



**SBI INFRA MANAGEMENT SOLUTIONS PVT LTD
(WHOLLY OWNED SUBSIDIARY OF SBI)**

INVITES TENDERS IN TWO BID SYSTEM THROUGH E-TENDERING

FOR

**AIRCONDITIONING WORKS OF SBI POONTHURA BRANCH
AT THIRUVANANTHAPURAM**

Last date for submission of Tender: 03.00 P.M. (IST) on 27/01/2020

Opening of Tenders: 03:30 P.M. (IST) on 27/01/2020

Tender id: THI202001018

(Name & Address of Contractors)

**The Assistant General Manager,
SBI Infra Management Solutions Pvt. Ltd.
4th Floor, SBI LHO Building,
Poojappura,
Thiruvananthapuram– 695012**

(NIT): THI202001018

Tenders are invited from competent OEM'S or its Authorized dealers of reputed brands satisfying the eligibility criteria for the above work with proven expertise for AIRCONDITIONING WORKS OF SBI POONTHURA BRANCH AT THIRUVANANTHAPURAM **by State Bank of India Infra Management Solutions Pvt. Ltd, (SBIIMS)**

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|---|---|--|
| 1 | Estimated cost of work: | Rs.3.13 Lakhs. (Estimated value for both works & AMC) |
| 2 | Time of Completion: | 15 Days from the date of work order. |
| 3 | Date of download of tender documents from Bank's web site http://www.sbi.co.in under "procurement news". | From 20/01/2020 to 27/01/2020. |
| 4 | Last date and time for submission of technical bid | Date: 27/01/2020 by 3:00 P.M |
| 5 | Earnest Money Deposit. (EMD) | Rs. 3,100/- (Rupees Three Thousand One Hundred Only) in the form of DD in favor of 'Assistant General Manager,, SBI Infra Management Solutions Pvt Ltd, Thiruvananthapuram.' |
| 6 | Tender document fee | Rs.1000/- (Rupees One Thousand Only) in the form of DD in favor of Regional Manager, RBO3 SBI payable at Thiruvananthapuram.' Tender document fee is to be submitted even if the tender document is downloaded from the website by the tenderer. |
| 7 | EMD & technical bid and prequalifying documents to be submitted at: | EMD, Tender fees, Tender document and documents satisfying eligibility criteria should be submitted physically at SBI Infra Management Solutions Pvt. Ltd. Office: 4th Floor, SBI LHO Building, Poojappura, Thiruvananthapuram - 695012 before 27/01/2020 by 3.00 P.M. Contact: Assistant General Manager. 0471-2419410/2419435. |
| 8 | Date and Time of opening of Tenders: (Technical Bid) | Date: 27/01/2020 at 3.30 P.M (IST) at above office address. Technical Bid of those firms / contractors who do not submit EMD and Tender fees shall be rejected. Representatives of Bidders may be present during opening of Technical Bids. However Bids would be opened even in the absence of any or all the bidder's representatives. Technically qualified vendors will be intimated to submit the price bid on sbi website 'etender.sbi' on the date fixed by SBIIMS. Price bids submitted will be opened on the same day. |
| 9 | Bidder Contact Details. | Bidder to provide following information. Name of Company. |

| | | |
|----|---|--|
| | | Contact Person. Mailing address with Pin Code. Telephone number and Fax number. Mobile Number and E-MAIL. |
| 10 | Minimum value of work to be executed for issue of interim certificate for payment | Nil |
| 11 | For Clarifications please contact Electrical Engineer - | 9497714782 |

The SBIIMS reserves the right to accept or reject any or all the tenders without assigning any reason whatsoever.

Note : All the pages of the Tender document shall be sealed and signed by the Contractor in token of acceptance of all terms and conditions.

* - In case the date of opening of tenders is declared as a holiday, the tenders will be opened on the next working day at the same time.

Eligibility criteria for the tenderers

The Contractors have to submit self-attested copies of the following documents along with the tender (Technical Bid).

If the applicant is an authorized dealer, the letter of authorization from the OEM shall be submitted.

Income tax (PAN) and GST registration certificate
Proof of the same shall be submitted.

Please read the 'INSTRUCTIONS TO TENDERERS' thoroughly before submitting the Tenders. Also note to verify the Bank web-site under 'PROCUREMENT NEWS' before the last date and confirm that 'CORRIGENDA' to the Tender Notices issued (if any) has been read and / or complied with.

INSTRUCTIONS TO TENDERERS

1. This tender is for the "AIRCONDITIONING WORKS OF SBI POONTHURA BRANCH AT THIRUVANANTHAPURAM". It is a Two Bid containing Technical cum prequalification bid and Price Bid.

In their own interest the contractors are advised to use their own specific seals and desist from using currency coins for the purpose. Tenders with incomplete or broken seals are liable to be rejected, the matter solely resting at the discretion of the EMPLOYER / ARCHITECTS. If a Contractor does not quote for one or more items, the Tender will be considered as incomplete and will be rejected.

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

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

4. Employer or Client shall mean **Assistant General Manager,** State Bank of India Infra Management Solutions Pvt Ltd, Thiruvananthapuram and / or Regional Manager, RBO-3 SBI.

6. The tender is to be submitted in a sealed cover super scribed as "AIRCONDITIONING WORKS OF SBI POONTHURA BRANCH AT THIRUVANANTHAPURAM" (EMD & Technical cum prequalification Bid) containing the tenderer's EMD (in the form of a Demand Draft), Tender cost, Technical bid and supporting documents for prequalification criteria, BOQ . There should not be any mention about the price in any manner in cover. All pages should be properly tied and tagged in its order for easy identification during scrutiny. Full address with phone no. of the tender should be written on the sealed covers.

All pages should be signed and sealed by the tenderer. No deviations from the tender are acceptable.

7. Bills of quantities in respect of each work and specification shall accompany this tender notice. The tenderers must use only the form issued by the SBIIMS. The Bills of quantities are liable to alternations by omission, deduction or addition at the discretion of the SBIIMS.

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1. TENDER FORM

PROJECT: AIRCONDITIONING WORKS OF SBI POONTHURA BRANCH_AT THIRUVANANTHAPURAM

Dear Sirs,

I/We the undersigned have carefully gone through and clearly understood after visiting the site and the Tender drawings and tender documents comprising of the tender form, Notice to contractors, and conditions for building contract, Special Conditions, Specifications and Schedule of Probable quantities and Draft Agreement prepared by SBIIMS .

I/We do hereby undertake to execute and complete the whole or part of the work (as desired by you) at the respective rates which/I/We have quoted for the respective items of the Probable Bill of Quantities.

I/We are depositing as Earnest Money a sum of Rs. 3100/- (Rupees Three Thousand One Hundred Only in favor of The 'Assistant General Manager, SBI Infra Management Solutions Pvt Ltd, Thiruvananthapuram.' along with this tender for due execution of the work at my/our tendered rates together with any variations which shall be adjusted by the Architects at prices based on our tendered rates. I/We shall deposit further sum equivalent to 2% of tender amount, less EMD paid in the event of my/our tender being accepted, towards initial security deposit within 5 days from the date of work order.

In the event of this Tender being accepted I/We agree to enter into an agreement as and when required and execute the contract according to your form of Agreement, within 5 days of receipt of work order, in default thereof, I/We do hereby bind my-self/ourselves to forfeit the aforesaid Earnest Money deposit.

I/We further agree to complete the work covered in the said schedule of quantities within 15 days from the date of issue of the work order to commence the work or on which contractor is instructed to take possession of the site, whichever is later.

I/We agree not to employ Sub-contractors other than those that may be specifically approved by your Employer/ Architects for this contract work.

I/We agree to and to get the work, workers, employees (of contractor) engaged on the work at site and all materials at site for execution of the work shall be insured comprehensive insurance including fire/accidents/ rain/ floods/riots/CAR policy (contractor's all risk insurance policy) and the insurance shall cover the period from date of start of work to date of actual completion of work plus 3 months. In case part work is taken over by the Employer before final completion of the whole work, such parts may not be covered by the insurance from the date of taking over that part of work by the Employer. Draft Insurance deed will be got vetted from the Architect, before obtaining the same. All the rates quoted by me/ us are inclusive of the same in full and nothing extra shall be claimed anytime on account of any of these.

I/We agree to pay Income tax, to be deducted at source, at the rate prevailing from time to time on the Gross value of the work done, and the rates quoted by me/we are inclusive of same.

