

TENDER  
FOR THE WORK OF SUPPLY,  
INSTALLATION, TESTING &  
COMMISSIONING OF VARIABLE  
REFIGERENT FLOW (VRF) HVAC AT NSIC  
HO COMPLEX, OKHLA ESTATE, NEW  
DELHI - 110020



THE NATIONAL SMALL INDUSTRIES CORPORATION  
LTD.

*(A Government of India Enterprise)*  
NSIC Ltd. Okhla Industrial Estate,  
New Delhi - 110020

**THE NATIONAL SMALL INDUSTRIES CORPORATION LTD.  
(A GOVERNMENT OF INDIA ENTERPRISES)**

NSIC Ltd. NSIC Bhawan,  
Okhla Industrial Estate, New Delhi-110020.

**Ref: - SIC/HO/WD-EM/AC/1(12)/2007-10**

**Date: 11.03.2017**

M/s. -----  
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Sub: Tender for the work of Supply, Installation, Testing & Commissioning of variable Refrigerant flow (VRF) HVAC at NSIC HO complex, Okhla Estate, New Delhi – 110020.

**Sir,**

Tender document in respect of the above mentioned works containing 42 pages as detailed on page 4 (Index) are forwarded herewith. *Please note that tender is to be delivered in the office of the Chief General Manager – SG (Works), NSIC Ltd., NSIC Bhawan, Okhla Industrial Estate, New Delhi - 110020 on 25.03.2017 up to 11.00 A.M.*

The Tender should be signed on each page, dated and witnessed in all places provided for in the documents; all other papers should be initialed.

The tender should be accompanied by Earnest Money Deposit in the form of demand draft as mentioned in Appendix. Tenders without earnest money deposit shall be summarily rejected. The tenders will be opened at 11:30 A.M. on 25.03.2017.

The person, signing the tender on behalf of company/firm or on behalf of another person shall attach with tender a certified copy of proper authority/power of attorney on a non-judicial stamp paper of requisite value duly executed in his favour by such person, company/firm and must state specifically that he has authority to sign such tenders for and on behalf of such person or company/firm as the case may be, and in all matters pertaining to the contract including arbitration clause.

This letter shall form part of the **“CONTRACT”** and must be signed and returned along with the tender documents.

**Yours faithfully**

**Chief General Manager – SG (Works),  
NSIC Ltd.**

Encl. 44 Pages

**Signature of the bidder**

Tender Notice for the work of supply, installation, testing & commissioning of variable Refrigerant flow (VRF) HVAC at NSIC HO complex, Okhla Estate, New Delhi – 110020.

**Ref: - SIC/HO/WD-EM/AC/1(12)/2007-10**

**Date: 11.03.2017**

Sealed item rate tenders are hereby invited on behalf of NSIC Ltd. from Experienced Contractors for following.

Name of the work	Estimated cost (Rs)	EMD (Rs)	Completion Time	Issue of Blank Tender Document	Last Date of Tender submission
Supply, Installation, Testing & Commissioning of variable Refrigerant flow (VRF) HVAC at NSIC HO complex, Okhla Estate, New Delhi – 110020.	11.82 lacs	0.24 lacs	60 days	From 11.03.17 to 24.03.17	25.03.17 upto 11.00 AM

- Blank tender documents (non-transferable) for above work shall be issued from 11.03.17 To 24.03.17 on working days from the address given below on payment of required tender fee of Rs. 500/- (Rupees five hundred only) (non-refundable) in the form of DD/pay order/bankers cheque in favour of “The National Small Industries Corporation Ltd.”. The intending tenderers can also download the complete tender document available on the web site: [www.nsic.co.in](http://www.nsic.co.in) and submit the same along with requisite tender fee, earnest money deposit and supporting documents on or before the due date and time of submission. Tenderers registered with National Small Industries Corporation under Single Point Registration Scheme shall be exempted from cost of tender. However, they have to submit valid certificate issued by NSIC.
- Intending tenderers should have valid registration with Service tax/Sales tax/Works Contract tax authorities.
- The intending tenderers should have satisfactorily completed at least one similar nature work of 80% of the estimated cost put to tender or two similar nature works each of 60% of the estimated cost put to tender or three works each of 40% of the estimated cost put to tender during last five years. Similar nature work means SITC VRF HVAC, Chiller plant.**
- Tender documents can be purchased from the office of the Chief General Manager – SG (Works), NSIC Ltd., NSIC Bhawan, Okhla Industrial Estate, New Delhi - 110020 on all working days between 10.00 am to 5.00 pm except on holidays and Saturdays Sundays, after payment of requisite tender cost as mentioned above.

5. The tender documents duly completed along with EMD in form of demand draft/pay order in favour of the “The National Small Industries Corporation Ltd.” payable at New Delhi from any Nationalized Bank/scheduled bank will be submitted at the office of the Chief General Manager – SG (Works), NSIC Ltd., NSIC Bhawan, Okhla Industrial Estate, New Delhi – 110020 upto 11.00 A M on 25.03.2017. Technical bid of the parties shall be opened on the same day (i.e due date of submission) at 11.30 AM. The tender without EMD shall be summarily rejected.
6. NSIC reserves the right to reject any or all the tenders without assigning any reason thereof and also not bound to accept lowest tender. Tenders in whom any of the prescribed conditions are not fulfilled or found incomplete in any respect are liable to be rejected.
7. Canvassing, whether directly or indirectly in connection with tender is strictly prohibited and the tender submitted by the contractors who resort canvassing will be liable to be summarily rejected.
8. The technical bid submitted by the parties shall be opened on the same day i.e. last date of submission at 11.30 am in the presence of tenderers who wish to be present. The price bids of technically qualified parties shall be opened at a later date and the technically qualified parties shall be informed in advance about the opening of their price bid.
9. The bidders having valid registered with NSIC, DIC or Udyog Aadhar shall be exempted from the submission of EMD/Tender cost. However, the copy of the said certificate shall be enclosed with the Technical bid for availing the benefits.

