor being a company go into liquidation whether voluntary or compulsory or being a firm shall be dissolved or being an individual shall be adjudicated insolvent or shall make an assignment or a composition for the benefit of the greater part, in number of amount of his creditors or shall enter into a deed or arrangement with his creditors, or if the Official Assignee in insolvency, or the Receiver of the Contractor in insolvency, shall repudiate the contract or, if a receiver of the contractor's firm appointed by the court shall be unable , within fourteen days after notice to him requiring him to do so ,to show to the reasonable satisfaction of the Employer that

he is able to carry out and fulfill the contract, and if so required by the Employer to give reasonable security there for, or if the Contractor shall suffer execution to be issued, or shall suffer any payment under this contract to be attached by or on behalf of and of the creditors of the Contractor, or shall assign, charge or encumber this contract or any payments due or which may become due to the contractor, there under or shall neglect or fail to observe and perform all or any of the acts matters of things by this contract, to be observed and performed by the contractor within three clear days after the notice shall have been given to the contractor observe or perform the same or shall use improper materials or workmanship in carrying on the work or shall in the opinion of the employer not exercise such due diligence and make such due progress as would enable the work to be completed within due time agreed upon and shall fail to proceed to the satisfaction of the employer after three clear days notice requiring the contractor so to do shall have been given to the contractor as hereinafter mentioned or shall abandon the contract, then and in any of the said cases, the employer may not withstanding previous waiver determine the contract by the notice in writing to the effect as herein after mentioned but without thereby affecting the powers of the employer of the obligations and liabilities of the contractor the whole of which shall continue in force as fully as if the contract had not been so determined as if the work subsequently executed had been executed by or on behalf of the contractor.

IF THE CONTRACT HAS BEEN TERMINATED, THE EMPLOYER RESERVES THE RIGHT TO RECTIFY THE ITEMS AND COMPLETE THE JOB IN THE RISK AND COST OF THE TERMINATED VENDOR BY ANY OTHER APPROVED VENDOR(S).

SECTION – IV

GENERAL CONDITIONS OF CONTRACT

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

1. INTERPRETATION :

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

2. EMPLOYER :

The term employer shall denote **UNION BANK OF INDIA, GREATER KOLKATA REGIONAL OFFICE** or any of its employees representative authorized on their behalf.

3. CONSULTANT :

The term consultant shall mean **URBANA, City Office at A/135, Baghajatin, and Kolkata-700092** in the event of their ceasing to be consultant for the purpose of this contract such other persons /as the employer shall nominate for the purpose.

4. CONTRACTOR :

The term contractor shall mean the individual or firm or company whether incorporated or not, undertaking the work and shall include legal representative of such individual of such firm or company or successors of such firm or company as the case may be and permitted assigns of such individual of firm or company.

5. SITE :

The site shall mean the site where the work is to be executed at **MOHANPUR BRANCH**

6. DRAWINGS :

The work is to be carried out in accordance with drawings, specification, the schedule of quantities and any further drawings, which may be supplied, or any other instructions, which may be given by the employer consultant during the execution of the work. All drawings relating to work given to the contractor together with a copy of specification and schedule of quantities are to be kept at site and the employer /consultant shall be given access to such drawings or schedule of quantities wherever necessary. In case any detailed drawings are necessary contractor shall prepare such detailed drawings and or dimensions sketches there for and have it confirmed by the employer consultant prior to taking up such work. The contractor shall ask in writing for all clarifications on matters occurring anywhere in drawings, specifications and schedule of quantities or to additional instructions atleast **7 days** ahead from the time when it is required for implementation so that the employer /consultant may be able to give decision thereon. The work shall mean the work to be executed or done under this contract.

7. SCOPE :

The work consists of **"Air Conditioning works of MOHANPUR BRANCH"**. In accordance with the drawings, specifications and schedule of items and quantities. It includes furnishing all material, labour, tools and equipment and management necessary for and incidental to the construction and completion of the work. All work during its progress and upon completion, shall confirm to the lines, elevations and grades as shown on the drawings furnished by the employer /consultant and to furnish by the employer/consultant. Should any detail essential for efficient completion of the work be omitted from the drawings and specification it shall be the responsibility of the contractor to inform the employer /consultants concurrence, so that upon completion of the proposed work the same will be acceptable and ready for use. Employer/ consultant may in their absolute discretion issue further drawings and or written instructions, details, directions and explanations which are hereafter collectively referred to as the employer /consultants instructions in regard to :

A : The variation on modification of the design, quality or quantity of work or the addition or omission or substitution of any work :

B : Any discrepancy in the drawings or between the schedule of quantities and or drawings and or specification.

C : The removal from the site of any defective material brought thereon by the contractor and the substitution of any other material thereof.

D : The demolition removal and /or rejection of any work executed by the contractor/s.

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

F : The opening up for inspection of any work covered up.

G : The rectification and making good of any defects under clauses herein after mentioned and those arising during the maintenance period (retention period). The contractor shall forth with comply with and duly execute any work comprised in such employer/consultants instructions provided always that verbal instruction direction and explanations given to the contractor or his representative upon the work by the employer/consultant shall if involving a variation be confirmed in writing to the contractor within seven days. No work for which rates are not specifically mentioned in the priced Schedule of quantities shall be taken up without written permission of the employer/consultant. The employer in consultation with the consultant shall fix rates of items not mentioned in the priced schedule of quantities.

8. DETAILED DRAWINGS AND INSTRUCTIONS

The employer through its consultant shall furnish with reasonable promptness additional instructions by means of drawings or otherwise necessary for the proper execution of the work. All such drawings and instructions shall be consistent with the contract documents true developments thereof and reasonably inferable there from. The work shall be executed in conformity therewith and the contractor shall not work without proper drawings and instructions. Immediately after receipt of the work order of the contract the contractor shall prepare a program schedule and submit the same to the employer through the consultant for approval which shall indicate the dates for the starting and completion of the various activities at the stages of construction.

9. COPIES FURNISHED

The contractor on the signing hereof shall be furnished by the employer through its consultant free of charge with a copy of the priced schedule of quantities rates, two copies of each of the said drawings and one copy of specifications and two copies of all further drawings issued during the progress of the work. Any further copies of such drawings required by the contractor shall be supplied on payment of the charges thereof by the contractor.

10. OWNERSHIP OF DRAWINGS

All drawing specification and copies thereof furnished by the employer through its consultants are the property of the employer. They are not to be used on other work, and with the execution of the signed contract set are to be returned to the employer on request at the completion of the work.

11. FAILURE BY CONTRACTORS TO COMPLY WITH EMPLOYERS / CONSULTANTS INSTRUCTION

If the contractor after receipt of written notice from the employer and or the consultant requiring compliance within ten days fails to comply with such further drawings and or employer /consultant instructions, the employer through the consultant or other persons, may employ other persons to execute any such work whatsoever that may be necessary to give effect thereto and pay all cost incurred in connection therewith and same shall be recoverable from the contractor by the employer on the certificate of the consultant as a debt or shall have right to deduct same from any money due or to become due to the contractor.

12. TENDERER SHALL VISIT THE SITE

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

13. TENDERS

The entire set of tender paper issued to the tenderer should be submitted fully priced and also signed on the last page together with initials on every page. Initial/signature will indicate the acceptance of the tender papers by the tenderer. The schedule of quantities shall be filled in as follows:

1. The Rate column to be legibly filled in ink in both English figures and English words.
2. Amount column to be filled in for each item and the amount for each subhead as detailed in the schedule of quantities.
3. All corrections overwriting are to be initiated with the seal of the firm.
4. In case of any errors/omissions in the quoted rates, the rates given in the tender. No modification writing or corrections can be made in the tender papers by tenderer. The employer reserves the right to reject the lowest or any tender and also to discharge any or all of the tenders for each section or to split up each and every item should be correct, workable and self-

supporting. If called upon by the employer consultant detailed analysis of any or all the rates shall be submitted. The employer/consultant shall not be bound to recognize the contractor analysis. The work will be paid for as measured work on the basis of actual work done and not as lump sum contract. All items of work described in the schedule of quantities are to be deemed and paid as complete work in all respects and details including preparatory and finishing work involved, directly, related to and reasonably detectable from the drawings specification and schedule of quantities and no further extra charges will be allowed in this connection. In the case of lump sum charges in the tender in respect of any item or work, the payment of such time of work will be made for the actual work done the basis of lump sum charges as will be assessed to be payable by the employer consultant. The employer has power to add to or omit from any work as shown in drawings or described in specifications or included in schedule of quantities and intimate the same in writing but no addition, omission or variation shall be made by the contractor without authorization from the employer no variation shall vitiate the contract.

14. AGREEMENT

The successful contractor shall sign the agreement as per draft agreement within **7 days** from the date of issue of formal work order and he shall pay for all stamps and legal expenses, incidental there to. However the written acceptance of the tender by the employer /consultant on behalf of employer will constitute a binding contract between the employer and the person so tendering whether such formal agreement is or is not subsequently executed.

15. ROYALTIES & PATENTS

The contractor shall pay all royalties and license fees. He shall defend all suits or claims for infringement of any patent rights and shall save the employer harmless from loss on account thereof.

16. PERMITS AND LICENCES

Permits and licenses for release of materials which are under government control will be arranged by the contractor. The employer will render necessary assistance, sign any forms or applications that may be necessary.

17. GOVERNMENT AND LOCAL RULES

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

18. TAXES AND DUTIES

The tenderers must include in their tender prices quoted for all duties, royalties, or any other taxes or local charges if applicable. Only GST will be paid extra.