Yours faithfully,

Contractor's Signature

Address:

Date:

2. NOTICE TO CONTRACTOR

PROJECT: AIRCONDITIONING WORKS OF SBI POONTHURA BRANCH AT THIRUVANANTHAPURAM

Dear Sirs,

1. On behalf of our clients, **M/s SBI, LHO, Thiruvananthapuram**, we have pleasure in inviting you to tender for the aforesaid work.
2. The tenderer must obtain for himself, on his own responsibility and at his own expenses, all the information which may be necessary for the purpose of filling this tender and for entering into a contract for the execution of the same and must examine the drawings and inspect the site of the work and acquaint himself with all local conditions and matters pertaining thereto.
5. Each of the tender documents page is required to be signed by the person or persons submitting the tender in token of his/their having acquainted himself/themselves with the General conditions etc., as laid down. Any tender with any of the documents not so signed will be rejected.
6. The tender documents must be filled in English and all the entries must be made by hand and written in ink/ball pen. If any of the documents are missing or un-signed, the tender shall be considered invalid.
7. Each and every one of all erasures and additions/alterations made, while filling the tender, must be attested by initials of the tenderer. Overwriting of figures is not permitted. Failure to comply with either of these conditions will render the tender void. After submission of the tender no advice or any change in rate or conditions will be entertained. All the rates should be quoted both in figures and words. In-case of any discrepancy in rates quoted in words/figures and the amounts, the rate quoted in words shall be taken as final and binding.
8. The tender shall be valid for a period of 90 days from the date of opening.
9. TOTAL SECURITY DEPOSIT: shall comprise of:
 - a. Earnest Money deposit
 - b. Initial Security deposit
 - c. Retention money
- 9.1 The intending tenderer shall deposit with **SBIIMS Thiruvananthapuram**, by Demand Draft a sum of **Rs. 3100/- (Rupees Three thousand One Hundred Only)** as the Earnest Money, as a guarantee of good faith, which amount shall be forfeited as liquidated damages, in the event of any evasive/direct refusal or delay in starting the work and or signing the contract. The deposit of the unsuccessful tenderers will be returned, without interest, immediately after a decision is taken regarding the award of the contract. The Earnest money of the successful tenderer will be adjusted towards Security Deposit. A tender not accompanied by Earnest money deposit will not be considered.

9.2 The successful tenderer will have to pay further sum equivalent to 2% of his contract value, less EMD already paid, as initial Security Deposit (ISD) by means of a D.D./Banker's cheque in favour of The 'Regional Manager, SBI RBO3, Thiruvananthapuram.' within 5 days from the date of issue of work order to commence work. The EMD and initial Security deposit thus paid shall be held by the State Bank of India as Security deposit, for due execution and fulfillment of the contract, till the completion of the work and defect liability period in all respects and shall not bear any interest.

9.3 Together with the money paid under the above clause, further retention of 10% of the value of the work done will be deducted from every running bill, till total retention, including EMD and initial SD paid earlier, comes to 5% of the contract value, and same shall be held by the Bank as Total Security Deposit. On completion of work, 50% of the total security deposit shall be released to the contractor along with the final certificate of payment, and the balance amount will be retained in the manner stated elsewhere for a further period of twelve months after the completion date recorded in completion certificate, issued by SBIIMS/Bank.

10. Within 5 days of the receipt of intimation from the SBIIMS, the successful tenderer shall be bound to sign an agreement, on a stamp paper in accordance with the Draft Agreement and conditions of contract attached herewith, but the work order or the written acceptance of a tender by the Employer will constitute a binding agreement between the Employer and the person tendering whether such formal contract is or not signed by the contractor.

11. All compensation or other sums of money payable by the contractors to the clients, under the terms of this contract, may be deducted from the Security Deposit or from any sum that may be or may become due to the contractor on any account whatsoever, and in the event of the Security deposit being reduced by reasons of any such deductions, the contractor shall within 15 days of being asked to do so make good in cash or cheque, any sum which have been deducted from his security deposit.

12. The rates quoted by the Contractor shall include all eventualities, such as heavy rain, sudden floods, accidents, fire, riots etc., which may cause damage to the executed work or which may totally wash out the work. Until the completion certificate is issued to the Contractors, neither the Architect nor the clients will be responsible for such damage or wash out of the construction work.

13. Time is the essence of the contract. The work should be completed **within 15 days** from the date of confirmed order. The work order will be sent by courier as well as email in the given address.

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

14. If the contractor fails to complete the work by the Scheduled date of completion or within any sanctioned extended time, he will have to pay liquidated damages at the rate of ½% of contract amount for each week of delay the work remains incomplete beyond the completion(Original/extended date), subject to maximum of 5% of the contract value (without extra items) as per clause 31 of the General conditions of contract.

15. The quantities contained in the Schedule are only indicative. The work as actually carried out and done will be measured up from time to time, for which payment will be made subject to the terms and conditions of contract.
16. The unit prices shall be deemed to be fixed prices. In case of extra items, a record of labour charges paid shall be maintained and shall be presented every month for extra/substituted items regularly to the Architects for checking. The settlement will be made based on figures arrived at jointly and taking into account unit prices of items of work mentioned in the contract assigned to the successful tenderers. In case, of extra items, where similar or comparable items are quoted in the tender, extra rates shall invariably be based on those tender rates to the extent reasonable. In case of extra items where similar items are not available in the tender, the rates for such items shall be derived as per CPWD analysis of rates as applicable.
17. Our clients, SBIIMS, do not bind themselves to accept the lowest or any tender and reserve to themselves the right to accept or reject any or all tenders, either in whole or in part, without assigning any reason whatsoever for doing so.
18. No employee of the bank or SBIIMS is allowed to work as a contractor for a period of two years of his retirement from bank service, without the previous permission of the bank or SBIIMS. This contract is liable to be cancelled, if either the contractor or any of his employees is found at any time to be such a person who had not obtained the permission of the bank or SBIIMS as aforesaid before submission of the tender or engagement in the contractor's service.
19. The tenderer, apart from being a competent contractor must associate himself with agencies of the appropriate class who are eligible to tender for (1) Electrical (2) Fire fighting systems & (3) Interiors (fixed furniture), as the case maybe.
20. Release of security deposit:
 - i) 50% of the total security deposit will be released along with the final certificate of payments as stipulated under para 7 on page 14, Appendix to General Conditions of contract,
 - ii) Balance 50% of total security deposit will also be released as noted under(i) above, subject to submission of a Bank Guarantee, to the satisfaction of SBIIMS for an equivalent amount. This Bank Guarantee shall be valid upto completion of defects/removal liability period plus 3 months. The bank guarantee shall be released after completion of defect liability period provided that there is no defects noticed in the work during defects liability period or defects if any is rectified by the contractor to the entire satisfaction of SBIIMS.

3. ARTICLES OF AGREEMENT

ARTICLES OF AGREEMENT made the _____ day of _____ 2020 between Regional Manager, SBI,RBO-3, AO Trivandrum (hereinafter called the "Employer") of the one part and

of _____ (hereinafter called "The Contractor") of the other part, where as the Employer is desirous of getting the work of "AIRCONDITIONING WORKS OF SBI POONTHURA BRANCH AT THIRUVANANTHAPURAM" executed and has caused drawings, conditions of contract, specifications and schedule of quantities etc., describing the works prepared by SBIINMs AND WHEREAS the SAID DRAWINGS numbered as per list attached inclusive of _____ and the conditions of contract, specifications and schedule of quantities etc., have been signed by or on behalf of the parties hereto.

AND WHEREAS THE CONTRACTOR has agreed to execute upon and subject to the conditions set forth in the Schedule hereto (hereinafter referred to as "Said Conditions") the works shown upon the said drawings and described in the same specifications and included in the said schedule of quantities for such sum as may be ascertained to be payable in terms of the Bills of Quantities, and which sum is estimated to be Rs. _____ (Rupees _____) (hereinafter referred to as "Said Contract Amount").

NOW IT IS HEREBY AGREED AS FOLLOWS:

1. In consideration of the said sum to be paid at the times and 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 in the said drawings and described in the said specifications.
2. The Employer shall pay the contractor the said sum or such sums as shall become payable hereunder at the times and in the manner specified in the said conditions.
3. Tender documents containing work order Notice to the Contractor, Conditions of Contract, Appendix thereto, Special Conditions of Contract, Specifications and Schedule of Quantities with the rates entered therein, shall be read and studied as forming part of this agreement and the parties hereto shall respectively abide by and submit themselves to the conditions and stipulations and perform the agreement on their part respectively in such conditions contained.
4. The contract is neither a fixed lumpsum contract or a piece work contract, but is a contract to carry out work in respect of the entire works to be paid for according to actual measured quantities, including variations from BOQ at the rates contained in the Schedule of rates and Probable bill of quantities or as provided in the said conditions.
5. The SBIIMS, reserves to himself the right of altering the drawings and natures of the work, of adding/substitution to or omitting any items of work or having portions of the same carried out through alternate agencies without prejudice to this contract.
6. Time shall be considered a the essence of this agreement and the contractor hereby agrees to commence the work soon after the site is handed over to him and complete the entire work in **15 days** subject to nevertheless to the provisions for extension of time.
7. This agreement and contract shall be deemed to have been made in Thiruvananthapuram and any questions or dispute rising out of or in any way connected with this Agreement and Con-

tract shall be deemed to have arisen in Thiruvananthapuram and only the courts in Thiruvananthapuram shall have jurisdiction to determine the same. The limitation period will be 90 days from the date of dispute having arisen and in any case not after acceptance of full and final payment.