**Chief General Manager – SG (Works),  
NSIC Ltd.**

**THE NATIONAL SMALL INDUSTRIES CORPORATION LTD.**  
**(A GOVERNMENT OF INDIA ENTERPRISES)**  
NSIC Bhawan, Okhla Industrial Estate  
New Delhi - 360003.

Ref: - SIC/HO/WD-EM/AC/1(12)/2007-10

Date: 11.03.17

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## **INSTRUCTIONS TO TENDERERS**

### **1.0 GENERAL**

Tenderers are advised to acquaint themselves fully with the description of work, scope of services, time schedule and terms and conditions including all the provisions of the tender document before framing up their tender.

### **2.0 SITE PARTICULARS**

Tenderers are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their tenders as to nature of work, site conditions, means of access to the site etc. Non-familiarity with the site conditions will not be considered a reason either for extra claims or for not carrying out the work in strict conformity with the specifications. For site visit and any clarification / information/Assistance, the intending tenderers may contact ***CGM SG (Works), NSIC Ltd. NSIC Bhawan, Okhla Industrial Estate, New Delhi - 110020.***

### **3.0 SUBMISSION OF TENDER**

- a) The expression “Tender Notice” referred to in the Tender Documents shall be deemed to include any Notice / Letter Inviting Tender with respect to the work forming the subject matter of the documents and vice-versa.
- b) The tender complete in all respects shall be submitted along with Earnest Money as stipulated in the Notice / Letter Inviting Tender ONLY. Tenders without Earnest Money Deposit will be out rightly rejected.

***Tenders shall be submitted in two separate sealed envelopes Super scribing as following: -***

#### **ENVELOPE – I**

#### **(TECHNICAL BID)**

Name of work : Supply, Installation, Testing & Commissioning of variable Refrigerant flow (VRF) HVAC at NSIC HO complex, Okhla Estate, New Delhi – 110020.

Tender no. : **SIC/HO/WD-EM/AC/1(12)/2007-10**

Due date & time of opening : 25.03.2017 at 11:30 AM

Addressed to : Chief General Manager – SG (Works),  
NSIC Ltd., Okhla Industrial Estate,  
***New Delhi - 110020.***

From:

Name & Address of the tenderer

This envelope shall contain the following: -

- EMD should be in the form of Demand Draft drawn on a scheduled/nationalized bank in favour of “NSIC Ltd.” payable at New Delhi. Cheque will not be accepted.
- Details of one work of 80% tender value or two works each 60% tender value or three works each of 40% of the estimated cost put to tender executed by the bidder during last five years, on the basis of which bidder wishes to get qualified and copies of supporting work orders and completion certificate should be enclosed. **In case of completion certificate issued by the private institutes, TDS certificate should also be enclosed.**
- Valid service tax number.
- Partnership Deed in case of partnership firm and Articles of Association in case of limited Company.
- Power of Attorney in favour of person who has signed the tender documents. In case of company, the authority to sign the tender is to be given under Board resolution.
- Copies of PAN/TAN card

**ENVELOPE – II**

**(PRICE BID)**

Name of work

: **Supply, Installation, Testing & Commissioning of variable Refrigerant flow (VRF) HVAC at NSIC HO complex, Okhla Estate, New Delhi – 110020.**

Tender no.

: **SIC/HO/WD-EM/AC/1(12)/2007-10**

Addressed to

: Chief General Manager – SG (Works),  
NSIC Ltd., Okhla Industrial Estate,  
*New Delhi - 110020.*

From: Name & address of the tenderer

**NOTE:** This part shall contain the tender document, total price to be charged by the tenderers for executing the work, complete in all respect. It is to be noted that the sealed envelope containing this part shall contain only **PRICES** and no conditions i.e. deviations / assumptions / stipulations / clarifications / comments / any other request whatsoever and the conditional offers will be rejected.

#### **4.0 QUALIFYING CRITERIA**

Tenderers having following valid documents will be technically qualified and considered for opening of their price bid. Technically qualified parties have no right to claim for award of the work. Corporation reserves the right to cancel or award the work to any party/tenderers.

- i) Details of one work of 80% tender value or two works each 60% tender value or three works each of 40% of the estimated cost put to tender executed by the bidder during last five years.
- ii) Valid service tax, PAN, TAN card registration number.

#### **5. ABNORMAL RATES**

The tenderer is expected to quote rate for each item after careful analysis of costs involved for the performance of the complete item considering technical specifications and conditions of contract. This will avoid a loss of profit or gain in case of curtailment or change of specifications for any item. If it is noticed that the unit rates quoted by the Tenderer for any items are usually high or unusually low, it will be sufficient cause for rejection of the tender unless the Corporation is convinced about the reasonableness of the unit rates on scrutiny of the analysis for such unit rate to be furnished by the tenderer on demand. Notwithstanding anything there in stated, the rates once accepted by the Corporation shall be final and shall not be subject to any change either on account of un-workability of unit rates or on any other ground whatsoever.