19. QUANTITY OF WORK TO BE EXECUTED

The quantities shown in the schedule of quantities are intended to cover the entire new structure indicated in the drawings but the employer reserves the right to execute only a part or the whole or any excess thereof without assigning any reason therefore. If at any after the commencement of the work, the employer consultant shall for any reason whatsoever not require the whole work thereof as specified in the tender to be carried out the consultant employer shall give notice in writing of the fact to the contractor who shall have no claim to any payment for compensation whatsoever on account of any profit or advantage with which he might have derived from the execution of the work in full, but which he did not derive in consequence of the full amount of the work not having been carried out, neither shall he have any claim for compensation by reason of any alterations having been made in the original specification, drawings, designs and instructions which shall involve any curtailment of the work as originally contemplated.

20. EARNEST MONEY /SECURITY DEPOSIT & RETENTION MONEY :

The tenderer will have to deposit **1% of the Total Tender Amount** in the form of crossed demand Bank Draft/Pay Order/Banker's cheque drawn in favour of **UNION BANK OF INDIA**

payable at **KOLKATA** from any nationalized Bank at the time of submission of tender as an earnest money. The employer is not liable to pay any interest on the earnest money. The earnest, money of the unsuccessful tenderers will be refunded without any interest after the decision to award the work is taken. Retention money will be deducted from interim bills @ 3 % of the accepted value of the tender. This retention money shall be refunded to the successful contractor without any interest 14 days after successful completion of the defects liability period of **12 months** provided the contractor has satisfactorily carried out all the work and attended to all defects in accordance with the condition of the contract. In case the contractor fails to do so appropriate amount shall be deducted by the Bank from retention money.

21. CONTRACTOR TO PROVIDE EVERYTHING NECESSARY:

The contractor shall provide everything necessary for the proper execution of the work according to the intent and meaning of the drawings, schedule of quantities and specifications taken together whether the same may or may not be particularly shown or described therein provided that the same can reasonably be inferred there from and if the contractor finds any discrepancies therein the shall immediately and in writing refer the same to the employer /consultant whose decision shall be final and binding. The contractor shall provide himself for ground and fresh water for carrying out the work at his own cost. The employer shall on no account be responsible for the expenses incurred by the contractor for hired ground of fresh water obtained from elsewhere. The rates quoted against individual items will be inclusive of everything necessary to Complete the said items of work within the contemplation of the contract, and beyond the unit price no extra payment will be allowed for incidental or contingent work, Labour and /or materials inclusive of all tax and duties whatsoever except for specific items, if any stipulated in the tender documents. The contractor shall supply fix and maintain at his own cost for the execution of any work all tools tackles machinery's and equipment's and all the necessary centering, scaffolding, staging, planking, timbering, strutting, shoring, pumping, fencing, boarding, watching and lighting by night as well as by day required not only for the proper execution and protection of the public and safety of any adjacent roads, streets, walls houses buildings all other erections matters and things and the contractor shall take down and remove any or all such centering, scaffolding, planking, timbering etc. shall be required or when so to do and shall fully reinstate and make good all matters and things disturbed during the execution of work to the satisfaction of the employer/ consultant.

22. TIME OF COMPLETION, EXTENSION OF TIME AND PROGRESS CHART

A. TIME OF COMPLETION

The entire work is to be completed in all respects within the stipulated period of **15 days**, from the date of issue of formal work order. Time is the essence of the contract and shall be strictly adhered to by the contractor. The work shall not be considered as complete until the employer consultant have certified in writing that this has been completed and the defects liability period shall commence from the date of such certificate.

B. PROGRAMME CHART TO BE PROVIDED

During the period of construction the contractor shall maintain proportionate progress on the basis of the program chart submitted by the contractor immediately before commencement of work and agreed to by the employer consultant.

23. CLEARING SITE AND SETTING OUT WORK

The site shown on the plan shall be cleared of all obstruction, loose stone and materials rubbish of all kinds.

24. MATERIALS WORKMANSHIP, SAMPLES, TESTING OF MATERIALS

All the materials specified to be maintained and the contractor shall have to carry out tests on materials and workmanship in approved materials testing laboratories or as prescribed by the employer.

25. REMOVAL OF IMPROPER WORK

The employer consultant shall during the progress of the work have power to order in writing from time to time the removal from the work within such reasonable time to times as may be specified in the order of any materials which in the opinion of the employer consultant are not in accordance with specifications or instruction .In case the contractor refuses to comply with the

order the employer consultant shall have the power to employ and pay other agencies to carry out the work and all expenses consequent thereon or incidental thereto as certified by the employer consultant shall be borne by the contractor or may be deducted from any money due to or that may become due to the contractor. No certificate, which may be given by the consultant, shall relieve the contractor from his liability in respect of unsound work or bad materials.

26. MEASUREMENT

The consultant shall from time to time intimate to the contractor that he requires the work to be measured, and the contractor shall forthwith attend or send a qualified agent to assist the consultant or the consultants representative/employers representatives in taking such measurements and calculations and to furnish all particulars or to give all assistance required by either of them.

27. ACTION WHERE NO SPECIFICATION

In the case of any class of work for which there is no such specification in technical specification, such work shall be carried out in accordance with the I.S. specification and in the event of there being no I.S. specification, then in such case the work shall be carried out in all respect in accordance with the instructions and requirements of the consultant /employer.

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

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

29. PAYMENTS

a) All bills shall be prepared by the Contractor in the form prescribed by the Employer/Consultant, format enclosed. In the bill it has to be shown deductions for all previous payments, retention money, etc. Advance/adhoc payment for work actually executed will not be normally made. However, adhoc payment may be made at the discretion of Consultant /Employer in case of exigency.

b) The Consultant /Employer shall issue a certificate after due scrutiny of the Contractor's bill stating the amount due to the Contractor from the Employer and the contractor shall be entitled to payment thereof, by the Employer.

30. The contractor shall work in close coordination with other agencies to avoid rework/damage and ensure timely completion.

31. Any damage to the work before the building is handed over is to be replaced or made good at contractor expense to the entire satisfaction of the consultant.

32. The quantities indicated are subject to change .The payment of the bill will be made as per actual measurement at site and will be certified by the Consultant and cleared by the employer.

33. The tender shall sign each and every page of the tender documents including the drawings attached hereto.

34. The consultant shall have power to insist to the contractor to submit the sample /color/ test certificate from any Govt. Authorized agent of any materials to be used in the work, where the expenditure is to be borne by the contractor.

35. 10 % of the total value of work will be retained as retention money from Contractor's bills which shall be released without any interest after the defect liability period of 12 months provided the contractor has satisfactorily attended to all defects if any, in this period.

36. In case of any dispute the matter will be referred to the **Chief Manager (operations), Union Bank Of India, Greater Kolkata Regional Office**, for an arbitration, whose decision shall be final and binding on both parties.

37. For litigation if any arising thereof, the competent court at Kolkata alone will have jurisdiction.

38. DECLARATION

I/we have inspected the site of work and have made me/us fully acquainted with the local conditions in and around the sites of works. I/we hereby declare that I/we have gone through the conditions laid down in the Notice Inviting Tender, General Conditions of Contract, Technical Specifications and understood the same and on the basis of the same I /we quoted our rates in the schedule of quantities attached with the tender documents.

I /we shall also uniformly maintain such progress with the work, as may be directed by the Employer /Architects to ensure completion of same within the target date as mentioned in the tender document.

Signature of Tenderer

Witness :

Name & Address :

Date :

SECTION – V

SPECIAL CONDITIONS OF CONTRACT

GENERAL

The scope of work covers execution and completion of the proposed "Air Conditioning works of MOHANPUR BRANCH". in accordance with drawings and specifications prepared by and under the direction and to the satisfaction of the Consultant/ Employer.

Contract : The form of Contract shall be according to the Conditions of Contract. The following clauses shall be considered as an extension and not in limitation of obligation of the Contractor.

Drawings : Two copies of all drawings (if applicable), shall be furnished by the Consultant/ Bank. to the Contractor for his own use until the completion of the Contract, and shall be accessible at all reasonable times to the Consultant or their representatives. All important drawings are to be mounted on boards and placed in racks and indexed.

Dimensions : Figured dimensions are in all cases to be accepted in preference to scaled sizes. Large scale details take precedence over small scale drawings. In case of any discrepancy the Contractor shall ask for clarification before proceeding with the work. The Contractor shall include in his rates for all the items listed in this section.