AS WITNESS our hand this _____ day of _____ 2020

Signed by the said in the presence of:

WITNESS : SIGNATURE

NAME :

ADDRESS :

EMPLOYER

WITNESS : SIGNATURE

NAME :

ADDRESS :

4. APPENDIX TO GENERAL CONDITIONS OF CONTRACT

1. Earnest Money Deposit (EMD) : Rs. 3100/-
2. Initial Security Deposit (ISD) : 2% of contract value including EMD.
3. Period of completion : 15 DAYS
4. Defects Liability period : 12 months after completion as recorded in the completion certificate.

1. Minimum value of work to be Executed for issue of interim Certificates for making payment : Nil

- 6.a) Retention money from each bill : 10% of gross value of each interim bill, subject to 8(b) below.
- b) Total retention money including Earnest money and initial security Deposit : 5% of the contract value.

7. Release of Security deposit after Virtual completion. : 50% of the total security to be released along with final certificate of payment, but only after removing all his materials, equipment, labour, huts/force, temporary sheds/stores, all his installations, machinery etc., from the site. Balance payment to be released on submission of Bank Guarantee on any Scheduled Bank, Other than SBI, and its associated banks in the prescribed manner and valid till the completion of defects liability period of 12 months plus 3 months as per clause no 20 notice to contractor.

8. Period for honouring certificate : 15 working days from date of Architects certificate of payment for interim bills and 45 working days for final certificate.

9. Secured Advance : Nil

WITNESS :

DATE : SIGNATURE OF THE CONTRACTOR WITH DATE

5. INDEX TO GENERAL CONDITIONS OF CONTRACT

1. Interpretations
2. Scope of Contract
3. Drawings and Specifications
4. Schedule of Quantities
5. Sufficiency of Schedule of Quantities
6. Errors in schedule of Quantities
7. Contractor to provide everything necessary
8. Authorities, Notices, Patent rights and royalties
9. Materials and workmanship to conform to description.
10. The setting out
11. Removal of all offensive matters
12. Opening up works
13. Contractor's superintendence and representative on the work
14. Dismissal of workmen
15. Access to works
16. Employer's representative/PMC
17. Assignment of sub-letting
18. Sub contractors
19. Variations not to vitiate contract
20. Measurement to works
21. Prices of Extras etc., Ascertainment of
22. Unfixed materials
23. Removal of improper work and materials
24. Defects after completion

25. Certificate of virtual completion
26. Other persons engaged by the Employer
27. Insurance in respect of damage to persons and property
28. Contractor's All risk policy
29. Minimum amount of third party Insurance
30. Commencement and completion
31. Delay and extension of time
32. Damages for Non-completion
33. Failure by contractor to comply with Architect's instructions
34. Architect's delay in progress.
35. Supervision of works
36. Prime cost and provisional sums
37. Certificates and payments
38. Notices
39. Termination of contract by the Employer.
40. Termination of contract by the contractor.
41. Matters to be finally determined by the Architects
42. Settlement of dispute (Arbitration)

SPECIAL CONDITIONS OF CONTRACT

1. Contractor shall not be entitled to any compensation for any loss suffered by him on account of delays in commencing or executing the work, whatever the cause of the delays may be, including delays arising out of modifications to the work entrusted to him or in any subcontract connected there with or delays in awarding contracts for other trades of the project or in commencement or completion of such works in obtaining water and power connections for construction purpose or for any other reason what so ever and the Employer shall not be liable for any claim in respect thereof. The Employer does not accept liabilities for any sum besides the tender amount, subject to such variations as are provided for herein.
2. The successful tenderer is bound to carry out any items of work necessary for completion of the job if such instructions in respect of such additional items and their quantities will be issued in writing by the SBIIMs.
3. The contractor must bear in mind that the work shall be carried out strictly in accordance with tender specifications and instructions of the SBIIMs.
4. The rates quoted in tender shall also include electric consumption charges for power. If no power is available at site the contractor shall have to make his own arrangement to obtain power connection and maintain at his expense an efficient service of electric light and power and shall pay for the electricity consumed. The Employer shall give all possible assistance to the contractor to obtain the requisite permission from the various authorities, but the responsibility for obtaining the same shall be that of contractor.
5. Contractor shall strictly comply with the provisions of safety code in addition to all local rules and regulations.
6. The contractor shall be responsible for the observance of all rules and regulations framed by the government under the contract labour act. The Employer shall be entitled to deduct all losses, damages that he might suffer on account of non-observance of these rules by the contractor, from the amount payable to the contractor.
7. Time shall be considered the essence of this contract. The entire work must be completed as given in NIT. If the completion of the work is delayed a penalty at the rate of ½ % per week over the contract value will be imposed subjected to a maximum of 5%.

If the work is delayed beyond 10 weeks after the scheduled date of completion, the remaining work will be carried out through other agencies at the risk and cost of the contractors under the contract with prevailing market rates.
8. The successful tenderer shall submit the phased program of execution of different items of work within 2 days after receipt of acceptance letter.
9. Payment will be made subjected to a minimum value as stated in the NIT and will be made within a period of TWO weeks after the bill is submitted to the SBIIMs.
10. Before filling in the tender the contractor will check all the drawings and schedule of quantities and will get an immediate clarification from SBIIMS / Architects on item not clearly understood. No claims for any loss or compensation will be entertained on this account.

11. All the work shall be carried out as per detail drawings and specifications or as directed by SBIIMS / Architects.
12. The rates quoted in the tender shall be for the finished items of work They shall include all the charges labour, materials, transportation of material equipment, double scaffolding water and electric charges, tool and plants, marking out and cleaning of site, to do all things necessary to provide complete finished item for work consistent with the specifications attached to this tender document. The rates shall be inclusive of octroi duty, excise duty, packing and forwarding, loading or unloading, GST or any other duties or fees levied by any government, public or local bodies. The rates shall be firm and shall not be subject to exchange variations, labour conditions or any other conditions whatsoever.
13. The calculations made by the tenderer should be based upon the probable quantities of the several items of work which are furnished for the tenderer's convenience in the schedule of quantities ,but it must be clearly understood that the contract is not a lumpsum contract , that neither the probable quantities nor the value of individual items nor the aggregate value of the entire tender will form part of the contract and that SBIIMS / Architects do not in any way assure the tenderer or guarantee that the work would correspond there to.
14. Adequate engineering and technical staff to be appointed at site. Airconditioning contractor should inform of their number and qualification. An Approval of SBIIMS / Architects should be taken prior to appointing such technical staff on site.
15. **The contractor shall keep the tender submitted by him open for acceptance for a minimum period of three months from the date of it's submission** .When once the tender is accepted the rates quoted by the successful tenderer shall be firm and the variation in rates of any one or all the items on any account shall not be allowed during the entire duration of the contract
16. During the execution of work, contractor must check the work with his drawings .The contractor shall be responsible for all the errors in this connection and shall have to rectify all the defects at his own cost, failing which the client reserves the right to get the same rectified at the risk and cost of contractor.
17. No claim for extra item or deviation from specification shall be entertained unless the same is pointed out and accepted as such before the work is taken in hand or within 15 days of work by the successful tenderer.
18. The contractor shall comply with all bye- laws and tax regulations (including GST) of local and other statutory authorities having jurisdiction over the works and shall be responsible for the payment of all the fees and other charges and for giving and receiving of all necessary notices drawings and test certificates.
19. The successful tenders shall properly safeguard against damage or injury to the public and to any property or thing and shall alone be responsible for any such damage and injury to any person or persons or thing arising in connection with it's execution of work .The successful tenderer shall protect and hold harmless the SBIIMS against any or all claims for any such injury or damage.
20. The work in every respect during the progress and till final acceptance by the SBIIMS, including raw materials delivered at the site to be incorporated or used in AC work by the successful

tenderer will be at his own risk. Any loss or damage to any such material or work shall immediately be replaced by the successful tenderer at his own expense.

21. The SBIIMS shall have the right to direct the contractor to purchase and use the materials from any source for proper execution of work.
22. The employer / SBIIMS / Architects or their authorized representatives shall have full power for inspecting the contractor's works or at any place from which the material is obtained. Acceptances of any such materials shall no way relieve the contractor of his responsibility for meeting the requirements and /or analysis not called for in the specifications shall be borne by the SBIIMS in case the material or work is found defective or of inferior quality. Tests and /or analysis shall be done in the laboratory approved by the the Employer/SBIIMS and the contractor shall permit SBIIMS and or the client's or their authorized representative to be present during any of the tests and /or analysis.

23. INSURANCE

The contractor shall indemnify SBIIMS up to CAR Policy (Contractor's All Risk Policy) against all claim which may be made against SBIIMS by any member of the public or the third party in respect of anything which may arise in consequence thereof and shall at his own expense arrange to effect and maintain up to one month after the virtual completion from an office approved by SBIIMS a policy of insurance in the joint names and deposit such policy or policies with SBIIMS from time to time during the currency of this contract. The contractor shall also indemnify SBIIMS against all claims which may be made upon the SBIIMS under the workman's compensation act or any other statute in force during the currency of this contract or at common law in respect of any employee of the contractor or any sub contractor and shall at his own expenses effect and maintain upto one month after virtual completion of the contract from an office approved by SBIIMS a policy or policies of insurance in the joint names of SBIIMS and the contractor as aforesaid .The contractor shall be responsible for any other thing which may exclude from the insurance policies above referred to and also for any other damage to any property arising out of and incidental to the negligent or defective carrying out of this contract.