#### **6. DEVIATIONS TO TENDER CLAUSES**

**Tenderers are advised to submit the tender strictly based on the terms and conditions and specification contained in the Tender Documents and not to stipulate any deviations. Conditional tenders are liable to be rejected.**

#### **7. VALIDITY OF OFFER**

Tender submitted by tenderers shall remain valid for acceptance for a minimum period of 120 days from the date of opening of the tenders. The tenderers shall not be entitled during the said period of 120 days, to revoke or cancel their Tender or to vary the Tender given or any term thereof, without the consent in writing of the Owner. In case of tenderers revoking or canceling their tenders or varying any terms in regard thereof without the consent of owner in writing, Corporation shall forfeit Earnest money paid by them along with their tender without giving any notice.



## **8. AWARD OF WORK**

Corporation reserves the right to split the job into two or more parts and to award the work to separate agencies/contractors. Work shall be awarded to the lowest bidder, subject to the work experience and fulfillment of other terms & conditions and specifications

## **9. ACCEPTANCE / REJECTION OF TENDER**

- i). Corporation does not bind itself to accept the lowest tender.
- ii). Corporation also reserves the right to accept or reject any tender in part or full without assigning any reason whatsoever.
- iii). Corporation also reserves the absolute right to reject any or all the tenders at any time solely based on the past unsatisfactory performance by the bidder(s) the opinion/decision of NSIC regarding the same shall be final and conclusive.

## **10. CORRECTIONS;**

No corrections or overwriting will be entertained in schedule of rates by using correcting fluid. All correction in the schedule of rate should be initialed.

## **11. FIRM RATES**

**The rates quoted by bidder shall remain firm till completion of all works even during the extended period, if any, on any account whatsoever. It may be noted that no deviation on this account will be acceptable and offer not containing firm price shall not be considered.**

12. It will be obligatory on the part of the tenderer to sign the tender documents for all the components & parts. After the work is awarded, he will have to enter into an agreement on proforma to be provided by the Corporation for work awarded, on a non-judicial stamp paper of requisite value at his own cost within ten days from date of receipt of acceptance order or before the work is undertaken.

13. Any addendum/ corrigendum issued shall form a part of the tender document. There will not be any press notification on amendment/ corrigendum. The purchasers of the tender document/ the prospective tenderers are required to visit NSIC website and CPP Portal for all such amendments/ corrigenda to NIT as well as the tender document.

**Chief General Manager – SG (Works),  
NSIC Ltd., New Delhi**

## **GENERAL CONDITIONS OF CONTRACT**

1. Where the context so requires, words importing the singular only also include the plural and vice versa.
2. Corporation shall mean 'The National Small Industries Corporation Ltd. (A Government of India Enterprise) 'NSIC Bhawan, Okhla Industrial Estate, New Delhi – 110020 and shall include their legal representatives, successors and permitted assigns.
3. **Definition**
  - a) The 'Contract' means and includes the documents forming the tender and acceptance thereof together with the documents referred to therein including the conditions, the specifications, designs, drawing and instructions issued from time to time by the 'Engineer-in-charge' the formal agreement executed between the Corporation and the Contractor, and all these documents taken together shall be complementary to one another.
  - b) The 'Site' shall mean the land and / or other places on, into or through which work is to be executed under the contract or any adjacent land, path or street which may be allotted or used for the purpose of carrying out the contract.
  - c) The 'Contractor' shall mean the individual or firm or company, whether corporate or not, undertaking the works and shall include the legal personal representative or such individual or the persons composing such firm or company and the permitted assignee of such individual or firm or company.
  - d) The 'Competent Authority' means the Chairman cum Managing Director of the Corporation and his successors.
  - e) The Engineer-in-charge means the Technical Officer of the Corporation, as the case may be who shall supervise and be the In-charge of the works.
  - f) The CGM - SG, means the officer who holds the charge of that post in the Corporation at NSIC, New Delhi - 110020 during the currency of this agreement, to act on behalf of the Chairman of the NSIC Ltd.
  - g) 'IS Specification' means the Specification of latest edition with amendments, if any, up to time of receipt of tender by Corporation issued by the Bureau of Indian Standards as referred to in the specifications and / or work orders.
  - h) The 'Contract Sum' means the sum agreed, or the sum calculated in accordance with the prices accepted by the NSIC in the tender and / or the contract / negotiated rates payable on completion of the works.

- i) The 'Final Sum' means the amount payable under the Contract by the Corporation to the Contractor for the full and entire execution and completion of works, in time.
- j) The 'Date of Completion' is the date / date(s) for completion of the whole works, set out in the tender documents, or any subsequently amended by the Corporation.
- k) A 'Week' means seven days without regard to the number of hours worked or not worked in any day in a week.
- l) 'Excepted Risks' are risks due to riots (otherwise than among contractor's employees) and civil commotion (in so far as both these are uninsurable ) war (whether declared or not), invasion act of foreign enemies, hostilities civil war, rebellion, revolution, insurrection military or usurped power, Acts of God, such as earthquake, lightening, unprecedented floods and other causes over which the contractor has no control and accepted as such by the Chief Competent Authority or causes solely due to use or occupation by the 'Corporation' of the part of works in respect of which a certificate of completion has been issued.
- m) 'Urgent works' shall mean any urgent measures which in the opinion of the Engineer-in-charge, become necessary during the progress of the work to obviate any risk or accident or failure or which become necessary for security.
- n) The 'Works' shall mean the works to be executed in accordance with the contract or part(s) thereof as the case may be and shall include all extra or additional, altered or instituted works or temporary and urgent works as required for performance of the contract.

**4. Works to be carried out:**

The work to be carried out under the Contract shall, except as otherwise provided in these conditions, include all labour, materials, tools, plant, equipment and transport which may be required in preparation of and for and in the full and entire execution and completion of the works. The descriptions given in the Schedule of Quantities shall, unless otherwise stated, be held, to include wastage on materials, carriage and cartage, carrying in return of empties hoisting, setting, fitting and fixing in position and all other labour necessary in and for the full and entire execution and completion as aforesaid in accordance with good practice and recognized principles.