- 1 **Contractor to inspect site** : The Contractor shall visit and examine the construction site and satisfy himself at his own cost as to the nature of the existing roads or other means of communications, the extent and magnitude of the work and facilities for obtaining materials and shall obtain generally his own information. Any misunderstanding or incorrect information on any of these points or on the grounds of insufficient description, will not be allowed.
1. **Access to site** : The Contractor is to include in his rates for forming access to site, with all temporary roads gangways required for the works.
2. **Setting out** : The Contractor shall set out the site in accordance with the plans. All grid/centre-lines shall be pegged out to the satisfaction of the Consultant. The Contractor shall be responsible for the correctness of the lining out and any inaccuracies are to be rectified at his own expense. He will be responsible for taking levels of work at the site before setting out and recording them without any extra charge.
3. **Treasure grove** : Should any treasure fossils, minerals or work of art of antiquarian interest be found during carrying out the works, the Contractor shall give immediate notice to the Consultant /Bank of any such discovery and shall hand over such finds to the Employer.
4. **Access for inspection** : The Contractor is to provide at his own cost all times during the progress of the works and the maintenance period proper means of access, with ladders, gangways etc. and the necessary attendance to move and adapt as directed for the inspection of measurement of the works by the Consultant or their representatives.
5. **Attendance upon all trades** : The general Contractors shall be required to attend on all the tradesmen or sub-contractors appointed by the Employer for water supply and sanitary, electrical installation, lifts, air-conditioning, security, equipment, hardware, telephone and other specialist Contractors. The rates quoted shall be inclusive of all attendance and also allow the other Contractors, appointed by the Employer, use of his scaffolding and retain until such time the relevant sub-contract works are completed.
6. **Water supply** : Water shall be arranged by the Contractor. The general Contractor shall allow the use of water for other works on the site done by other Contractors appointed by the Employer and the consumption charges shall be paid by each agency as appointed by the Employer.
7. **Stores and watchmen** : The Contractor shall provide at his own cost for necessary stores of adequate dimension for storage and protection of materials. All such stores shall be cleared away and the whole area left in good order on completion of the Contract to the satisfaction of the Consultant. All materials which are stored such as ply, wood, Laminates or any other matter shall be stacked in such a manner as to facilitate rapid and easy checking of quantities of such materials. The Contractor shall nominate a person who would take instruction from the Consultant/employer.
8. **Cost of transporting** : The Contractor shall allow at his cost for all transporting unloading, stacking and storing of supplies of goods and materials for this work on the site and in the places approved from time to time by the Consultant. The Contractor shall allow at his price for transport of all materials controlled or otherwise to the site.
9. **Office accessories and accommodation** : The Contractor shall also provide at his own expense office furniture with drawing accessories for the official use of the controller and at all times maintain in good working order necessary instruments at site to enable the Consultant/employer to check the lines and levels of the work.
10. **Materials workmanship & samples** : Materials shall be of approved quality and the best of their kind available and shall generally conform to relevant I.S. specifications. The Contractor shall order all the materials required for the execution of work as early as necessary and ensure that such materials are on site well ahead of requirement for use in the work. The work involved calls for high standard of workmanship combined with speed and to the entire

satisfaction of the Consultant. Before ordering materials, the Contractor shall get the samples approved from the Consultant well in advance.

- 11. Rates for non-tender items :** Rates of items not included in schedule of specification shall be settled as per current PWD schedule of rates if not available then to be settled as per variation clause of the condition of contract.
Rates to include : The rates quoted shall be for all heights and depths and for finished works, in any shape. The Contractor shall ascertain from other Contractors as directed by the Architects all particulars relating to their work with regard to the order of its execution and the position in which chases, holes and similar items will be required, before the work is taken in hand as no claims for extra will be allowed for cutting away work already executed in consequence of any neglect by the Contractors to ascertain these particulars beforehand.
- 12. Testing of work and material :** The Contractors shall, if required by the Consultant/employer, arrange to test materials and/or portions of the work at his own cost in order to prove their soundness and efficiency. If after any such test the work or portion of work is found in the opinion of the Consultant to be defective or unsound, the Contractor shall pull down and redo the same at his own cost, defective materials and the debris shall immediately be removed from the site.
- 13. Foreman and Tradesmen :** All tradesmen shall be experienced men properly equipped with suitable tools for carrying out all the work of carpentry and joinery and other special trades in a first class manner and where the Consultant deem necessary, the Contractor shall provide any such tools, special or ordinary which are considered necessary for carrying out the work in a proper manner. All such tradesmen shall work under an experienced and properly trained Foreman, who shall be capable of reading and understanding all drawings pertaining to this work.
- 14. Work programme weekly progress report :** The Contractor shall prepare and submit to Consultant/employer for approval, a bar chart showing the programme of construction of various items, fitted within the period stipulated for completion, along with submission of the tender. The Contractor shall also furnish necessary particulars to the Consultant for compiling weekly progress reports in the form furnished by the Consultant/employer.
- 15. Clearing of site :** The Contractor shall after completion of the work clear the site of all debris and left over material at his own expense to the entire satisfaction of the Consultant and municipal or other public authorities.
- 16. Photographs :** The Contractor shall at his own expense supply to the Consultant with duplicate copies of large coloured photographs not less than 25 x 20 cm. (10" x 8") of the works taken from two approved portions of each building, at beginning of the work, at completion of work and at every important stage of construction without fail.
- 17. Preparation of Premises for occupation and use on completion :** The whole of the work shall be thoroughly inspected by the Contractors and all deficiencies and defects put right. On completion of such inspection, the Contractor shall inform the Consultant in writing, that he has finished the work and it is ready for the inspection of Consultant/employer.
- 18. Vouchers :** The Contractors shall furnish the Architect with vouchers on request to prove that the materials are as specified and to indicate the rates at which the materials are purchased in order to without the rate analysis of tender and non-tender items which he may be called upon to carry out thereafter.
- 19. Protection :** The Contractor shall properly cover up and protect all work throughout the duration of work and until completion, particularly masonry, mouldings, steps, or special floor finishes, staircases and balustrades, doors and window frames, plaster, angles, lighting and sanitary fittings, glass, paint work and all finishings at his cost till the same is handed over to the owner.
- 20. Safety Code :**

- i) These shall be maintained in a readily accessible place, first-aid appliances including adequate supply of sterilized dressing and cottonwood.
- ii) An injured person shall be taken to a public Hospital without loss of time, in cases where the injury necessitates Hospitalization.
- iii) Suitable and strong scaffolds should be provided for workmen for all works that cannot safely be done from ground.
- iv) No portable single ladder shall be over 8 meters in length. The width between the side rails shall not be less than 30 cm (clear) and the distance between the adjacent rungs shall not be more than 30 cm. When a ladder is used, an extra Mazdoor shall be engaged for holding the ladder.
- v) Every opening in the floor of a building or in the working platform be provided with suitable means to prevent the fall of persons or materials by providing suitable fencing or railing whose minimum height shall be one meter.
- vi) No floor, roof or other part of the structure shall be so over loaded with debris or materials as to render it unsafe.
- vii) Those engaged in welding works shall be provided with welder's protective eye-shields and gloves.
- viii) No paint containing lead or lead products shall be used except in the form of paste or ready-made paint. Suitable facemasks should be supplied for use by the workers when paint is applied in the form of spray or surface having lead paint dry rubbed and scrapped.
- ix) Over all shall be supplied by the Contractor to the painters and adequate facilities shall be provided to enable the working painters to wash during the periods of execution.

SECTION –VI

ARTICLES OF AGREEMENT

(ON NON-JUDICIAL STAMP PAPER of Rs.100.00 purchased in the name of Contractor / Employer)

Articles of agreement made the day of Between the **UNION BANK OF INDIA, GREATER KOLKATA REGIONAL OFFICE, 3, MIDDLETON ROW, GR. FLOOR, KOLKATA – 700 071.** (Herein after called the employer) which expression should include its successors and assignee of the one part and (*herein after, called the contractor*) of the other part, which expression should include its successor and assignee where as the employer is desirous of executing the **"Air Conditioning works of MOHANPUR BRANCH".** and has caused drawings and specifications describing the work to be prepared by URBANA, (herein after called the consultants) and whereas the said drawings the Technical specifications and the schedule of items and quantities have been signed by and on behalf of the parties hereto. And whereas the contractor has agreed to execute upon and subject to the conditions set forth herein and schedule of items and quantities, General conditions of contract, special conditions including other conditions etc. technical specifications and all correspondences exchanged by or between the parties from the date of tender notice decision of negotiations meetings, if any, till the award of work, both letters inclusive, (all of which are collectively hereinafter referred to as the said conditions) the work shown upon the drawings and or described in the said specification and included in the schedule of items and 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 (Herein after referred to as the said contract amount)

NOW IT IS HEREBY AGREED AS FOLLOWS:

1. In consideration of the said contract amount to be paid at the times in the manner set forth in the said conditions, the contractor shall upon and subject to the said conditions execute and complete the work shown upon the drawings and described in the said specifications and the schedule of items and 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 the manner specified in the said conditions.
3. The consultant in the said conditions shall mean the said SUDIP SUR & ASSOCIATES, having office at 14/2, Kali Kumar Mukherjee Lane. Shibpur, Howrah – 711 102 or in the event of their ceasing to be the consultant for the purpose if this contract for whatever reason such other person or persons as shall be nominated for that purpose by the Employer, provided always that the person subsequently appointed to be consultant under this contract shall be entitled to disregard or overrule any previous decision or approval or direction given or expressed in writing by the consultant for the time being.
4. The said conditions and appendices thereto shall be read and considered as forming part of this agreement and the parties here to shall respectively abide by, submit themselves to the said conditions and perform the agreements on their part respectively in the said conditions contained.
5. The plan agreement and documents mentioned herein shall form the basis of this contract.
6. This contract is neither a fixed lump sum contract nor a piece work in respect of "Air Conditioning works of MOHANPUR BRANCH". as per the scope described and to be paid for according to actual measured quantities at the rates contained in the schedule of rates probable quantities or as provided in the said conditions.
7. The employer reserves to itself the right of altering the drawings and nature of the work by adding to or omitting any items of work or having portions of the same carried out without prejudice to this contract.
8. Time shall be considered as the essence of this contract and the contractor hereby agrees to commence the work on the day on which he is instructed to take possession of the site, or from the 7th day after the date of issue of formal work order as provided for in the said conditions whichever is later and to complete the entire work within 15 days subject nevertheless to the provisions for extension of time.
9. All payment by the Employer under this contract will be made only at **UNION BANK OF INDIA, GREATER KOLKATA REGIONAL OFFICE.**
10. Any dispute arising under this agreement shall be referred to arbitration in accordance with the stipulation laid down in the general conditions of contract.
11. That the several parts of this contract have been read by the contractor and fully understood by the contractor.
12. This agreement can be terminated by either client on giving 3 months' notice normally however, in exigent circumstance ; the services of the contractor can be terminated by giving notice of lesser period

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.