He shall also indemnify SBIIMS in respect of any costs, charges or expenses arising out of any claim or proceedings and also in respect of any award of compensation or damage arising therefrom. SBIIMS shall be at liberty and is hereby empowered to deduct the amount of any damages, compensation caused, charges and expenses arising or occurring from or in respect of any such claims or damages from any sum or sums due or to become due to the contractor.

24. WORKMAN AT SITE :

The contractors workpeople shall not be allowed to live on the site at any time throughout the contract nor to trespass beyond the limits of the site. The contractor will be held responsible for any acts of trespass by his workman.

25. DIMENSIONS :

Figures dimensions are to be taken in preference to scaled dimensions in all cases. Before commencing any work the contractor shall verify all measurements. If any discrepancies are found they shall immediately be brought to the notice of the Architects.

26. DISCREPANCIES

All the items shown on the drawings or specifications are taken to be included in both. Any discrepancies, which occur in either the drawings or specifications, shall immediately be brought to the attention of the Architects.

27. CUTTING AND MAKING GOOD

Where it is found necessary to interfere with finished work in order to execute this contract, the contractor will be required to do all necessary work at his expenses. Only approved hangers and bolts or other metal fixing devices shall be used to secure frames panels and other units in position. Wooden plugs will not be permitted. Holes shall be formed with electric drills whenever possible. Structural members shall not be cut or drilled without prior consent of the client.

28. MAINTENANCE AND GUARANTEE

The whole of the work to be performed under this contract shall be completed to the satisfaction of the Architects, SBIIMS and EMPLOYER.

The contractor without additional charge to SBIIMS renew or replaces any works which prove faulty from workmanship or materials and fully maintain the whole installations for a period of 6 months after the commencement of defects liability period of the main contract and a sum of 5% of the contract amount shall be retained by SBIIMS for his period.

29. PREVENTION OF SPOIL DUMPING

The contractor shall take all reasonable steps to prevent spoil, rubbish, debris surplus materials etc., arising from a work being dumped on an area other than a recognized or approved tipping area and the Contractor will be held responsible for and shall indemnify SBIIMS against any claim or loss arising therefrom.

30. LEAVE PERFECT :

The Contractor shall remove all rubbish and superfluous material from the site of the works with all reasonable speed from time to time and at completion. On no account shall W.C' S or the SBIIMS's receptacles to be used for this purpose.

The client reserves its right to clear contractors un cleared debris at contractors own cost without any reasons & not more than one notice will be given for this.

31. SETTLEMENT OF DISPUTES AND ARBITRATION:

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

- (a) If the contractor considers that he is entitled to any extra payment or compensation in respect of the works over and above the amounts admitted as payable by the Architect or in case the contractor wants to dispute the validity of any deductions or recoveries made or proposed to be made from the contract or raise any dispute, the contractor shall forthwith give notice in writing of his claim, or dispute to The Assistant General Manager, SBI Infra Management Solutions Pvt. Ltd., Circle Office, 4th Floor, State Bank of India, LHO Building, Poojappura, Thiruvananthapuram - 695012 and endorse a copy of the same to the Architect, within 30 days from the date of disallowance thereof or the date of deduction or recovery. The said notice shall give full particulars of the claim, grounds on which it is based and detailed calculations of the amount claimed and the contractor shall not be entitled to raise any claim nor shall the bank be in any way liable in respect of any claim by the contractor unless notice of such claim have been given by the Contractor The Assistant General Manager, SBI Infra Management Solutions Pvt. Ltd., Circle Office, 4th Floor, State Bank of India, LHO Building, Poojappura, Thiruvananthapuram - 695012 in the manner and within the time as aforesaid. The contractor shall be deemed to have waived and extinguished all his rights in respect of any claim not notified to The Assistant General Manager, SBI Infra Management Solutions Pvt. Ltd., Circle Office, 4th Floor, State Bank of India, LHO Building, Poojappura, Thiruvananthapuram - 695012 in writing in the manner and within the time aforesaid.
- (b) **The Assistant General Manager, SBI Infra Management Solutions Pvt. Ltd., Circle Office, 4th Floor, State Bank of India, LHO Building, Poojappura, Thiruvananthapuram - 695012** shall give his decision in writing on the claims notified by the contractor. The contractor may within 30 days of the receipt of the decision of **The Assistant General Manager, SBI Infra Management Solutions Pvt. Ltd., 4th Floor, State Bank of India, LHO Building, Poojappura, Thiruvananthapuram - 695012** submit his claims to the conciliating authority namely the Circle Development Officer, State Bank of India, Local Head Office, Thiruvananthapuram for conciliation along with all details and copies of correspondence exchanged between him and **The Assistant General Manager, SBI Infra Management Solutions Pvt. Ltd., 4th Floor, State Bank of India, LHO Building, Poojappura, Thiruvananthapuram - 695012**.
- (c) If the conciliation proceedings are terminated without settlement of the disputes, the contractor shall, within a period of 30 days of termination thereof shall give a notice to the concerned Chief General Manager of the Bank for appointment of an arbitrator to adjudicate the notified claims failing which the claims of the contractor shall be deemed to have been considered absolutely barred and waived.
- (d) Except where the decision has become final, binding and conclusive in terms of the contract, all disputes of differences arising out of the notified claims of the contractor as aforesaid and all claims of the Bank shall be referred for adjudication through arbitration by the Sole Arbitrator appointed by the Chief General Manager. It will also be no objection to any such appointment that the Arbitrator so appointed is a Bank Officer and that he had to deal with the matters to which the Contract relates in the course of his duties as Bank Officer. If the arbitrator so appointed is unable or unwilling to act or resigns his appointment or vacates his office due to any reason whatsoever another sole arbitrator shall be appointed in the manner aforesaid by the said Chief General Manager. Such person shall be entitled to proceed with the reference from the stage at which it was left by his predecessor.

It is a term of this contract that the party invoking arbitration shall give a list of disputes with amounts claimed in respect of each dispute along with the notice for appointment of arbitrator.

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

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

It is also a term of the contract that if any fees are payable to the arbitrator these shall be paid equally by both the parties. However, no fees will be payable to the arbitrator if he is a Bank Officer.

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

32. TERMINATION OF CONTRACT BY EMPLOYER:

If the contractor (being an individual or a firm) commit any " Act of Insolvency ", or shall be adjudged as insolvent, or shall make an assignment or composition of the greater part in number of amount of his creditors, or shall enter into a Deed of Assignment with his creditors, or (being an incorporated Company) shall have an order made against him or pass an effective Resolution for winding up either compulsorily, or Subject to the supervision of the court or voluntarily, or if the official Assignee of the contractor shall repudiate the Contract, or if the Official Assignee or the Liquidator in any such winding up shall be unable, within seven days after notice to them requiring him to do so, to show to the reasonable satisfaction of the Architect that he is able to carry out and fulfill the Contract and if required by the Architect to give a security there for, or if the contractor shall suffer any payment under this contract to be attached by or on behalf of any of creditors of the Contractor, if the Contractor shall assign or sublet the contract without the consent in writing of the Architect first obtained, or if the contractor shall charge or encumber this Contract for any payments due or which may become due to the Contractor thereunder, or if the Architect shall certify in writing to the SBIIMS that in his opinion the Contractor:

- (a) Has abandoned the Contract, or
- (b) Has failed to commence the works, or has without any lawful excuse under these conditions suspended the progress of the work for fourteen days after receiving from the Architect written notice to proceed, or
- (c) Has failed to proceed with the work with such due diligence and failed to make such due progress as would enable the works to be completed within time agreed upon or
- (d) Has failed to remove materials from site or to pull down and replace works within seven days after receiving from Architect written notice that the said materials or work were condemned and rejected by the Architect under these conditions or
- (e) Has neglected or failed persistently to observe and perform all or any of the acts, matters or things required by this Contract to be observed and performed by the Contractor for seven days after written notice shall have been given to the Contractor requiring the contractor to observe or perform the same, or

- (f) Has to the detriment of good workmanship or in defiance of the Architects instructions to the Contrary, submit any part of the contract or has used in the permanent works important materials which are substandard and not as per specification fraudulently making the Architect / SBIIMS to believe that it is the specified material.