**5. Inspection of Site:**

The Contractor shall inspect and examine the Site and its surrounding and shall satisfy himself before submitting his tender as to the nature of the ground and subsoil (so far as is practicable), the form and nature of the Site, the quantities and nature of works and material necessary for the completion of the Works and the means of access to the Site, the accommodation he may require and in general shall himself obtain all necessary information as to risks, contingencies and other

circumstances which may influence or affect this tender. No extra charges consequent on any misunderstanding or otherwise shall be allowed.

**6. Sufficiency of Tender:**

The Contractor shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his tender for the works and of the rates and prices quoted in the Schedule of Quantities, which except as otherwise provided, cover all his obligations under the contract and all matters and things necessary for the proper completion and maintenance of the Works.

**7. Discrepancies and Adjustment of Errors:**

The several documents forming the contract are to be taken as mutually explanatory of one another:

7.1(A) In the case of discrepancy between Schedules of quantities, Specifications and / or the Drawings, the following order of preference shall be observed.

- a) Description in Schedule of Quantities.
- b) Particular Specification and Special Conditions, if any.
- c) General Specifications.

7.1(B) If there are varying or conflicting provisions made in any one documents forming part of the Contract, the Accepting Authority shall be the deciding authority with regard to the intention of the document.

7.2 Any error in description, quantity or rate in Schedule of Quantities or any omission there from shall not vitiate the Contract or release the Contractor from the execution of the whole or any part of the Works comprised therein according to drawings and specifications or from any of his obligations under the Contract.

7.3.1 Inconsistencies/ Ambiguities in the price bid (schedule of quantities) shall be dealt with in accordance with the following rules: -

- a) Since this is an Item Rate Tender, only rates quoted shall be considered. Any tender containing percentage below/ above the rates is liable to be rejected.
- b) Rates quoted by the tenderer in figures and words shall be accurately filled in so that there is no discrepancy in the rates written in figures and words. However, if a discrepancy is found, the rates which correspond with the amount worked out by the tenderer shall be taken as correct.
- c) Where the rates quoted by the tenderer in figures and words tally, but the amount is not worked out correctly, the rates quoted by the tenderer shall be taken as correct and not the amount.
- d) Where rate(s) of item(s) has been quoted in figures leaving the words blank or vice versa, but the amount is not worked out as per the rate(s) quoted, the rates

quoted by the tenderer (either in figures or words) shall be taken as correct and not the amount.

- e) In the event no rate has been quoted for any item(s), leaving space both in figure(s), word(s) , and amount blank, it will be presumed that the contractor has included the cost of this/ these item(s) in other items and rate for such item(s) shall be considered as zero and work will be required to be executed accordingly.

**8. Security Deposit:**

Total security deposit shall be 10% of the accepted tender cost and shall be deposited/deducted by/from the contractor as following: -

**a) Initial Security Deposit:**

Contractor will deposit initially a five percent (5%) of the accepted tender cost as an initial security deposit within ten (10) days of receipt of the letter of intent/notification of acceptance of the tender by him. The earnest money deposited shall be converted into initial security deposit.

**b) Balance Security Deposit**

Balance five per cent (5 %) will be deducted @ 10% from each running bill till the overall deducted security deposit (Including initial security deposit) reaches to 10% of value of tender. However, if the value of tender i.e. actual execution exceeds the accepted value of tender, further deduction shall be effected @ 10% (Ten percent) of the value in excess of the accepted value of the Tender from running bills and final bill. Similarly, if the value as per actual execution is less than the tender value, the excess deducted amount shall be refunded to the CONTRACTOR along with final bill.

- 8.1 **Refund of Security deposit:** One half of the Security deposit refundable to the Contractor worked out on the basis of the value of work completed shall be refunded to the Contractor on the Engineer-In-Charge certifying in writing that the work has been completed satisfactorily subject to furnishing bank/ performance guarantee of equivalent amount.
- 8.2 On expiry of the Defects Liability Period Engineer-In-Charge shall, on demand from the Contractor, refund to him the remaining portion of the security deposit provided the Engineer-in-Charge is satisfied that there is no demand outstanding against the Contractor.
- 8.3 No interest shall be payable to the contractor against the Security Deposit furnished / recovered from the contractor, by the Corporation.

**9. Deviations/Variations Extent & Pricing:**

- 9.1 The Engineer-in-Charge shall have power (i) to make alteration in, omissions; from additions to, or substitutions for the original specification, drawings, designs and instructions that may appear to him to be necessary or advisable during the

progress of the work, and (ii) to omit a part of the works in case of non-availability of a portion of the Site or for any other reasons, and the Contractor shall be bound to carry out the Works in accordance with any instructions given to him in writing signed by The Engineer-in-Charge and such alterations, omissions, additions or substitutions shall form part of the Contract as if originally provided therein and any altered, additional or substituted work which the contractor may be carried out on the same conditions in all respects including price on which he agreed to do the main work. Any alterations, omissions additions or substitutions ordered by the Engineer-In-Charge which in the opinion of the contractor changes the original nature of the Contract, he shall carry it out and the rates for such additional, altered or substituted work shall be determined by the Engineer-in-Charge as per clause 10 (i) to (iii) of the tender document.

- 9.2.1 The time of completion of the works shall in the event of any deviations resulting in additional cost over the Contract Sum being ordered be extended as follows if requested by the Contractor.
- a) In the proportion which the additional cost of the altered additional or substituted work, bears to the original Contract sum; plus.
  - b) 25% of the time calculated in (a) above or such further additional time as may be considered reasonable by the Engineer-in-Charge.