This agreement will become effective upon signature by both the parties.

Signed by-----

Signature & seal of the contractor

Name & Address of the signatory

Signature & seal of the bank official

Name & Address of the signatory

Witness

Signed in the presence of

1. -----
Name & Address

2 -----
Name & Address

SECTION – VII

TECHNICAL SPECIFICATION

FURNISHING WORK

1.0 SCOPE :

The technical specifications for the interior work under scope of this contract shall be in accordance with CPWD specification in vogue. If not covered therein with relevant (with latest amendments) and shall be read in conjunction with other documents forming the contract: viz., form of Tender Notice, Article of Agreement, General Bill of Quantities and Drawings.

2.0 GENERAL :

2.1: WORK TO BE PROVIDED FOR :

The work to be provided for the Contractor unless otherwise specified, shall include but not be limited to the following :

- 1) Furnish all labor, materials, supervision, services, supports, scaffolds, approaches, Construction equipment, tools, plants etc. as required for proper execution of the job as per drawings and specifications.
- 2) Provide all incidental items not shown or specified in particular, but reasonable or necessary for successful completion of the work in accordance with the drawings, specifications and bill of quantities.
- 3) To extend facilities to the Engineer-in-charge to inspect work and assist them in obtaining samples, if they so desire.
- 4) To make good at his own cost and to the satisfaction of the Owner, all defects, arising in

the opinion of the Architect/Owner from work or materials, not in accordance with the specification or the instructions of the Architect/Owner, which may appear within twelve months after completion of the work.

- 5) To execute the work according to the drawings or revisions there of schedule of Quantities/specifications / instructions issued by the Architect/Owner and no works should be done without proper drawings/specifications, written instructions given by the Owner/Architects.
- 6) Furnish samples of all materials including any tests thereon as directed by the Engineer-in-charge of the Owner/Architects.

2.2 COORDINATION :

The Contractor shall be responsible for proper coordination with sub-contractors or other contractors employed by the Owner. The completed work after fitting of all fixtures (Even of other Contractors) if necessary, shall be at the custody of the contractor who will be responsible for handing over to the Owner.

2.3 APPROVED MANUFACTURER :

Whenever materials or workmanship as per Manufacturer's specification has been specified, it will be the responsibility of the Contractor to submit authenticated documents from the Manufacturer for obtaining the approval of the Engineer-in-charge.

2.4 VARIATION :

The work described in schedule shall prevail if it is at variance with the work described in specification.

3.0 GENERAL NOTES AND ADDITIONAL SPECIFICATIONS :

- 1) All the rates quoted will be including all necessary lead and lifts.
- 2) All exposed faces of wooden members are inclusive of polishing of approved finish.
- 3) All partitions, doors, cupboards, wardrobes are inclusive of necessary ironmongery as specified or as instructed at site and after approval of samples.
- 4) Lipping for the edges of the block board with respective veneering or otherwise as directed.
- 5) All the furniture are subject to minor changes and improvement as per site instructions.
- 6) Quotations should include all the concealed locks, knobs, hinges of standard approved quality. Aluminum runners, sliding bearing etc., wherever required will not be paid separately unless otherwise stated.
- 7) All the doors, book cases, cupboards should be provided with locking arrangements.
- 8) Samples of all fittings and fixtures shall be got approved before use.
- 9) All plywood-veneered surface should be matching type throughout and to the fullest satisfaction of the Owner/Architect.
- 10) All plywood, Block board, Particleboard, Pre-laminated board shall be of approved manufacturers and shall be strictly BWP / BWR type bonded with phenol formaldehyde synthetic resin as specified by Architect/Consultant.
- 11) All furniture pieces should be stable with necessary horizontal and vertical supports and is subject to continuous improvement. No extra charges will be paid for any changes until the sample is approved finally.
- 12) In case of teak wood planks, battens or frame members exposed surfaces should match with general color of teak wood veneered surfaces. All timber surfaces unless otherwise specified in the Schedule of quantities are to be finished in natural colour with N.C.Lacquire in matt finish.

4.0 TIMBER :

Timber shall be of good quality and well seasoned. It shall have uniform colour, reasonably straight grains, and shall be free from dead knots, cracks, shakes and sapwood. The moisture content shall be within the limits prescribed in maximum moisture contents.

4.1 TEAK WOOD (lectonagrandis), Salwood (Sohrearobusta), Pia-sal (Pterospermum muresuplum) shall be of outstanding merit in retention of shape and durability.

First Class teak wood such as Balarsha, malabar and dandeli: Individual hard and sound knot shall not be more than 123mm in diameter and the aggregate area of all the knots shall not exceed one-half percent of the area of the piece. It shall be close grained.

4.2 BADAM/CHAMP/KASI (BIJA) WOOD (Bridalia Retgusa)

First Class :

No individual hard and sound knot shall be more than 25mm in diameter and the aggregate area of the live knots shall not exceed one percent of the area of the piece, should be properly treated with wood preservative and kiln seasoned and shall be used under head "Secondary Hard Wood"

5.0 PLY WOOD.

The veneers for all grades shall be either rotary cut or sliced. The veneers shall be sufficiently smooth to permit even spread of glue. The thickness of all veneers shall be uniform, within a tolerance of (+) (-) 5% corresponding veneers on either side of the center one shall be of the same thickness and species. The requirement of thickness of face and core veneers shall be as follows:

- a) In 3-ply boards upto 5mm thick, the combined thickness of the face veneers shall not exceed twice the thickness of center one.
- b) In a multiply boards, the thickness of any veneer shall not be more than thrice the thickness of any other veneer.
- c) The sum of the thickness of the veneer in one direction shall approximate to the sum of the thickness of the veneers at right angles to them and shall not be greater than 1.5 times this sum except for three ply as specified in (a)

The thickness of plywood boards shall be specified as stated in schedule of works.

- d) Plywood shall be as specified quality with decorative surface veneer. Unless specifically permitted otherwise, the adhesive used in plywood shall be PHENOL - FORMALDEHYDE resin of B.W.P. grade conforming to IS; 848.

6.0 LAMINATED PLASTIC SHEETS :

All laminated plastic sheets shall be unless specified and shall be specified make or approved equivalent. The colour, pattern, finish and texture shall be as approved by the Architect / Owner. All laminate shall be of 1 mm. thk. & conforming to I.S. : 2046

7.0 BWP PLY.

BWP plywood shall be as per I.S. : 710.

8.0 FLUSH DOORS :

Flush doors shall be of solid core with commercial or decorative faces and hard wood edges. The core for solid core doors shall be of block board or wood particleboard. The Contractor shall give a guarantee that the adhesive used is Phenol -Formaldehyde of B.W.P. grade, conforming to I.S.: 848. The thickness shall be as specified in the "Schedule of Items"& conforming to I.S. : 2202(1).

MOISTURE CONTENT

MAXIMUM MOISTURE CONTENT FOR WOOD WORK.

Thinner than 50 mm 10% Average moisture content.

Thicker than 50mm 12% Average moisture content.

9.0 WORKMANSHIP OF WOOD WORK

9.1 GENERAL :

The work shall be done by skilled carpenters as per details shown on drawing or instructed by the Architect.

Framing timber and other work shall be close fitting with proper wood joinery accurately set to required lines or levels and rigidly secured in place. Special care shall be taken to match the grain of timber or plywood, which shall be subsequently polished. Screws or nails will not be permitted to the edge of plywood or chipboard sheets. All exposed plywood edges shall be finished with teak wood liping unless otherwise shown on drawings.

9.2 FINISH :

All carpentry work after finishing shall be sand papered smooth. A primer coat shall be given after inspection by the Architect to all surfaces other than those which shall be subsequently polished or covered with laminated plastic sheets.

9.3 SURFACE TREATMENT :

When shown on drawing or called for in schedule, decorative or laminated sheets shall be bounded under pressure to the surface to be finished. The adhesive used shall be of approved brand and brought to site in sealed container. The rate of application and the length of time for which the pressure is to be applied shall be as per the Manufacturer's instructions. The edges of sheets shall be protected by teak lipping or beveled as shown on drawings.

10.0. PAINTING WORKS.

10.1 PRIMING COAT OF WOOD, IRON OR PLASTERED SURFACE;

Preparation of surface.

i) Wood Surface:

- 1) The wood work to be painted shall be dry and free from moisture.
- 2) The surface shall be thoroughly cleaned. All unevenness shall be rubbed down smooth with sand paper and shall be well ducted. Knots if any, shall be covered with preparation of red lead made by grinding red lead in water and mixing with strong glue sized and used hot. Appropriate filler materials with same shade as paint shall be used where specified.
- 3) The surface treated for knotting shall be dry before painting is applied. After the priming coat is applied, the holes and indentations on the surface shall be stopped with glazier putty or wood putty. The primer shall be prepared on site or shall be of approved brand and manufacturer as specified in the item. Paint shall be anti-corrosive Bitumastic paint, Aluminum paint or other types of paint as specified in the description of the item stopping shall not be done before the priming coat is applied as the wood will absorb the oil in the stopping and the latter is therefore liable to crack.

ii) Iron and steel surface.

- 1) All rust and scales shall be removed by scrapping or by brushing or by brushing with steel wire brushes. Hard skin or oxide formed on the surface of wrought iron during rolling which become loose by rusting, shall be removed.
- 2) All dust and dirt shall be thoroughly wiped away from the surface. If the surface is wet, it shall be dried before priming coat is undertaken.

10.2 Application :

The primer shall be applied with brushes, worked well into the surface and spread even and smooth. The painting shall be done by crossing and laying off as described in cement paint above.