Then and in any of the said caused the SBIIMS with the written consent of the Architect may, notwithstanding any previous waiver, after giving seven days notice in writing to the Contractor, determine the contract, but without thereby affecting the powers of the Architect or the obligations and liabilities of the Contractor, the whole of which shall continue to be in force as fully as if the contract has not been so determined and as if the works subsequently executed and being executed by or on behalf of the contractor. And further, SBIIMS with the consent of the Architect by his agents or servants may enter upon and take possession of the works and all plant, tools, scaffoldings, shed, machines, steam and other power utensils and materials lying upon premises or the adjoining lands or roads, and use the same as his own property or may employ the same by means of his own servants and workman in carrying on and completing of the works or by employing any other Contractor or any other person or persons to complete the works and the Contractor shall not in any way interrupt or do any act, matter or thing to prevent or hinder such other Contractor or other person or persons employed for completing and finishing or using the materials and plant for the works, when the work shall be completed, or as soon thereafter as convenient, the Architect shall give a notice in writing to the Contractor, to remove his surplus material and plant and should the Contractor fail to do so within a period of fourteen days after receipt thereof by him, the SBIIMS may sell the same by public auction and shall give credit to the Contractor for the amount so realized. The Architects shall thereafter shall assertion and certify in writing under his hand what (if anything) shall be due or payable to or by the SBIIMS, for the value of the said plant and materials so taken possession of by SBIIMS, and the expense or loss which the SBIIMS shall have been put to in getting the works to be so completed, and the amount, if any owing to the Contractor and the amount which shall be so certified shall, thereupon, be paid by SBIIMS to the Contractor or by the Contractor to SBIIMS as the case may be, and the certificate of the Architect shall be final and conclusive between the parties.

33. The mode of measurements shall be as per IS: 1200.
34. The contractor should co-ordinate with other agencies viz., INTERIOR, HVAC (Air- Conditioning), Civil, LAN cabling etc.,
35. CONTRACTOR SHOULD WORK AT ODD HOURS, ON HOLIDAYS TO KEEP UP TIME SCHEDULE.
36. The Contractor shall not be eligible for any material advance.

SPECIAL CONDITIONS AND SAFETY CONDITIONS

The contractor is hereby advised to read the following conditions carefully before quoting rates and to be strictly adhered during execution of work.

SPECIAL INSTRUCTIONS

- a) Contractor shall submit copies of all statutory compliance certificates such as ESIC, PF, Contract labour registration, shop & establishment and or any other local authority registration as applicable.
- b) All workmen, engineers, supervisors shall be converted as per ESIC, PF & minimum wages act.
- c) All workmen, engineers, supervisors shall undergo pre employment medical checkup through company recognized medical officer and submit copies of test report.

Contractor to provide proof of monthly remittances with regard to the workmen deployed at the site.

Contractor is responsible to ensure that his workmen are confined to their work area and comply with all safety, security and administrative instructions given by the site engineer.

Contractor shall provide identification badges to all his people.

On completion of day's work, the entire area shall be kept clean and neat. All debris, surplus material etc., shall be removed immediately from the site.

Any such standard material used during execution will be rejected and fully deducted from the bills.

The contractor has to carry out the work in coordination with the other appointed agencies. The contractor should study the situation at site and organize the work accordingly. Whenever work needs to be done in coordination with other agencies, the contractor shall work out the actual time required to complete his part of the job in respects and inform the company.

Revision of rates is not allowed and will be not paid for any reason due to unexpected increase in the cost of the materials or delay in completing the works etc.,
No labour hutment is allowed inside the premises.

The areas is in "No smoking Zone" therefore smoking is strictly prohibited.

All workmen, Mastri, supervisor and Engineers wearing shoes and safety helmets are only allowed to enter the gate.

Every day contractor / his supervisor should take necessary "Work permit " from the company engineer before starting the job.

Workers are not allowed to sleep during night and cook food inside the premises.

Work to be carried out only under supervision of the qualified engineer who should be always available at site and keep a record of daily work progress in a separate register..

Contractor should strictly following safety guidelines.

Contractor should use only angle/pipe scaffolding. Wooden scaffolding is not allowed.

All contractor's people need to undergo induction/safety training and formal interview by company selection committee.

Contractor shall submit a copy of competency certificates like wiremen license, supervisor's license, IBR welder license etc., issued by competent authority before starting the work.

Contractor shall maintain daily master roll book for his people at site. Based on that, ESIC & PF contribution to be made.

COMPANY SAFETY GUIDE LINES

WORKING BELOW GROUND LEVEL:

Check that there are no underground cables/ water/sewage lines prior to start of work area. If found inform site in-charge. Disconnect power supply to any cables found in work areas with permission.

For pits deeper than 3 feet workmen should be provided with lifelines. Ladders should be provided for quick escape from the pit. Provide firmly supported side shuttering or shoring to prevent accidental collapse of earth into pits; cordon off the area around the pit to prevent accidental falls. (cordon must be at least 3 feet beyond the pit edge) excavated earth from the pit must be stacked only beyond the cordon.

Refill the pit promptly on completion.

Incase pits need to be left open for any reason, ensure proper covers over the pits.

WORKING AT HEIGHTS :

All personnel working at heights beyond 1.8M should wear safety belts.

Ensure that safety belts are tied security to anchors while working at heights.

Ensure that rigging is well anchored to solid supports prior to erecting items like trusses at a height. Ensure that debris is cleared on a daily basis from work spots.

Ensure that a nylon safety net is securely fitted under the trusses to provide safety against accidental falls to personnel (who will need to have safety belts securely fastened) working on the trusses and roofing. Alternatively well-supported platforms with protected railings should be used a height suitable for personnel to work while standing.

Ensure that roof top ladders are used while laying and working on the roof.

Ensure that ladders used for climbing to heights are firmly secured against slippage.

All scaffolding should be in steel frames.

Scaffolding should be provided with 3 feet wide working platforms. The platforms should be provided with protective railings.

WORKING WITH ELECTRICITY

Ensure proper earthing of all electrical machines used.

Ensure that all connections are taken throughout earth leakage's circuit breakers. Providing ELCB on the main distribution board prevents accidental shocks.

Ensure that welders always used suitable welding goggles and gloves while welding.

Ensure availability of 2 CO2 type fire extinguishers at any easily accessible location at site for fire fighting

Provide a pair of fire buckets filled with dry sand for firefighting at site.

As far as possible DC generator sets shall be used instead of AC transformer sets.

The welding transformer shall be fed through an armored cable.

All connections from main to individual M/C (such as cutter, planer, compressor etc) to be taken through shielded cable and 3-pin plug only.

The portable machines should be of fully insulated or plastic body. No metal body is allowed.

During welding the earthing to be provided directly to the member to be welded throughout cable only not using any reinforcement rod/angles.

PERSONAL PROTECTIVE GEAR

Following is a list of items to be provided to workmen by the contractor as and when required the items must be ISI certified.

Safety shoes

Hard hats

Safety belts

Goggles

Gloves

Safety nets

Roof top ladder

GENERAL

BREAKING WORKS:

Workmen engaged in breaking stones/chipping of concrete should wear safety goggles.

OTHER CONDITIONS:

CONTENTS:

- A) SPECIAL CONDITIONS
- B) TECHNICAL SPECIFICATIONS
- C) RECOMMENDED MAKES OF MATERIAL
- D) PROCEDURE FOR ONLINE PRICE BID SUBMISSION
- E) SCHEDULE OF QUANTITIES

A. SPECIAL CONDITIONS

1. General:

1.1 These special conditions shall be read in conjunction with the description of the item of work in the Bill(s) of Quantities, the particular Specifications, Local Statutory Regulations, Indian Standards Specifications/Codes and the drawings. All the above quoted documents, shall be considered supplementary to each other. However, in the case of conflict amongst the various provisions the owner's and the consultants opinion will be final and shall be adopted.

1.2 The tenderer is advised to inspect the site to ascertain the nature of site, access thereto, local facilities for procurement of materials and working labour rates prevalent in the area, in fact all matters affecting his prices and execution of the work. The tenderer shall be deemed to have full knowledge of the site and drawings whether or not he actually inspects them.

2. **Rates**

2.1 The rates quoted shall be deemed to allow for all minor extras and constructional details which are not specifically shown on drawings or given on the specifications but are essential in the opinion of the Engineer-in-charge to the execution of works to conform to good workmanship and sound engineering practice. The Consultant/SBIIMS reserves the right to make any minor changes during the execution without any extra payment.

2.2 The Consultants/SBIIMS decision to clarify any item under minor changes, minor extras and constructional details shall be final, conclusive and binding on the Contractor.

2.3 The rates quoted by the Contractor shall be net so as to include all requirements described in the contract agreement and no claim whatsoever due to fluctuations in the price of material and labour will be entertained.

2.4 The rates quoted by the Contractor shall include for supplying materials and labour necessary for completing the work in the best and most workmanship like manner to the satisfaction of the Consultant/SBIIMS and which in the opinion of the Consultant cannot be made better, and for maintaining the same. The rates shall be complete in all respects also including cost of materials, erection, fabrication, labour, supervision, tools and plant, transport, sales and other taxes, royalties, duties and materials, contingencies, breakage, wastage, sundries, scaffoldings, etc., on the basis of works contract. The rates quoted shall include all transport, insurance, octroi, or any other levies applicable under the statute.

3.0 **Materials:**

3.1 The Contractor shall ensure to the satisfaction of the Consultant/SBIIMS that the materials

are packed in original sealed containers/packing bearing manufacturer's markings and brands etc., except where the gross quantity required is a fraction of the smallest packings. Materials not complying with this requirement shall be rejected.