## **10. Rates for Extra/Additional Items**

- i) If the rate for additional, altered or substituted item of work is specified in the Schedule of Quantities the Contractor shall carry out the additional, altered or substituted item at the same rate.
- ii) If the rate for any altered, additional or substituted item of work is not specified in the schedule of Quantities the rate for that item shall be derived from the rate for the nearest similar item specified therein.
- iii) If the rate for any altered, additional or substituted item of work cannot be determined in the manner specified in sub-paras (i) and (ii) above, the contractor shall within 7 days of the receipt of the order to carry out the said work, inform the Engineer-in-Charge under advice to the Accepting Authority of the rate which he proposes to claim for such item of work, supported by analysis of the rate claimed, and the Engineer-in-Charge shall, within One month thereafter, after give due consideration to the rate claimed by the Contractor determine the rate on the basis of market rate(s). In the event of the contractor failing to inform the Engineer-in-Charge within the stipulated period of time, the rate which he proposes to claim, the rate for such item shall be determined by the Engineer-in-Charge on the basis of market rate(s) and shall be final.

## **11. Suspension of Works:**

- a) The contractor shall, on receipt of the order in writing of the Engineer-in-Charge, suspend the progress of the works or any part thereof for such time and in such manner as the Engineer-in-Charge may consider necessary for any of the following reasons:
  - i) On account of any default on part of the Contractor; or
  - ii) For proper execution of the Works or part thereof for reasons other than the default of the Contractor; or
  - iii) For safety of the works or part thereof. The contractor shall, during such suspension, properly protect and secure the works to the extent necessary and carry out the instructions given in that behalf by the Engineer-in-Charge.
- b) If the suspension is ordered for reasons (ii) and (iii) in sub-para (a) above. The Contractor shall be entitled to an extension of the time equal to the period of every such suspension plus 25%.

**12. Time and Extension for Delay:**

The time allowed for execution of the works as specified in the Appendix or the extended time as approved by NSIC in accordance with these conditions shall be the essence of the Contract. The execution of the works shall commence from the 1<sup>st</sup> day after the date on which the Corporation issues written orders to commence the work or from the date of handing over of the site, which ever is earlier. If the Contractor commits default in commencing the execution of the work as aforesaid, Corporation shall without prejudice to any other right or remedy be at liberty to forfeit the earnest money absolutely.

12.1 As soon as possible after the Contract is concluded the Engineer-in-Charge and the Contractor shall agree upon a Time and Progress Chart. The Chart shall be prepared in direct relation to the time stated in the Contract documents for completion of items of the works. It shall indicate the forecast of the dates of commencement and completion of various trades or sections of the work and may be amended as necessary by agreement between the Engineer-in-Charge and the Contractor within the limitations of time imposed in the Contract Documents.

12.2 If the work be delayed by

- (a) Force majeure or
- (b) Abnormally bad weather or
- (c) Serious loss or damage by fire, or
- (d) Civil commotion, local combination of workmen strike or lockout, affecting any of the trades employed on the work, or
- (e) Delay on the part of other contractors or tradesmen engaged by Corporation in executing work not forming part of the contract, or

- (f) Any other cause which, in the absolute discretion of the authority mentioned in Appendix is beyond the Contractor's control;

Then upon the happening of any such event causing delay, the Contractor shall immediately give notice thereof in writing to the Engineer-in-Charge but shall nevertheless use constantly his best endeavors to prevent or make good the delay and shall do all that may be reasonably required to the satisfaction of the Engineer-in-Charge to proceed with the Works.

- 12.3 Request for extension of time, to be eligible for consideration, shall be made by the Contractor in writing within fourteen days of the happening of the event causing delay. The Contractor may also if practicable, indicate in such as request the period for which extension is desired.
- 12.4 If any such case the competent authority may give a fair and reasonable extension of time for completion of the work. Such extension shall be communicated to the contractor by the Engineer-in-Charge and no compensation whatsoever for the extended period, if any shall be applicable/ payable.
13. The Contractor shall arrange, at his own expense, all tools, plant and equipment hereafter referred to as (T & P) labour, P.O.L. & electricity required for execution of the work.

#### **14. FORCE MAJEURE**

Any delays in or failure of the performance of either party herein shall not constitute default hereunder or give rise to any claim for damages, if any, to the extent such delays or failure of performance is caused by occurrences such as Act of god or the public enemy; expropriation or confiscation of facilities by Government authorities, or in compliance with any order or request of any Governmental authorities or due acts of war, rebellion or sabotage or fires, floods, explosions, riots or illegal joint strikes of all the workers of all the contractors.

#### **15. MATERIALS**

1. All materials to be provided by the Contractor shall be in conformity with the specifications laid down in the contract and the Contractor shall, if requested by the Engineer-in-Charge, furnish proof to the satisfaction of Engineer-in-Charge in this regard.
2. The contractor shall indemnify the Corporation, its representatives or employees against any action, claim or proceeding relating to infringement or use of any patent or design or any alleged patent or design rights and shall pay any royalties or other charges which may be payable in respect of any article or material or part thereof included in the Contract. In the event of any claim being made or action being brought against the Corporation or any agent,



servant or employee of the Corporation in respect of any such matters as aforesaid, the Contractor shall immediately be notified thereof.