11.0- PAINTING WITH READY MIXED PAINT/ SYNTHETIC ENAMEL PAINT :

11.1 Preparation of Surface:

i) Wood Work

The surface shall be cleaned and all unevenness removed as specified in wooden surface, knots if visible, shall be covered with a preparation of red lead. Holes and indentations on THE surface shall be filled in with glazier putty or wood putty and rubbed smooth before painting is done. The surface should be thoroughly dry before painting.

ii) Iron and Steel Work :

The priming coat shall have dried up completely before painting is started. Rust and scaling shall be carefully removed by scrapping or by brushing with steel wire brushes. All dust and dirt shall be carefully and thoroughly wiped away.

11.2. Application :

The specification described in cement paint shall hold good as far as applicable. The number of coats to be applied will be as stipulated in the item. The painted surface shall present a uniform appearance and glossy/mat finish as described in schedule of Quantities free from streaks, blisters etc.

11.3. Painting on old surface :

The surface, which has been painted earlier, shall be considered to be old surface.

11.4. Preparation of surface :

i) Wood work :

If the old paint is sound and firm and its removal is considered unnecessary the surface shall be rubbed down with pumice stone after it has been cleaned of all smoke and grease by washing with lime and finishing with water and drying. All dust and loose paint shall be completely removed. The surface shall then be washed with soap and water. If the old painted surface is blistered or flaccid badly, old paint shall be completely removed with the applications of a paint remover following the specification of the Manufacturer. The paint remover shall be of a brand and manufacture approved by the Architects/Consultant. It shall be free from alkaline matter and non-caustic so that it can be handled by workmen without injury. It shall be of non-flammable quality as far as possible and such removal shall be paid for separately. Holes and cracks if any shall be stopped with glazier putty or wood putty. Further the painting itself shall be treated as on new surface and paid for, accordingly.

ii) Iron and Steel work :

If the old paint is sound and firm and its removal is considered unnecessary, it shall be rubbed with wire brushes and any loosened paint taken off. All dust shall be thoroughly wiped away. This surface shall then be wiped finally with mineral turpentine to remove grease and perspiration of hand marks etc. and then allowed to dry.

If the old painted surface is in bad condition and blistered and flaked, the old paint shall be completely removed and the surface prepared as described in above. Such removal shall be paid for separately. The painting including the priming coat shall be treated as one new work and paid for accordingly.

12. FRENCH SPIRIT POLISHING :

Pure shellac varying from pale orange to lemon yellow color, free from resin or dirt shall be dissolved in methylated spirit at the rate of 140 gm. of shellac to 1 liter of spirit. Suitable pigment shall be added to get the required shade.

12.1 Polishing new surface :

Preparation of surface - The surface shall be cleaned. All unevenness shall be rubbed down smooth with sand paper and well dusted. Knots if visible shall be covered with a preparation of red lead and glue sized and used hot holes and indentations on the surface shall be slopped with glazier putty. The surface shall be then be given a coat of wood filler made by mint whiting (Ground chalk in methylated spirit at the rate of 1.5 kg of whiting per liter of spirit.) The surface shall again be rubbed down perfectly smooth with glass paper and wiped clean.

12.2 Application :

The number of coats of polish to be applied shall be as decided by the Architect to get the desired finish. A pad of woolen cloth covered by fine cloth shall be used to apply the polish. The pad shall be moisture with the polish and rubbed hard on the wood, in a series of over lapping circles applying the moisture sparingly but uniformly over the entire area to give an even level surface. A trace of linseed oil on the face of the pad facilitates this operation. The surface shall be allowed to dry and the remaining coats applied in the same way. To finish off, the pad shall be covered with a fresh piece of clean fine cotton cloth slightly damped with methylated spirit and rubbed lightly and quickly with circular motions. The finished surface shall have a uniform textures.

CIVIL WORK

1.0 GENERAL NOTE

All materials and workmanship used for the work shall generally conform to the relevant specifications and Codes of Practice as prescribed by the Bureau of Indian Standards. Furthermore, the Contractor shall execute various items of works in the manner as described hereinafter. In the event of any confusion or dispute arising out of the specifications, Codes of Practice and whatever is mentioned hereinafter, the decision of the Consultant shall be binding on both the Employer and the Contractor.

However, these specifications shall be read along with the corresponding descriptions of an item of work as given in the Bill of Quantities.

The specification of any item which a not have been included in the following pages shall conform to the relevant IS Specifications.

2.0 CONCRETE WORK

2.1 CEMENT

2.1.1 Ordinary Portland cement shall conform to the IS Specification IS 269/1967. Portland

pozzolona cement conforming to IS 1489/1967 shall not be used unless approved by the Consultant.

- 2.1.2 Cement at site shall be stored in dry weatherproof godown built at the cost of the Contractor in stack no higher than 10 bags. Sufficient space shall be provided for circulation of air and rotation of bags in order to minimize the duration of storage. The floor of godown shall consist of wooden planks resting on dry bricks laid on edge.
- 2.1.3 The Contractor shall be fully responsible for the quality of cement brought by him or supplied to him at the work site. The Contractor shall satisfy himself that the cement brought to the work site by him conform to the requirement of IS 269-1967 or relevant Indian Standard and shall procure manufacturer's certificate to this effect, in his own interest. In case the Contractor has any doubt regarding the quality of cement brought to the work site, it is up to him to have it tested at his own expenses and make sure that cement is of right quality.
- 2.1.4 In case the Consultant has any doubt about quality of cement, he may instruct the Contractor to have the cement tested or may take samples in the presence of Contractor from cement bags stored at work site and forward them for testing.
- 2.1.5 Cement concerning which there is doubt shall not be used pending the test. Cement not conforming to specifications and rejected by the Consultant and cement that has deteriorated or are damaged shall not be allowed to be used. All such cement shall be immediately removed from work site by the Contractor. The cost of all such cement shall be borne by the Contractor.

2.2 FINE AGGREGATE-SAND

- 2.2.1 Sand shall be hard, strong, dense, durable, and clean with uncoated grains. The maximum size of the particles shall be 4.75mm (3/16 in) and shall be graded down. The sand shall not contain any harmful materials such as iron, pyrites, coal, mica, silt, clay, alkali, sea shell, organic impurities, loam etc. or in case of reinforced concrete work, any materials which may be detrimental to concrete and the reinforcement. Aggregate, which are chemically reactive with the alkalis of the cement, shall not be used. The maximum quantity of deleterious materials shall not exceed the limit specified in the relevant IS specification.

2.2.2 GRADING

The natural sand used for work shall have a grading conforming to one of the three grading zones of I, II and III of IS 383-1970.

- 2.2.3 The Contractor shall obtain Consultant's approval as to the source from which fine aggregate shall be obtained.

2.3 COARSE AGGREGATE

- 2.3.1 Only coarse aggregate consisting of hard, dense durable uncoated crushed rock, shall be used. Gravel shall be allowed to be used only if specially specified in the bill of quantities.
- 2.3.2 The aggregate shall be free from soft, friable, thin or long laminated pieces and from injurious amounts of alkali, organic matters and other deleterious materials. Black or weathered stones shall not be used. The maximum percentage of deleterious materials shall not exceed those specified in the relevant IS specification. The aggregate shall be screened and washed.
- 2.3.3 The Contractor shall arrange to supply coarse aggregate in designated sizes. Those shall be mixed in suitable proportions to get desired overall grading of aggregate. The Consultant at their discretion, may allow use of "Graded Aggregate" of nominal size conforming to the grading in the limits specified in IS 383-1970.
- 2.3.4 Nominal maximum size of aggregate in beams and columns shall be restricted to 5mm less than the maximum clear distance between the main bars or 5mm less than the minimum cover to the reinforcement whichever is less.
- 2.3.5 In no case the maximum size of aggregate shall be greater than one quarter of the minimum thickness of the member so as to facilitate concrete to be placed without difficulty around the reinforcing steel.

- 2.3.6 Generally, for reinforced concrete work, nominal maximum size of 20mm shall be considered suitable.
- 2.3.7 In selecting the aggregate, the Contractor shall satisfy himself that the source is suitable for regular supply and a watch shall be maintained that the shape and grading remain reasonably uniform throughout the progress of work. Unless otherwise specified, the aggregate shall be obtained from Pakur.
- 2.3.8 Where so directed by the PMC, the aggregate shall be washed by approved methods at Contractor's expenses.
- 2.4 **WATER**
Water used for both mixing and curing shall be potable and free from injurious amounts of deleterious materials which are likely to effect the strength or durability of concrete. Water containing any sugar shall not be allowed for use.
- 2.5 **MIXING AND PLACING OF CONCRETE**
- 2.5.1 **CEMENT** : Cement shall be batched by weight both for nominal and controlled mix even though aggregates are batched by volume in case of nominal mix. A number of bags as directed by the Consultant shall be weighed separately to check the net weight.
- 2.5.2 **AGGREGATE**: The aggregate shall be batched by volume in case of nominal mix, but by weight as per mix design in case of controlled mix. In case of batching by volume the form used shall be of correct sizes and aggregates shall be filled level in the form and struck off with a timber or steel bar. Where sand is measured by volume, bulk age allowance as determined by the Consultant should be accounted for.
- 2.6 **MIXING OF CONCRETE**
- 2.6.1 **MACHINE MIXING**: Concrete shall be mixed in mechanical mixer. Mixing shall be continued until there is uniform distribution of materials and the mass is uniform in colour and consistency. The mixing time from the time of adding water shall be in accordance with IS 1971-1968 but in no case mixing shall be done for less than two minutes.
- 2.6.2 **HAND MIXING**: Hand Mixing shall not be permitted except for unimportant members and purely at the discretion of the Consultant. When hand mixing is permitted care shall be taken to ensure that the mixing is continued until the mass is uniform in colour and consistency. The Contractor shall use 10% extra cement for hand mixing for which no extra payment will be made.
- 2.7 **TRANSPORTING, PLACING, COMPACTION AND CURING OF CONCRETE**
- 2.7.1 **TRANSPORTING**: Concrete shall be handled from the place of mixing to the place of final deposit as rapidly as practicable, by method, which shall prevent the segregation or loss of any of the ingredients. If segregation occurs during transport, the concrete shall be remixed before use. The concrete shall be placed in position and compacted before the initial set of cement has commenced and shall not be subsequently disturbed. Concrete shall be transported avoiding loss of water by evaporation.
- 2.7.2 **DROPPING OF CONCRETE**: Concrete shall not be dropped into position from a height greater than 1.0m.
- 2.7.3 **DEBRIS ETC. REMOVED**: All debris saw dust etc. should be removed from the formwork before any concrete is placed. Care shall be taken to see that the formwork is watertight and has been properly treated to prevent absorption of water.
- 2.7.4 **PROTECTION AND PLACING IN LAYERS**: Concrete shall be placed into the forms in layers not exceeding 300mm (approx.) in thickness. Concrete after placing shall be protected by use of covering as may be approved by Architect during first stage of hardening, against high winds, heat and/or rain or surface water. No shock or vibration shall be allowed to the formwork supporting fresh concrete.
- 2.7.5 **COMPACTION**: Concrete shall be thoroughly compacted during placing by the use of