3.2 Testing of Materials:

a) When required by the Consultant / SBIIMS, the Contractor shall provide all facilities at site or at manufacturer's works or in an approved laboratory for testing the materials and/or workmanship. All the expenditure in respect of this shall be borne by the Contractor unless specified otherwise in the Contract. The Contractor shall, when required to do so by the Consultant shall submit at his own cost, manufacturer's certificate of tests, proof sheets, mill sheets etc., showing that the materials have been tested in accordance with requirements of these specifications. The samples for Tests shall be selected by SBIIMS / Consultant.

4.0 Rectification of Defects:

4.1 Any defect in the work done or materials used in the works pointed out by the Consultant / SBIIMS shall be rectified within a week or such extended time as may be allowed in this failing which the said defect shall be got rectified by the Consultant at the risk and cost of the Contractors.

5.0 Manufacturer's Instructions:

Where manufacturers have furnished specific instructions, rating to the materials used in this job, covering points not specifically mentioned in the documents, these instructions shall be followed in all cases.

6.0 Qualified Competent Supervision :

The Contractor shall employ competent fully licensed, qualified full time Engineer to direct the work of AC installation in accordance with drawings and specifications. The Engineer shall be available at all times on the site to receive instructions from Consultant in the day to day activities, throughout the duration of the contract. The foremen shall co-relate the progress of the work in conjunction with all relevant requirements of the authorities.

7.0 Measurements: It will be the responsibility of the contractor to submit the detailed split up of measurements with drawings during the progress of work so that it will be accessible and easy to verify by the consultant/SBIIMS. GI duct, under deck insulation, Copper piping, drain piping etc should be measured before fixing the false ceiling. If the item is not visible for measurements only shortest measurement taken by consultant/SBIIMS will be considered.

8.0 Drawing: The contractor should display one set of laminated drawing with as fitted layout drawing in each floor and submit another three sets along with the final bill.

9.0 Comprehensive AMC (CAMC) charges will be paid at the end of every quarter against submission of bill along with copy of the periodical service report done during that quarter.

SCOPE of CAMC: - All material, spares, manpower, consumables, tools & tackles, transportation of manpower and material to various sites required for the completion of the work are in the scope of the contractor. The contractor will supply, repair/ replace all the spare parts i.e compressors, starting components, thermostats, selector switches, filter, fan blades, blower fan motor, electrical wiring etc.

during the currency of the contract as mentioned in the scope of work and as per the site requirements and condition of the Equipment. The contractor shall attend to the complaints and breakdowns promptly at these locations as and when intimated by the Bank through email/fax/telephone. The contractor should have all requisite service facilities at their work centers for carrying out such works and a contact telephone number for attending to urgent repairs. Four quarterly preventive water service to be extended in one year using pressure pump. The successful tenderer should also give an undertaking for the CAMC after the warranty period of one year in stamp paper worth Rs.200/- specifying the serial no and date of installation of each AC unit.

B. TECHNICAL SPECIFICATION FOR SITC OF CEILING SUSPENDED DUCTABLE UNITS (NON INVERT-ER)

1.0 SCOPE

The scope of this section comprises the Design, Engineering, supply, erection testing and commissioning of Non Inverter type ceiling suspended ductable type conforming to these specifications and in accordance with the requirements of Drawing and Schedule of Quantities.

LIST OF BUREAU OF INDIAN STANDARDS CODES

IS: 554 – 1985 (Reaffirmed 1996) Dimensions for pipe threads where pressure tight joints are required on the threads.
IS: 659-1964 (Reaffirmed 1991) Air Conditioning (Safety Code)
IS: 660-1963 (Reaffirmed 1991) Mechanical Refrigeration (Safety Code)
IS : 732-1989 Code of practice for electrical wiring
IS : 822-1970 (Reaffirmed 1991) Code of procedure for inspection of welds.
IS : 1255-1983 Code of Practice for installation and maintenance of Power Cables upto and including 33KV rating (Second Revision)
IS : 1554 – 1988 (Part – I) PVC insulated (Heavy Duty) electric cables for working voltages upto and including 1100 volts
IS : 2379 – 1990 Colour code for the identification of pipelines.
IS : 2551 – 1982 Danger notice plate
IS : 3043 – 1987 Code of practice for earthing
IS : 3103 – 1975 (Reaffirmed 1999) Code of practice for Industrial Ventilation
IS : 3837 – 1976 (Reaffirmed 1990) Accessories for rigid steel conduit for electrical wiring
IS : 4736-1986 (Reaffirmed 1998) Hot-dip zinc coatings on steel tubes
IS : 5133-1969 (Part-I) (Reaffirmed 1990) Boxes for the enclosure of electrical accessories.
IS : 5424-1989 (Reaffirmed 1994) Rubber mats for electrical purposes.
IS : 5578 & 11353-1985 Marking and identification of conductors
IS : 6392-1971 (Reaffirmed 1988) Steel pipe flanges.
IS : 13947-1993 (Part – V) Control Circuit Devices
BS : EN:779-1993 Filters
ASHRAE Hand Books American Society of Heating Refrigeration & Air-conditioning
Application 1999 Fundamentals 1997
Systems & Equipment 1996
ASHRAE Indoor air quality Standard 62-1982
IEC Relevant Sections

1.1 DUCTABLE SPLIT& PACKAGE UNITS

The Air cooled SPLITS shall be with hermetic type scroll compressor of minimum capacity and performance as indicated in the schedule and /or as shown on the drawings.

Each unit shall be completely factory assembled, piped, wired and tested and shall comprise of multiple scroll compressor, starter for compressors, condenser fans, Insulated cooler, air cooled condenser with microprocessor control panel.

The split shall utilize a non-chlorofluorocarbon (CFC) refrigerant,-R-410A/R 407

CASINGS

The unit shall consist of galvanized steel cabinet mounted on a frame, the whole of which shall be rust proofed and finished with a scratched-resistant and wear resistant baked on enamel so as to resist marine environment corrosion.

Removable panels shall be provided to enable all maintenance and repairs to be Carried out without removal of the unit or structural alteration to prevent rattles and Looseness after prolonged period of operation.

The inside of the cabinet (where the compressor is located) shall be insulated with 2" (50 mm) thick high density fiberglass or rock wool or as per manufacturer's standard.

The nuts and bolts shall be treated with anti-rust and coat with rust proof paint.

Mild Steel Bolts and Nuts are NOT ACCEPTABLE.

COMPRESSORS

The compressors shall be scroll type and driven by electric motors designed for operation on 415 $\pm 6\%$ volts, 50 cycles and three-phase. Compressors motors shall be cooled with suction gas or other approved means.

The compressors and motors shall be fully protected against abnormal operating Conditions by high and low pressure switches, thermal relays, overload relays and safety controls and Phase Failure fuses.

The compressors shall be mounted on spring vibration isolators.

Compressors should be provided with acoustic jacket for sound attenuation from the factory. Field assembly is not acceptable.

CONDENSERS

The condenser shall be of the air cooled cross-finned type with copper tube type to suit the capacity of the unit. Bonding of the fins to the tubes shall be by mechanical means to ensure a positive lasting bond.

The condenser fan shall be the propeller type Low noise fans Please state noise criteria. This is a statically and dynamically balanced and shall be mounted on a solid steel shaft running in self-aligning ball bearings, amply sized for quiet operation and long life. The condenser fan shall be driven directly by resiliently mounted squirrel cage induction motor with adequate horsepower for the duty.

Condenser Coil fins to be coated against corrosion.

UNIT CONTROL PANEL

Each machine shall be furnished with a complete control Centre in an enclosure, factory mounted, piped and wired. The capacity, operating and safety controls sequences shall be designed for completely fail safe, automatic operation. The control sequence shall provide for operation of oil heaters during normal shut down.

Safety controls shall be electric or electronic fully automatic and shall be fail safe. Machine shall shut down for oil low pressure, chilled water low temperature, refrigerant low Pressure, condenser high pressure, lubrication oil high and low temperature. Each shut down shall be indicated with light individually. Controls center should be fitted with remote alarm indicating terminals. Machine shall not restart until manually reset.

Machine shall be provided with start/stop, remote/local and reset switches. Terminals strips shall be clearly marked for field wiring connections. Incoming power will be provided at single point.

1.2 DUCTING:

GI Sheets shall be as per IS 217 – class VIII. Fabrication shall be as per IS 655. The ducting shall be made out of Lock former machine or factory fabricated to avoid site work to the minimum. The ducting shall be of galvanized sheet steel with zinc coating as per class 8.