3. All charges on account of octroi, terminal or sales tax and other duties on material obtained for the Works from any source shall be borne by the Contractor.
4. The Engineer-in-Charge shall be entitled to have tests carried out as specified as per relevant standard code of practice for any materials supplied by the Contractor even for those for which, as stated above, satisfactory proof has already been furnished, at the cost of the Contractor and the Contractor shall provide at his expense all facilities which the Engineer-in-Charge may require for the purpose. The cost of materials consumed in tests shall be borne by the Contractor.
5. Stores and Materials required for the works, brought by the Contractor, shall be stored by the Contractor only at places approved by the Engineer-in-Charge. Storage and safe custody of material shall be the responsibility of the contractor.
  - i. Corporation's officials concerned with the Contract shall be entitled at any time to inspect and examine any materials intended to be used in or on the works, either on the Site or at factory or workshop or other place(s) where such materials are assembled, fabricated or at any place(s) where these are lying or from where these are being procured and the contractor shall give such facilities as may be required for such inspection and examination.

- ii. All materials brought to the Site shall become and remain the property of the Corporation and shall not be removed off the Site without the prior written approval of Engineer-in-Charge of the Corporation. But whenever the works are finally completed the Contractor shall, at his own expense forthwith, but with the prior approval from the Corporation, remove from the Site all surplus materials originally supplied by him and upon such removal the same shall revert in and become the property of the contractor. However before given any approval as aforesaid the corporation shall be entitled to recover or adjust any amount given as advance to the Contractor.

**16. Labour laws and payment of wages to be complied:**

The contractor shall comply the labour laws in force. No labour below the age of eighteen years shall be employed on the works. The tenderer should make their own arrangement for the assign of all labour trained in the particular field of work preferably local.

The contractor shall obtain a valid license under the Contract Labour (R&A) Act, 1970 and the Contract Labour (R&A) Central Rules, 1971, before the commencement of the work, and continue to have a valid license till completion of work. The contractor shall also abide by the provisions of the Child Labour (Prohibition and Regulation) Act, 1986. The contractor shall comply with the provisions of the Payments of wages act, 1936, Minimum wages Act, 1948, Employment liability Act, 1938, Workmen's compensation act 1923, Industrial dispute Act, 1947, the factories act 1948, mate benefit act 1961 and any statutory amendments or re-amendments thereof for the time being in force.

In respect of all laborers directly or indirectly employed in the work for the performance of the contractor's part of this contract, the contractor shall his own expense arrange the safety provision as per safety code framed from time to time by statutory authorities and shall his own expense provide for all facilities in connection therewith. Incase, the contractor fails to make arrangement and provide necessary facilities as aforesaid he shall be responsible for any compensation for each default and in addition the Engineer-In-Charge shall be at liberty to make arrangement and provide facilities as aforesaid and recover the costs incurred in that behalf from the contractor.

*The contractor shall be fully liable for compliance of EPF or ESI of the labours/workmen deployed by them for carrying out the work as per prevailing Central or State government norms and the Corporation has nothing to do with the same. Corporation shall not be responsible for any liability/claims whatsoever in this regard. Further as and when demanded by the Corporation, the contractor shall submit the proof of deductions/ deposits of such liabilities of their labors/ workmen engaged in the work to the Corporation. In case of default, the Corporation may deduct the payments against these liabilities from the bills of the contractor or may stop the payment of the bill till such time until the compliance is proved y the contractor.*

## **17. Liquidated Damages for Delay**

- 17.1 Time is essence of the contract. In case the CONTRACTOR fails to complete the whole work within the stipulated period, and clear the site, he shall be liable to pay liquidated damages @ 0.5% (One Half of one percent only) of the value of contract per week and or part thereof of the delay subject to a maximum of 10% (ten percent only) of the value of the contract. The parties agree that this is a genuine pre-estimate loss / damage which will be suffered on account of delay on the part of the Contractor and the said amount will be payable on demand without there being any proof of the actual loss of damages caused by such delay.
- 17.2 The amount of Compensation may be adjusted or set-off against any sum payable to the Contractor under this or any other contract with the Corporation.

## **18. Defects Liability Period:**

The Contractor shall be responsible to make good and remedy at his own expense within defect liability period of one year from the date of completion of the work in all respect.

## **19. Contractor's Liability and Insurance**

From commencement to completion of the works, the Contractor shall take full responsibility, care of and precautions to prevent loss or damage and to minimize loss or damage to the greatest extent possible and shall be liable for any damage or loss that may happen to the Works or any part thereof from any cause whatsoever (save and except the Excepted Risks) and shall at his own cost repair and make good the same so that, at completion, the works shall be in good order and conditions and in conformity in every respect with the requirements of the Contract and instructions of the Engineer-in-Charge.

- 19.1. In the event of any loss or damage to the Works or any part thereof or to any material or articles at the Site from any of the Excepted Risks the following provisions shall have effect:
- a. The Contractor shall, as may be directed in writing by the Engineer-in-Charge, remove from the site any debris and so much of the works as shall have been damaged.
  - b. The Contractor shall, as may be directed in writing by the Engineer-in-Charge, proceed with the completion of the works under and in accordance with the provisions and Conditions of the Contract, and
- 19.2 Provided always that the Contractor shall not be entitled to payment under the above provisions in respect of so much loss or damage as has been occasioned by any failure on his part to perform his obligations under the Contract or not taking precautions to prevent loss or damage or minimize the amount of such loss or damage.