mechanical vibrators. Sufficient number of vibrators of adequate capacities shall be used for compaction of concrete. Vibration shall be carried out by trained men and in the presence of a qualified supervisor trained in the use of vibrators and vibrating concrete. In certain portions where a vibration is not effective, compaction shall be carried out manually and sufficient men employed to ensure that thorough consolidation takes place. Where manual compaction becomes necessary, workability of the mix shall be controlled to suit such mode of compaction.

2.7.6 **CONTINUOUS CONCRETING:** Concreting shall be carried out continuously up to the predetermined position of construction joints. The position and arrangement for construction joints shall be approved by the Consultant.

2.7.7 **PACKING ROUND REINFORCEMENT:** In the case of reinforced concrete work, the concrete shall be carefully consolidated and packed round the reinforcement and care shall be taken to ensure that reinforcements are not displaced during the placing and compaction of concrete. If reinforcements move out of its place, those must be brought back in position immediately.

2.7.8 **CURING:** All concrete work shall be water-cured for a minimum period of 14 days after concreting or as advised by the Consultant. Horizontal surfaces shall be kept covered with water ponded by means of bunds and vertical surfaces like those of columns, fins etc. shall be kept constantly wet by water sprays. Mere sprinkling of water on vertical surface without sacks or burlaps shall not be allowed.

2.7.9 **TRAINED SUPERVISORS:** It is essential that the Contractor's supervisor who is in charge of all concrete work whether reinforced or not shall be skilled in this class of work and shall superintend personally the whole construction and pay special attention to :

2.7.9.1 The quality, testing, proportioning and mixing of the materials and particularly control of water-cement ratio.

2.7.9.2 Laying and thorough consolidation of the concrete to ensure void less compaction.

2.8 **TESTS FOR CONCRETE**

2.8.1 Tests shall be conducted in accordance with the latest IS: 516-1959.

2.8.2 The test cubes shall be moulded and cured in accordance with Indian Standard Code of Practice.

2.8.3 A minimum of one set of 6 cubes shall be taken for every 28 cum. or part thereof of concrete poured in one day and these shall be considered as representative for said quantity.

2.8.4 The entire operation of casting, curing and dispatch of cubes to Laboratory will be carried out by the Contractor under supervision of the Consultant. Out of 6 cubes, 3 cubes shall be tested at an age of 7 days and the other 3 cubes at an age of 28 days at the Laboratory approved by the Consultant.

2.8.5 The cubes shall be initialed, numbered, dated jointly by the representative of the Contractor and the Consultant leaving indentation of the initials on the cubes.

2.8.6 A register shall be maintained at the site by the Contractor with the following details entered and initialed by the Contractor and the Consultant.

2.8.6.1 Reference to specific structural members receiving the batch of concrete from which the cubes were cast.

2.8.6.2 Mark on cubes.

2.8.6.3 The mix of concrete.

2.8.6.4 Date and time of casting

2.8.6.5 Water cement ratio by weight and slump.

2.8.6.6 Crushing strengths as obtained at the end of 7 days for 3 cubes out of a set of 6 and at the end of 28 days for the other 3 cubes.

2.8.6.7 Laboratory in which tested and references to test certificate.

2.8.6.8 Any other information directed by the Consultant.

2.8.6.9 For floor beams and slab, such record shall be supported by sketch of the areas of concreting

and the cube reference entered in the sketch at the relevant portions. This record shall be initiated by the Contractor and submitted to the Consultant.

2.09 VIBRATION OF CONCRETE

- 2.09.1 **WATER CEMENT RATIO:** The water-cement ratio (by weight) for all vibrated concrete (except controlled concrete) shall generally be 0.45 and it shall not be varied unless otherwise directed. In case of Controlled concrete the water cement ratio shall be as determined in the laboratory mix design.
- 2.09.2 **PLACING:** Each layer of concrete (not over 300mm deep) shall be vibrated carefully so as to not permit the ingredients to separate. Surfaces shall be smooth and free from voids and vibration shall be supplemented with manual compaction, if necessary.
- 2.09.3 **NUMBER AND SIZE OF VIBRATORS:** Vibrators shall be of sturdy construction, adequately powered and capable of transmitting to the concrete not less than 3000 impulses per minute when operating under load. The vibration shall be sufficient to cause the concrete to flow or settle readily into places and visibly affect the concrete over a radius of at least 450mm when used in concrete having slump of one inch. Sufficient number of vibrators shall be employed so that at the required rate of placement, vibration throughout the entire volume of each layer of concrete is secured.
- 2.09.4 **MANIPULATION OF VIBRATORS:** Vibrators shall be kept constantly moving in the concrete and shall be applied at points uniformly placed not further apart than the radius over which the vibrator is visibly effective. The vibrator shall not be held in one location long enough to draw a pool of grout from surrounding concrete. The vibration shall be such that the concrete becomes uniformly plastic.
- 2.10 **DESIGN OF CONCRETE MIX FOR VARIOUS GRADES OF CONTROLLED CONCRETE:** Concrete mixes shall be designed by the Contractor to achieve the respective strength, durability and workability necessary for the job with the most economical use of various ingredients. The design should be made conforming to the relevant IS specifications (IS-456, 516-1199 of latest edition). The Contractor shall arrange for testing of various trial mixes in sufficient number as per direction of the PMC at his own cost in laboratory approved by the Consultant for the preliminary test for different grades from the test results of the said trial mixes, conducted and certified by the approved laboratory and the Contractor shall accordingly proceed with the concreting at work site. Constant check on grading and mix proportion shall be done by the Contractor who shall always be responsible to produce quality concrete of required grade as per the acceptance criteria of IS 456-1978. If there is any change in the quality of aggregates (both coarse and fine), necessary alterations to the mix proportion should further be approved by the Consultant before the same are used at work site. Recovery of the cost of cement shall be made on the basis of accepted mix proportion of concrete designated by grades, allowing the normal wastage. The Consultant shall always have the unquestionable right to revise the minimum cement content if in his opinion, there is any variation or deterioration of quality on account of lower cement content or any variation in the quality of aggregate or other reason.
- 2.11 **CRITERION REGARDING STRENGTH:** Although the test of cubes are specified to be conducted at 7 and 28 days, in all cases compressive strength after 28 days as specified in Table-I shall alone be the criterion for acceptance or rejection of concrete.
- 2.12 **CLASSIFICATION OF CONCRETE OF LOWER OR HIGHER STRENGTH THAN SPECIFIED:** Where the strength of concrete mix as indicated by tests, lies in between the strengths of any of two grades specified in Table-I, such concrete shall be classified as concrete of grade belonging to the lower of the two grades between which its strength lies. In case the cube tests show higher strengths than those specified for the particular grade of concrete, the concrete shall not be placed in any higher grade nor shall Contractor be entitled to any extra payment on such account.
- 2.13 **WATERTIGHT CONCRETE:** Where concrete of M-20 grade or richer is specified it will be considered as watertight concrete whether so specifically mentioned or not in the Bill of Quantities. In respect of such concrete it shall be the Contractor's responsibility to ensure that the resulting construction is watertight. If it is not, the Contractor shall carry out at his own cost, all necessary remedial measures as the Consultant may direct.
- 2.14 **FORM WORK**
- 2.14.1 The formwork shall be with approved quality 12mm thick shuttering plywood of approved quality

and true to line. In every case, joints of the shuttering are to be such as to prevent the loss of liquid from concrete. If any other materials be specified in the Schedule of Quantities for formwork such particularly specified material shall be used in the work. The formwork shall be constructed as to remain sufficiently rigid during placing of concrete. All shuttering and framing must be adequately stayed and braced to the satisfaction of the Consultant for properly supporting the concrete during the period of hardening. The forms shall have sufficient strength and rigidity to hold concrete and withstand the pressure of compaction and vibration without deflection from the prescribed lines. The surface of all forms in contact with concrete shall be clean, and smooth. Suitable devices shall be used to hold corners, adjacent ends, and edges to panels of other forms together in accurate alignment.