Thickness of the sheet shall be as under:

| | |
|--------------------------------|---------------------------|
| Rectangular ducts up to 750mm | 24 gauge (Thickness 0.63) |
| Rectangular duct 751 to 1250mm | 22 gauge (Thickness 0.80) |

| Dimensions of Ducts | Gauge G.I | Aluminium | Type of Joints | Type of Bracing's |
|---------------------|-----------|-----------|---|--|
| Upto 600 | 24 | 22 | G.I Flange at 2.5 Center | Cross Bracing's |
| 601 to 750 | 24 | 22 | 25 x 25 x 3 mm angle frame with 6 mm dia nuts at 1500 mm from and bolts | 25 x 25 x 3 mm MS angles bracing |
| 751 to 1000 | 22 | 20 | 25 x 25 x 3mm angle frame with 6mm dia nuts and bolts | 25 x 25 x 3 mm MS angle bracing at 1500mm from joints |
| 1001 to 1500 | 22 | 20 | 40x40x5 mm angle frame with 8mm dia nuts and bolts | 40 x 40 x 3mm MS angle bracing at 1500mm from joints |
| 1501 to 2250 | 20 | 16 | 50x50x3mm angle to be cross braced diagonally with 10mmdia nuts & bolts at 125 center | 40 x 40 x 3mm MS angle bracing at 1200mm from joints or 40x 40 x 3mm MS angle diagnal bracing- |

HANGERS/SUPPORTS FOR DUCT

| Duct Size (mm) | Spacing (Mtrs.) | Size of G.I angle (mm x mm) | Size of rod dia (mm) |
|----------------|-----------------|-----------------------------|----------------------|
| Upto 750 | 2.5 | 40 x 3 | 10 |
| 751 to 1500 | 2.0 | 40 x 3 | 12 |
| 1501 to 2250 | 2.0 | 50 x 3 | 15 |
| 2251 & above | 2.0 | 50 x 3 | 15 |

Ducts are to be internally insulated with 25 mm fiber glass wool finished with 26 G

Al. perforated sheet which will act as acoustic insulation. Duct fabrication and installation shall be confirming to IS-655(amended up-to-date). Ducting layout shall be prepared by the contractor and approval for the same has to be obtained from the Architect. The ducting shall be fabricated and installed in accordance with the approved drawings.

1.3 ERECTION REQUIREMENTS:

- a. All ducts shall be fabricated and installed in workman like manner, generally conforming to the relevant ISI codes.
- b. Ducts shall be straight and smooth on the inside with neatly finished joints. Joints shall be made air tight.
- c. Changes in dimensions and shape of ducts shall be gradual. Curved elbows shall have a

centre line radius equal to one and a half times the width of the duct. Air turns shall be installed with vanes, arranged to permit the air to make the turn without appreciable turbulence.

- d. All ducts shall be rigid and shall be adequately supported and braced where required with standing seams, tees or angles, of ample size to keep the ducts true to shape and to prevent buckling, vibration and breaking.
 - e. All branch takeoffs and collars shall be provided with turning vanes.
 - f. All necessary allowances and provisions shall be made by the contractor for beams, or other obstructions in the building, whether or not the same are shown on the drawings. Where necessary to avoid beams or other structural work, plumbing or other pipes and or conduits, the ducts shall be transformed, divided or curved to one side, the required area being maintained, all as per the site requirements.
 - g. If a duct cannot be run as shown on the drawings, the contractor shall install the duct between the required points in accordance with other services and as per approval of the Engineer.
 - h. All duct work shall be independently supported from building construction. All horizontal ducts shall be rigidly and securely supported, in an approved manner, with trapeze hangers formed of MS rods of 8 to 10mm at every 2.5 meter centers and with 40 x 6mm angle only. All vertical duct work shall be supported by structural members at each floor level.
 - i. The ducts shall not be supported from the underside of the steel girders at the ceiling slab level by means of suitable clamps. No welding's are permitted on the steel girder.
- a. All ducts shall be totally free from vibration under all conditions of operation. Whenever duct work is connected to fans, air handling units or blower coil units that may cause vibrations in the ducts, ducts shall be provided with flexible connections, located close to the unit. Unit connections shall be constructed of fire resistant flexible double canvas connection of at least 150mm long securely bonded and bolted on both sides. Sleeve shall be made smooth and the connecting duct work rigidly held by independent supports on both ends. The flexible connection shall be suitable for pressures at the point of installation.
 - b. Doors shall be set in ducts and air plenums for access to pipes,dampers,coils,valves etc.
 - c. Air handling units shall be connected to the duct work by inserting at air inlet and air outlet a double canvas sleeve.Each sleeve shall be 100mm long minimum securely bonded and bolted to the duct and units. Each sleeve shall be made smooth and the connecting ductwork rigidly held in line with unit inlet or outlet.

1.4 SUPPLY AND RETURN DIFFUSERS

The supply and return air diffusers shall be anodized Aluminum construction, square or rectangular as per the drawings. Diffusers for different spaces shall be selected in consultation with the Engineer. Supply air diffusers shall be equipped with fixed air distribution grids, removable key operated volume control dampers of GI construction, and as required in specific applications.

Linear diffusers, if required as per the drawings, shall be anodized Aluminium construction, one or two way blow linear diffusers. Supply air diffusers shall be provided with GI volume control balancing dampers within the supply air collar. Diffusers for different spaces shall be selected in consultation with the Engineer, and provided as per requirements of Schedule of Quantities.

The supply air collar will be made to project at least 15mm outside the vertical face of the false ceiling, and is to be trimmed flush with the false ceiling face, before fixing the grill. If this is not done, the purchaser reserves the right to reject the entire ducting system.

1.5 VOLUME CONTROL DAMPERS

Volume control dampers shall be made out of 18 G GI sheet frame with 20 G opposed blade type. Dampers shall be provided with suitable links, levers and quadrants as required for their proper operation. The operating lever or knob shall have locking arrangement and markings of various positions including open and closed position.

1.6 SUPPLY AND RETURN AIR GRILLS

Supply and return air grilles shall be of anodized extruded aluminum construction with adjustable bars. Supply air grills shall be generally double deflection type backed with GI damper. The supply air grills being provided with removable key operated volume control dampers. All the grills shall be powder coated with approved color. Ducting and all items at the backside of the grills shall be painted with dull black color.

2.0 TESTING AND BALANCING

After the installation of the entire air distribution system is completed in all respects, all ducts shall be tested for air leakages.

Before painting the interiors of conditioned space, air distribution system shall be allowed to run continuously for 48 hours for driving away any dust or foreign material lodged within ducts during installation. The entire air distribution system shall be balanced using an anemometer. Measured air quantities at fan discharge and at various outlets shall be identical to the specified and quoted.

3.0 FIRE DAMPERS

a. All supply air ducts at air handling unit room shall be provided with approved fire dampers of at least 1.5 hours fire rating.

b. Fire damper blades shall be one piece folded high strength galvanized steel construction. In normal position these blades shall be gathered and stacked at the frame head providing maximum air passage and preventing passing air currents from creating noise or chatter. The blades shall be held in position through a fusible link to close in case of fire. A potential free contact shall be provided in the fire panel of each floor by the fire alarm vendor. The AC contractor shall wire this to the AHU motor starter to trip the same in case of fire.

c. Each fire damper shall be tested after installation to ensure closing on actuation of the connected fire alarm system.

- d. The fire damper frames shall be of 18 gauge GI and the blades of 22 gauge GI.

4.0 THERMAL INSULATION

Thermal insulation material of the duct shall be 9 mm thick nitrile rubber with class O material and shall comply BS 476 Part 6 1989 (Fire Propagation): Class O rated, BS 476 Part 7 1987 (Surface spread of flame): Class I rated. Entire ducting area (except acoustic insulated area) shall be insulated by using 9mm thick class o nitrile rubber insulation with adhesive as per the recommendation of the manufacturer with density 45-55 kg/m³

5.0 ACOUSTIC INSULATION:

The first 3 M of the ducting from the unit outlet shall be acoustically insulated in the following manner:

- 1 Fiberglass rigid board of 12 mm thick is to be secured on the inside of the duct through GI bolts, GI nuts and GI washers.
- 2 The insulation shall be covered with tissue paper.
- 3 Finally, 22 G perforated Aluminium sheet shall be provided over the tissue paper.

6.0 OUTDOOR UNITS:

1. The outdoor unit shall be of proven design and reputed make, consisting of hermetic scroll compressors, evaporator coil with fan and motor, drain pan, integral copper refrigerant piping, safety controls and wiring, all mounted in a sheet steel powder coated enclosure.
2. The compressor shall be hermetically sealed scroll type, serviceable and shall have all safety cutouts and switches. The hermetic motor shall be suction gas cooled, sealed against dirt and moisture. The motor shall be suitable for 3 phase, 415 V, 50 Hz power supply.
3. The unit shall be modular type, constructed of minimum 16 G galvanized sheet, adequately reinforced with structural members, and provided with access panels for maintenance/inspection of various components.
4. The refrigerant piping interconnecting the indoor unit and the outdoor unit shall be of suitably sized hard drawn copper piping, with brazed fittings. The valves shall be of brass or cast steel. Suitably sized filter drier with shut off valves shall be provided for maintenance. The controls shall comprise a thermostatic expansion valve, adequately sized. The refrigerant lines are to be pressure tested to 21 Kg/ sq.cm.
5. Performance testing shall be carried out for each units and the guaranteed capacity and power consumptions shall be achieved. The units shall operate without objectionable sound or vibrations, to the satisfaction of the owners.