- 19.3 The Contractor shall indemnify and keep indemnified the Corporation against all losses and claims for injuries or damage to any persons or any property whatsoever which may arise out of or in consequence of the construction and maintenance of works and against all claims, demands proceedings, damages costs, charges and expenses whatsoever in respect of or in relation thereto. Provided always that nothing herein contained shall be deemed to render the Contractor liable for or in respect of or to indemnify the Corporation against any compensation or damage caused by the Excepted Risks.
- 19.4 Before commencing execution of the work, the Contractor shall, without in any way limiting his obligations and responsibilities under this condition, obtain and deposit with the Corporation-Contractors “All Risk Policy” and “Third Party” Insurance policy.
- 19.5 The Contractor shall at all times indemnify the Corporation against all claims, damages or compensation under the provisions of Payment of Wages Act, 1936, Minimum Wages Act. 1948, Employer’s Liability Act, 1938 the Workmen’s Compensation Act, 1923, Industrial Disputes Act, 1947 and the Maternity Benefit Act. 1961 or any modifications thereof or any other law relating thereto and rules made thereunder from time to time.
- 19.6 The Contractor shall prove to the Engineer-in-Charge from time to time that he has taken all the insurance policies referred to above and has paid the necessary premiums for keeping the policies alive till completion of the work.
- 19.7. All statutory deductions as applicable like TDS, sales tax/VAT shall be made from the due payment of the contractor.
- 19.8 No claim for interest will be entertained by the corporation in respect of any balance payments or any deposits which may be held up with the corporation due to any dispute between the corporation and contractor or in respect of any delay on the part of the corporation in making final payment or otherwise.
- 19.9 The contractor shall ensure that no materials/wastes/plant, equipments etc. are dumped at the site. In case any of the above items are dumped the contractor shall clear the same from the site by or before completion of the work at his own cost or otherwise NSIC will carry out the work at the contractor’s risk and cost after 7 days notice.
- 19.10 The contractor will have to make their own arrangement for facilitating movement of labour to work site and back. Facilities are to be provided to labourers as per statutory provision and the same shall not entail or attract any extra cost to NSIC.

**20. Safety Code:**

- 20.1 The Contractor shall at his own expense arrange for the safety provisions as appended to these conditions or as required by the Engineer-in-Charge, in respect of all labour directly or indirectly employed for performance of the works and

- shall provide all facilities in connection therewith. In case the Contractor fails to make arrangements and provide necessary facilities as aforesaid the Engineer-in-Charge shall be entitled to do so and recover cost thereof from the Contractor.
- 20.2 The contractor shall provide and maintain at his own expenses guards, fencing and matching when and where necessary or required by the Engineer-in-Charge for the protection of the works or for the safety and convenience of those employed on the works or the public.
- 20.3 The corporation shall not be liable for any accident, injury or for any other mishap caused to him/them/their employees/agents and labour employed by the contractor and for any kind of damage during the execution of the contract or work done. For any kind of such injury or loss caused to any person/persons mentioned herein above, the contractor shall be exclusively liable.

**21. Cancellation of Contract in Full or in Part:**

- 21.1 If the Contractor:
- a. At any time makes defaults in proceeding with the Works with due negligence and continues to do so even after a notice in writing of 7 days from the Engineer-in-Charge; or
  - b. Commits default in complying with any of the terms and conditions of Contract and does not remedy it or take effective steps to remedy it within 7 days after a notice in writing is given to him in that behalf by the Engineer-in-Charge; or
  - c. Fails to complete the works or items of work on or before the date(s) of completion, and does not complete them within the period specified in a notice given in writing in that behalf by the Engineer-in-Charge; or
  - d. Enters into a contract with the Corporation in connection with which commission has been paid or agreed to be paid by him or to his knowledge, unless the particulars of any such commission and the term of payment there have previously been disclosed in writing to the Accepting Authority/Engineer-in-Charge; or
  - e. Offers or gives or agrees to give to any person in Corporation's service or to any other person on his behalf any gift or consideration of any kind as an inducement or reward for doing or for bearing to do or having done any act in relation to the abstention or execution of this or any other Contract for the Corporation or
  - f. Obtains a Contract with the Corporation as a result of ring tendering or other non-bonafide methods of competitive tendering; or
  - g. Being an individual or any of its partner (in case of the Contractor is a partnership firm) at any time is adjudged insolvent or have a receiving order or order for administration of his estate made against him or shall take any proceedings for liquidation or composition (other than a voluntary liquidation for the purpose of amalgamation or reconstruction) under any insolvency Act for the time being in force or make any conveyance or assignment of his affective or composition or arrangement of the benefit of his creditors or purport so to do, or if any application be make under any insolvency Act for the time being in force for the sequestration of his estate or if a trust deed be executed by him for benefit of his creditors; or

- h. Being a company, passes a resolution or the Court makes an order for liquidation of its affairs, or a receiver or manager on behalf of the debenture holders is appointed or circumstances shall arise which entitle the Court or debenture holders to appoint a receiver or manager; or
  - i. Assigns, transfers sublets (engagement of labour on a piece-work basis or of labour with materials not be incorporated in the work shall not be deemed to be subletting) or attempts or assign, transfer or sublet the entire works or any portion thereof without the prior written approval of the Accepting Authority.
- 21.2 The Competent Authority may, without prejudice to any other right or remedy which shall have accrued or shall accrue thereafter to the Corporation by written notice cancel the contract as a whole or in part as it may deem appropriate.
- 21.3 The Competent Authority shall on such cancellation, be entitled to:
- a. Take possession of the site and any materials, construction plant, implements, stores, etc., thereon; and/or
  - b. Carry out the incomplete work by any means at the risk and cost of the Contractor.
- 21.4 On cancellation of the Contract, in full or in part, the Accepting Authority shall determine the quantum of amount, if any, recoverable from the Contractor for completion of Works or part of the works or in case the works or part of the works is not completed, the loss or damage suffered by the Corporation. In determining the amount credit shall be given to the Contractor for the value of the work, if any, executed by him up to the time of cancellation, the value of contractors material taken over and incorporated in the work and use of tackle and machinery belonging to the Contractor.
- 21.5 Any excess expenditure incurred or to be incurred by the Corporation in completing the Works or part of the Works or the excess loss or damages suffered or may be suffered by the Corporation as aforesaid after allowing such credit shall be recovered from any money due to the Contractor or any account, and if such money is not sufficient the Contractor shall be called upon in writing to pay the same within 30 days.
- 21.6 If the Contractor shall fail to pay the required sum within the aforesaid period of 30 days, the Engineer-in-Charge shall have the right to sell any or all of the Contractor's unused materials, constructional plant, implements, temporary buildings, etc. and apply the proceeds of sale thereof towards the satisfaction of any sums due from the Contractor under the contract and if thereafter there be any balance outstanding from the Contractor, it shall be recovered in accordance with the provisions of the Contract.
- 21.7 Any sums in excess of the amounts due to the Corporation an unsold materials, constructional plant, etc. shall be returned to the Contractor, provided always that if cost or anticipated cost of the completion by the Corporation of the works or part of the works is less than the amount which the Contractor would have been paid had he completed the works on part of the works such benefit shall not accrue to the Contractor.