- 2.14.2 The formwork shall conform to the shape, lines and dimension to suit the RCC members as shown on the drawing. A camber of 6mm for every 5metre span in all slab and beam shall be given in all direction to allow for unavoidable sagging.
- 2.14.3 The formwork shall be so designed that the sides of the beams shall be first struck off leaving the soffit of beams and the supporting props in position. Props shall be designed to allow accurate adjustment and to permit of their being struck without jerking the concrete.
- 2.14.4 Temporary opening shall be provided at the base of columns and at other points in the formwork where necessary, for facilities of cleaning and observation immediately before concrete is deposited.
- 2.14.5 **VERTICAL SHUTTERING:** The vertical shuttering shall be carried down to such solid surface as is sufficiently strong to afford adequate support and to remain in position until the newly constructed work is able to support itself. Props shall be securely braced against lateral deflection. When wooden props are used they shall be of a minimum diameter of 10cm and shall be straight and adequately strong. The spacing of struts shall be designed to carry loads imposed on it without undue deflection of the members supported by the props. The spacing of props shall be approved by the Consultant and any alteration suggested by him shall be carried out at Contractor's expense.
- 2.14.6 **WATER TIGHTNESS:** It is the Contractor's responsibility to ensure that the forms are checked for water tightness just before concreting operations starts and to make good any deficiencies. If instructed by the Consultant building paper shall be used.
- 2.14.7 **CLEANING AND TREATMENT OF FORMS:** All rubbish particularly chipping, shavings and saw dust shall be removed from the interior of the forms before the concrete is placed and the form work in contact with the concrete shall be cleaned and thoroughly wetted or treated with material as approved. Care shall be taken that such approved composition is kept out of contact with the reinforcements. Interior of moulds and boxes must be thoroughly washed out so as to be perfectly clean and free from all extraneous materials before deposition of concrete. Prior approval of the formwork shall be taken from the Consultant before placing reinforcement on the formwork.
- 2.14.7 **STRIPPING:** Formwork shall be left in place until their removal is authorised by the PMC and shall then be removed with care so as to avoid injury to concrete. In no circumstances the formwork shall be struck off until the concrete reaches strength of at least twice the stress to which the concrete may be subjected at the time of striking. The strength referred to shall be that of concrete using the same cement and aggregate with same proportions and cured under conditions of temperature and moisture similar to those existing on the work. Where possible, the formwork should be left longer as it would assist the curing.
- 2.14.8 **STRIPPING TIME:** In normal circumstances forms shall be struck off after expiry of the following periods unless otherwise directed at site by the Consultant.
- 2.15 **DEFECTIVE OR POOR CONCRETE - PROCEDURE FOR DEALING WITH**
- 2.15.1 If in the Consultant's opinion there is doubt as to the strength of the structure due to the test cube failing to attain specified strength for any reason attributable to negligence on the part of the Contractor then the Consultant's decision regarding dismantling of such concrete or rectification of concrete (if allowed to be retained in its place) shall be final and binding on the contractor.

- 2.15.2 **QUALITY OF DEFECTIVE CONCRETE REPRESENTED BY CUBES:** In all cases of defective concrete as revealed by test cubes the quantity of concrete affected and represented by the cubes will be decided by the Consultant whose decision shall be final and binding on the contractor.
- 2.15.3 **HONEY COMBING:** Where honey combed surface are noticed in the concrete, the Contractor shall not patch up the same until examined by the Consultant and decision given regarding the acceptance the same with rectification or rejection of the same. If the Contractor patches up such defects without the knowledge of the Consultant, the Consultant shall be at liberty to order demolition of the concerned concrete members to the extent he considers necessary. The Contractor at his expense shall reconstruct demolished work. The demolished work shall not be measured and paid for.
- 2.15.4 Any other defects in concrete shall be made good as directed by the Consultant at the Contractor expenses.
- 2.16 **STEEL REINFORCEMENT**
- 2.16.1 Steel reinforcement bars shall conform to IS 226-1962 "Standard Quality" or IS 432-1966 "Grade-I".
- 2.16.2 **CLEANING OF REINFORCEMENT:** Before reinforcement is placed in position, the surface of the reinforcement shall be cleaned of rust, dust, grease and any other objectionable substances.
- 2.16.3 **BAR BENDING SCHEDULE:** On receipt of structural drawings the Contractor shall prepare the bar-bending schedule and shall get the same approved by the Consultant, if so directed by the Consultant.
- 2.16.4 **PLACING AND SECURITY:** Reinforcement bars shall be accurately placed and secured in position and firmly supported or wedged by precast concrete blocks of suitable thickness at sufficiently close intervals so that the bars shall not sag between the supports or get displaced during the placing of concrete or any other operation of the work. It is most important to maintain reinforcement in its correct specified position. The Contractor shall be responsible for all costs for rectification required in case the bars are displaced out of their correct position.
- 2.16.5 **INSPECTION OF REINFORCEMENT:** No concreting shall be commenced until the Consultant have inspected the reinforcement in position and until their approval have been obtained. A notice of at least 24 hours shall be given to the Consultant by the Contractors for inspection of reinforcement. If in the opinion of the Consultant any material is not in accordance with the specification or the reinforcement is incorrectly spaced, bent or otherwise defective, the Contractor shall immediately remove such materials from the site and replace it with new one and rectify any other defect in accordance with the instruction of the Consultant and to their entire satisfaction.
- 2.16.6 **COVER FOR REINFORCEMENT:** Cover shall be measured from the outer surface of main reinforcement. Cover shall be as follows:
- 2.16.6.1 At each end of a reinforcing bar, 25mm or twice the diameter of such or bar, whichever is greater.
 - 2.16.6.2 For longitudinal reinforcing bar in beams 25mm or the diameter of such bar, whichever is greater.
 - 2.16.6.3.1 For tensile, compressive, shear or other reinforcements in a slab 20 mm or the diameter of such reinforcement whichever is greater.
 - 2.16.6.3.2 For reinforcement in any other member such as lintel, chajja, canopy or pardi, 20 mm or the diameters of such reinforcements, whichever is greater.
 - 2.16.6.3.2.1 For main reinforcement in isolated footings (side and bottom) clear cover shall be 50mm.
 - 2.16.6.4 For column bars, clear cover shall be 40mm, unless otherwise specified in drawings.
 - 2.16.6.5 For bars in slabs of footings, the clear cover shall be 50mm. Beam bars shall

be placed over slab bars in case of beam and slab type foundations.

3.0 BRICK WORK

3.1 BRICKS

- 3.1.1 The bricks shall be first class kiln burnt bricks of regular and uniform size, shape and colour, uniformly well-burnt throughout, but not over-burnt. It shall have rectangular faces with parallel sides and sharp, straight and right angle edges. It shall be free from cracks or other flaws.
- 3.1.2 It shall give a clear metallic ringing sound when struck together.
- 3.1.3 It shall show a fine grained, uniform homogenous and dense texture on fracture and be free from lumps of lime, laminations, cracks, air holes, soluble salts causing efflorescence or other defects which may in any way impair their strength, durability, appearance, usefulness for the purpose intended. It shall not have any part under-burnt. It shall not break when dropped on the ground on their flat face in a saturated condition from a height of 60cm.
- 3.1.4 Only bricks of one standard size shall be used on work unless specially permitted by the Architect. The following tolerance are permitted in the standard conventional size adopted on a particular work :-
- | | |
|----------|-----------|
| Lengths- | ± 3mm |
| Breadth- | ±1.5mm |
| Depth | - ± 1.5mm |
- 3.1.5 After immersion in water, absorption by weight shall not exceed 20 percent of the dry weight of the brick when tested according to I.S. 1077-1970. Unless otherwise specified the load to crush the brick when tested according to ISS No. 1077-1970 shall not be less than 75kg/sq.cm.
- 3.1.6 The brick to be used for the entire work shall be approved by the Consultant prior to use from time to time.
- 3.2 **MORTAR:** Unless otherwise specified, mortar for brick work shall be composed of 1 part of cement to 6 parts of approved sand for walls of one brick thick and 1 part of cement to 4 parts of approved sand for half brick thick and brick on edge walls. Other specification for mortar in brickwork shall be as per I.S. 2116-1965.

3.3 CONSTRUCTION DETAILS

- 3.3.1 **Soaking:** All bricks shall be immersed in water for 24 hours before being put into work so that it will be saturated and shall not absorb water from the mortar.
- 3.3.2 **Bats:** No bats or cut bricks shall be used in the work unless absolutely necessary, in which case, full bricks shall be laid at corners and the bats placed on the middle of the courses.
- 3.3.3 **Laying:** The brick shall be laid in mortar to line, level and shape shown on the plan, slightly pressed and thoroughly bedded in mortar and all joints shall be properly flushed and packed with mortar so that no voids shall be left anywhere. Bricks shall be handled carefully so as not to damage their edges. It shall not also be thrown from any height to the ground but shall be put down gently. All courses shall be laid truly horizontal and all vertical joints made vertical. Vertical joints on two successive courses shall not come over one another and shall not normally be nearer than quarter of brick lengths. For battered faces, bedding shall be at right angles to the face. Fixtures, lugs, frames etc. if any, shall be built-in at places shown in the plans while laying the courses and not later by removing bricks already laid. The verticality of the walls and horizontality of the courses shall be checked often with plumb bob and spirit level respectively.
- 3.3.4 **Bond:** Unless otherwise specified, brickwork shall be done in English Bond. All walls, coming in contact with reinforced concrete columns, beams etc. shall be properly bonded by inserting reinforcements.
- 3.3.5 **Joints:** Joints shall not exceed 10mm in thickness and this thickness shall be uniform throughout. The joints shall be raked out not less than 10mm deep when the mortar is green where pointing is to be done. When the brick surface are to be plastered, the joints shall be raked to a depth of 5mm when the mortar is green, so as to provide good key to plaster.
- 3.3.6 **Uniform Raising:** Brickwork shall be carried out in all cases not leaving any part 60mm lower than another. However, where building different levels are necessary the bricks shall be stepped so as to provide an uniform level and effectual bond. Horizontal courses shall be to

line, level, and vertical face plumb. The rate of laying masonry may be up to a height of 80 cm per day.