7.0 CONDENSATE DRAIN PIPING:

UPVC pipe shall be used for condensate drain piping inside the walls, under the floor & above false ceiling. Piping shall be supported suitably on walls/floor and all charges involved there to shall be applied in the prices quoted by the tenderers.

While installing the piping the contractor shall keep in mind the requirement that it should not foul with the structural or architectural features of the building. Further, all piping must be installed in a neat and workman - like - manner.

Drain pipes carrying condensate water shall be insulated with 9 mm thick elastomeric nitrile rubber insulation. For proper drainage of condensate, U Trap shall be provided in the drain piping (wherever required). All pipe supports shall be of pre-fabricated & pre painted slotted angle supports, properly installed with clamps etc.

1.0 NOTE FOR ADDITIONAL TECHNICAL SPECIFICATIONS

- All items suspended from false ceiling shall be isolated on separate hangers
- In case of ducts, conduits, pipes and tubes the annular space between construction and penetrating element shall be sealed with sand cement plaster.
- Vibration isolation pads of suitable thickness commensurate to loading for isolation of vibration shall be provided under all equipment's in consultation with manufacturer for proper selection of Vibration Isolator.
- The floor supported piping shall be mounted on pipe supports with 7.5mm neoprene pads between the base of the pipes and the floors.
- The AC contractor shall take all other precautions or shall make his own arrangements even if not specified in the tender documents for eliminating high noise levels and shall minimize vibrations in all mechanical equipment's without any additional cost - NC- 30 as per AHRI standards.
- Duct work shall have provision for Volume control dampers for balancing the system.

8.0 SUBMITTALS

Product Data: Submit manufacturer's technical data for air distribution equipment, including capacity ratings, fan performance curves with operating point clearly indicated, Finishes of materials, dimensions, weights, furnished accessories, and installation and instructions.

Shop Drawings: Submit manufacturer's assembly type shop drawings indicating dimensions, required clearances, installation details and field connection details.

Wiring Diagrams: Submit the manufacturer's electrical requirements for power supply wiring to the units.

Operation and Maintenance Data: Submit maintenance and lubrication instructions, motor and drive replacement instructions, and spare parts list for each unit.

Spare Parts List: Submit the manufacturer's spare parts list for ventilation equipment for a period of 2 years for the Engineer's review and approval.

9.0. TRANSPORTATION, HANDLING AND STORAGE

Transportation, handling and storage of materials shall be in accordance with manufacturer's recommendations regarding transportation, handling and storage of materials. B. Deliver materials to the site in manufacturer's original factory wrappings and containers, clearly labeled for identification of manufacturer, brand name and contents. Store materials off ground in original undamaged packages and containers, inside well-ventilated area protected from weather, moisture, soiling, extreme temperatures, and humidity. Follow manufacturer's instructions regarding transportation, handling and storage of materials.

10.0 WARRANTY

Materials shall be provided of standard products of specialist manufacturers who have long experience of manufacturing and installing control equipment specified in this section. The system shall be installed by competent personnel, regularly employed by the Controls manufacturer with full responsibility for proper operation of the Controls including debugging and proper calibration of each component in the entire system. Supplier shall have in-place support facility within 30 km of the site with technical staff, spare parts inventory and all necessary test and diagnostic equipment. Submit a written guarantee signed by manufacturer, contractor, and installer agreeing to replace partitions which fail in material or workmanship within a period of 1 year from the date of handing over.

11.0 QUALITY ASSURANCE

- A. Motors and electrical accessories shall comply with the applicable Indian Standards.
- B. Electrical components and installation shall comply with National Electrical Code.
- C. Test, adjust and balance air conditioning systems during hot season.
- D. Training
 - 1. Train Owner's maintenance personnel on the troubleshooting procedures and testing, adjusting, and balancing procedures. Review with Owner's personnel, the information contained in the Operating and Maintenance Data specified in Division 1.
 - 2. Schedule training through the Project Manager with at least 7 days prior notice.

12.0 ASSOCIATED CIVIL WORKS/Electrical works

The rate shall include all civil works associated with AC installation executed in accordance with approved shop drawings under direct supervision of the Project Manger such as PCC foundation blocks for all OUT DOOR UNITS/wall openings etc. Minor civil works like cutting of false ceiling, breaking of wall, plastering, finishing of false ceiling/wall after installation of air conditioning units etc. complete as per specifications and as per the instruction of EIC. **All electrical works mentioned in BOQ shall be carried out as per CPWD specifications and as per the direction of SBI**

LIST OF APPROVED MAKES

| SL.NO | DESCRIPTION | MAKE |
|--------------|--|---|
| 1 | Ceiling suspended ductable Inverter type | DAIKIN/BLUESTAR/LG/CARRIER/MITSUBUSHI/TOSHIBA/HITACHI/ETA/SAMSUNG |
| 2 | CONTROL CABLES | POLYCAB / FINOLEX/V GUARD |
| 3 | REFRIGERANT PIPE | MEXFLOW / MANDEV |
| 4 | PIPE INSULATION | SUPERLON / ACCOFLEX |
| 5 | U PVC | FINOLEX / SUPREME |
| 6 | GI DUCT | SAIL / JINDAL/JSW |
| 7 | THERMAL INSULATION | ARMAFLEX / K FLEX |
| 8 | ACOUSTIC INSULATION | UPTWIGA / OWENS CORNING |
| 9 | AIR TERMINALS | AIRMASTER / COSMIC |
| 10 | DRAIN PUMP | ASPEN |
| 11 | UNDERDECK INSULATION | SUPREME / OWENS CORNING |

BOQ FOR AIR CONDITIONING OF SBI – POONTHURA BRANCH

| SNo. | Description | Qty | Unit | Rate in Rs. | Amount in Rs. |
|------|--|-----|------|-------------|---------------|
| | Rateshall be inclusive of all taxes,loading,unloading,transportation | | | | |
| 1 | Dismantling of existing 7.5 tr units from the identified premises of the pettah branch and handing over to the owner. | 1 | nos | | |
| 2 | Supply, installation, testing & commissioning of GSS Ducting with elbows ,turning vanes,gaskets, threaded rods angle flanges & Hitec supports in accordance with the approved drawings and specification. | | | | |
| | 24 G | SQM | 10 | | |
| 3 | Supply & installation of the flexible canvas connections. | Nos | 1 | | |
| 4 | Supply & installation of pair of Hard drawn copper refrigerant piping of following dia with 13mm thick nitrile rubber insulation between indoor and outdoor unit for 7.5 TR DSA with necessary supports,clampings,fittings etc. | | | | |
| a | Suction. 1(1/8) | RM | 20 | | |
| b | Liquid 5/8 | RM | 20 | | |
| 5 | Supply and Installation of Acoustic insulation of the common plenum and initial portion of the duct using 12mm thick fibre glass rigid board of density 48kg/m ³ covered with R P tissue and Aluminium perforated sheet of 0.5mm thickness. | SQM | 5 | | |
| 6 | Extruded aluminium powder fresh air grill with bird screen and fresh air duct | Nos | 1 | | |
| 7 | Supply,Installation,Testing and commissioning of Volume Control damper. | Nos | 1 | | |
| 8 | Supply,Installation,Testing and commissioning of Fire damper with fusible link.Located in Main ducts. | No | 1 | | |
| 9 | Supply and Installation of UPVC(10 Kg duty) Drain piping of 25 mm dia insulated with Al backed nitrile rubber of 9 mm thickness wrapped with 22G chicken wire mesh of suitable size with required wall chasing ,supports, clamps etc | Rm | 10 | | |

| | | | | | |
|----|---|-----|----|--|--|
| 10 | Supply, Installation, Testing and commissioning of minimum 7.5 TR capacity (7.5 Tr to 8.5Tr units) existing ductable ceiling suspended units (Non Inverter Type) as per the location layout finalised by the bank authorities and site conditions outdoor units to be installed at the frame work immediately outside the window, drain piping upto the drain point in the toilet plumbing line etc as required. | nos | 1 | | |
| 11 | Additional electrical wiring between indoor and outdoor units with all necessary fittings and leak proof arrangements as required for ceiling suspended ductable units (2.5 & 1 sqmm 3 core,Cu) | mtr | 10 | | |
| 12 | Air Conditioner related civil works like making opening in wall for copper piping etc and finishing it neatly with brick work , plastering , finishing , removal of debris /waste material , making opening in partitions , civil work for condenser supports and any other work as required by site conditions etc | job | 1 | | |
| | | | | | |
| | TOTAL AMOUNT (Including All Taxes): | | | | |
| | | | | | |
| 13 | AMC CHARGES FOR THREE YEARS AFTER ONE YEAR WARRANTY | | | | |
| a | FIRST YEAR EXCLUSIVE OF GST | 7.5 | TR | | |
| b | SECOND YEAR EXCLUSIVE OF GST | 7.5 | TR | | |
| c | THIRD YEAR EXCLUSIVE OF GST | 7.5 | TR | | |
| | | | | | |
| 14 | GRAND TOTAL (12+13) in Rs | | | | |