- 3.3.7 **SCAFFOLDING:** The scaffolding must be strong and rigid, stiffened with necessary cross bearers and always decked and board to prevent injury to persons or materials. If in the interest of work the Contractor has to erect scaffolding in the neighbor's properties including land of local bodies or Corporation, the arrangement for the same including the cost of licensing fees etc. shall be borne by the Contractor and the Employer shall be kept free from any liability on this account. Log holes shall be made good by bricks to match the face work when logs are removed after ensuring that the holes are solidly filled in with 1:3:6 cement concrete.
- 3.3.8 **CURING:** All brick works shall be kept well watered for 14 days after laying. If pozzolana cement is used for mortar, curing shall be extended by one week at Contractor's expense.
- 3.3.9 **EXPOSED BRICK WORK:** Where exposed brick work is specified, the specification for 'Brick work' as mentioned above shall be applicable for 'Exposed Brick Work' but in addition special bricks shall be used for facing, ensuring regular and clean faces of uniform colour. No bricks, which are broken, chipped, wrinkled or which have irregular edges or corners shall be used. Depending on the quality of bricks and if instructed by the Architect the exposed faces of every brick shall be rubbed before laying without any extra charge. Wooden fillets 10mm joints thick and 10mm shall be placed at the edge of joints so that the mortar does not come on the surface of the bricks and a regular thickness of joints is maintained. The surface shall be rubbed down with brush, if necessary, and thoroughly washed. No mortar shall be allowed to deface the surface, which shall be left clean to the satisfaction of Consultant with all joints even and true to straight line. Double scaffolding shall be used for exposed brickwork.
- 3.3.10 **HALF BRICKWORK:** Half brick thick and brick on edge walls shall be provided with 20 SWG wire netting reinforcements provided every third course and alternate course respectively with galvanized staples. Wire netting shall be 40mm mesh made of 20 SWG black soft iron wire.

4.0 CEMENT PLASTER :

- 4.1 **PREPARATION OF SURFACE:** The walls to be plastered shall have all joints racked out to a depth of 10mm if not already done. RCC surface shall be properly hacked to get good key to the plaster. All dust and oily matter, if any, shall be brushed and cleaned and the surface to be plastered shall be kept wet for 5 hours before plastering is commenced.
- 4.2 **PROPORTION OF MORTAR:** Unless otherwise mentioned, the proportion of mortar to walls, lintels and column plaster shall be 1 part cement and 4 parts sand by volume. In the case of ceiling, ceiling beams projected slab, sills, chajja, marquise, domes etc. the mortar shall be in the proportion of 1 part cement and 4 parts sand and shall be as per IS 1542/1960 as applicable to wall and ceiling plaster. No more cement plaster shall be prepared than that can be used within half an hour.
- 4.3 **APPLICATION OF PLASTER:** The mortar shall be applied evenly with force on the surface to be plastered. The mortar surface shall be finished at once by being rubbed over with a wooden float till the cement appears on the surface. All corners, angles and junctions shall be truly vertical and horizontal, as the case may be, carefully and neatly finished. Rounding of corners and junctions where required shall be done without extra charge. The mortar shall adhere to the surface intimately when set and there shall be no hollow sound when struck. The thickness of plaster shall be minimum 12mm over the surface of interior brick wall and RCC and 19mm over stone walls and external brick walls. Plaster for ceiling projected slab, walls, chajja, marquise, domes, exposed surface of beam etc. shall be minimum of 10mm thick.
- 4.4 When neat cement finish is specified over the plastered surface a coat of Portland cement slurry, 1.5mm thick shall be applied and well rubbed to the plastered surface while the plaster surface is till green.
- 4.5 When no finish is specified, over the plastered surface it shall be trowelled well to evenness with a wooden float for external surface and finished smooth with a steel trowel for internal surface.
- 4.6 When thickness of the plaster is more than 12mm thick the surface will be plastered in two operations.

5.0. PAINTING AND POLISHING

The specification covers various types of painting and finishing of all surfaces throughout the part of the building. The number of coats required in various situations and also the type of finish required for plastic emulsion paint as specified in the schedule of probable qualities and specifications. Before the commencement of the work, the contractor will provide sample panels of painting at his own cost for the approval of the Designers to enable him to keep an accurate check on the materials supplied and final shade to be painted. It is however the responsibility of the Contractor to provide any deviations and shall have to be rectified by the Contractor at his own cost. Contractor shall protect not only his own work at all times but also all the adjacent work and materials by suitable covering, protection or other methods acceptable to the Designers during progress of painting. It is the responsibility of the Contractor upon completion of the painting work to remove all paint and varnish spots from floors, walls, glass panels, and other surfaces and restore them to original conditions. The work generally to be touched up shall attend to after all other workmen have left. All accumulated material, rubbish etc. have to be cleared and the premises left in clean, orderly and acceptable conditions. Contractors shall provide scaffolding wherever necessary erected on double supports tied together by horizontals, no ballies, bamboos or planks shall rest on or touch the surface that is being painted. Contractor is deemed to have considered the following while tendering no extra claim on account of these will be entertained.

- a. Supplying the paint and other materials required of approved colour and brand.
- b. Preparing the surfaces to be painted.
- c. Providing and erecting scaffolding and removing the same after completion of work
- d. Lifting of material to any height and painting at all levels
- e. Application of paint as per the specification and to manufacture instructions
- f. Curing, protecting the painted surface, adjacent work and thoroughly cleaning of the premises.

The paint shall generally conform to the chemical composition and other characteristics laid down in the relevant Indian Standards specifications. The entire materials required for the painting work shall be obtained direct from the approved manufacturers or their authorized agents and bought to the site in original manufacture containers with seals unbroken. Paint shall be ready mixed and 1st quality of approved brand and manufacture. Mixing of paint by the Contractor at the site will not be allowed, except with the preparation of ingredients and their quality shall be strictly maintained as per the Designers. All materials shall be kept properly protected when not actually in use.

6.0 RATES TO INCLUDE : Apart from other factors mentioned elsewhere in this contract the rate for item of wood work and joinery Shall include For the following :

- A. Items of scantlings :
 - i) All labour, materials and equipments for fixing frame work as per drawing excluding the cost of holdfasts , Raw plugs, or other fasteners etc.
- B. Items of shutters :
 - i) All labour, materials and equipments for carrying out the work as per drawing.
 - ii) Labour for fitting the shutters in position (excluding the cost of fittings) as per drawing.

7.0 MODE OF MEASUREMENT:

All measurements shall be as per relevant section of I. S. 1200 of latest edition.

- i) Scantling shall be measured in cum. The sectional area shall be the area of the least square, or rectangles from which the scantling may be cut. The length shall be actual length of timber required for the purposes including the extra portion required for jointing.
- ii) Shuttering shall be measured in square metre for closed door shutters area i.e. rebate to rebate to without extra measurement for rebates and/or splayed meeting styles of door.

SECTION – VIII**BILL OF QUANTITIES INCLUDING APPROVED MAKE OF MATERIALS FOR
ABOVE MENTIONED WORKS****HITACHI SAMSUNG LG VOLTUS CARRIER DAIKIN****RATE QUOTATION**

ITEM	DESCRIPTION	QNTY.	UNIT	RATE	AMOUNT
1	Supply, Installation, testing and commisioning of Following Hi Wall Split AC Unit of 5 star category with installation of outdoor units as well (Cost must be inclusive of standard instalitions, MS angle for out door unit and 12' length copper pipe and cable with each set of a mchine)				
1.a.	1.00 Tr AC Units	2.00	nos		
1.b.	1.50 Tr AC Units	6.00	nos		
2	Supply , laying and interconnection of 660V copper cable of the following size for control wiring(gloster/havells/rajnigandha) (inclusive of VAT and service tax etc)				
2.a.	4C x 16 sq-mm armoured cable	30.00	Mtr		

2.b.	6C x 1.5 sq-mm copper flexible cable	30.00	Mtr		
3	Supply and installation of hard drawn copper suction line and liquid line of suitable size as per standard of manufacturer for 2.0 Tr / 1.5 Tr machine,completed with suction line insulated (inclusive of VAT and service tax etc)	60	Mtr		
4	Supply and termination of PVC Drain line of required size (inclusive of VAT and service tax etc)	60	Mtr		
5	Supply and installation(Concealed) of 4 way Double Door / Single door VTPN DB with MCB having breaking capacity of 10 KA. a) incoming- 1 No ... 125 Amp ,50KA,4P MCCB b)outgoing - 3 Nos. 63 Amp TP MCB (for CASSET AC Machines) 3 Nos 32 amp SP MCB C series necessary blanking plate as required.(As per IS8828-96Latest) (AC-DB CASSET AC UNITS AND SPLIT UNITS) MAKE: LEGRAND/ SIEMENCE / HAGER / CRABTREE	1	No.		
6	Supply & fixing north-west motor starter (AC Starter)11-18 / 25A with plugtop indicator type and socket (eav legrand/Cabtree.)	8	Nos		
Sub Total					
NOTE: 1. Rate should be quoted for each item separately and the amount must be mentioned. If it is found that the contractor has not quoted the rate, the tender shall be considered as incomplete, hence shall be canceled thereafter. 2. Contractor should visit the site to understand actual condition and consult the drawing before quoting.		Total Budgetary Estimate			
		FINAL TOTAL			
In Words:					

(WITHOUT G.S.T.)

(END)