**22. Liability for Damage, Defects or Imperfections and Rectification thereof:**

- 22.1 If the Contractor or his workmen or employees shall injure or destroy any part of the building in which they may be working or any building, road, fence etc, continuous to the premises on which the work or any part of it is being executed, or if any damage shall happen to the work while in progress the Contractor shall upon receipt of a notice in writing in that behalf make the same good at his own expense. If it shall appear to the Engineer-in-Charge or his Representative at any time during construction or re-construction or prior to the expiration of Defects Liability Period, that any work has been executed with unsound, imperfect or unskilled workmanship or that any materials or articles provided by the Contractor shall, upon receipt of a notice in writing in that behalf from the Engineer-in-Charge, forthwith rectify or remove and re-instruct the work so specified in whole or in part, as the case may require or as the case may be, and/or remove the materials or articles at his own expense, notwithstanding that same may have been inadvertently passed, certified and paid for and in the event of his notice aforesaid, the Engineer-in-Charge may rectify or remove and re-execute the work and/or remove and replace with others the materials or articles complained of as the case may be, by other means at the risk and expense of the Contractor.
- 22.2 In case of repairs and maintenance works, splashes and dropping from white washing, painting, etc. shall be removed and surfaces cleaned simultaneously with completion of these items of work in individual rooms, quarters or premises, etc. where the work is done, without waiting for completion of all other items of work in the contract. In case the Contractor fails to comply with the requirements of this condition, the Engineer-in-Charge shall have the right to get the work done by other means at the cost of the Contractor. Before taking such action, however, the Engineer-in-Charge shall give three days notice in writing to the Contractor.

**23. Urgent Works:**

If any Urgent work (in respect whereof the decision of the Engineer-in-Charge shall be final and binding) becomes necessary and Contractor is unable or unwilling at once to carry it out, the Engineer-in-Charge may by his own or other workpeople carry it out, as he may consider necessary. If the urgent work shall be such as the Contractor is liable under the contract to carry out at his expenses incurred on it by the Corporation shall be recoverable from the Contractor and be adjusted or set off against any sum payable to him.

**24. PAYMENTS:**

24.1 Payment shall be released as per the quantum of work executed in accordance to the instruction and drawings issued to the contractor. Any work executed by the contractor in violation to the tender specifications, drawings and direction of Engineer in charge shall constitute breach of agreement and shall not qualify for the measurement. The measurement shall be jointly recorded by the contractor and representative of NSIC. If Contractor intends to submit interim **R.A Bills, these should not be less than Rs 5.00 Lacs value of work executed.** All other statutory deductions and Security deposit as applicable shall be effected from each running bills.

24.2 No escalation will be paid even in extended period, if any.

24.3 All statutory deductions as applicable like TDS, sales tax/VAT, labour cess etc. shall be made from the due payment of the contractor.

**25. MOBILISATION ADVANCE:**

No mobilization advance whatsoever shall be paid for carrying out this work.

**26. ARBITRATION:-**

26.1 All questions and disputes relating to the meaning of the words, terms, specifications, operations, and instructions, mentioned in this contract and as to the quality of workmanship or performance of the contractor any other question, claim, right, matter, or thing whatsoever in any way arising out of or relating to the contract, specifications, operating instructions, orders or these conditions; or otherwise concerning the performance of the contract, the execution or failure to execute the same whether arising during the existence of the contract or after the termination of the contract, the same shall be referred to the sole arbitrator appointed by the Chairman-Cum-Managing Director of the Corporation.

26.2 The Arbitrator shall have power to call for such evidence by way of affidavits or otherwise as he thinks proper and it shall be the duty of the parties hereto to do or cause to be done, all such things as may be necessary to enable the Arbitrator to make the award without any delay. The Arbitrator shall



give a separate award in respect of each dispute or difference referred to him. The venue of arbitration shall be at Delhi. The Award of the Arbitrator shall be final, conclusive and binding on all parties to the contract.

- 26.3 The law under the Arbitration and Conciliation Act, 1996 as amended by Arbitration and Conciliation (Amendment) Act 2015 shall be applicable to such proceedings.

The cost of arbitration shall be borne by the parties to the dispute, as may be decided by the arbitrator(s).

**Chief General Manager – SG (Works)  
NSIC, New Delhi**

**SIGNATURE OF THE CONTRACTOR**

**FORM OF TENDER**

To  
The CGM – SG (Works),  
NSIC Ltd., NSIC Bhawan  
Okhla Industrial Estate,  
New Delhi - 110020

I/We have read and examined the following documents relating  
to.....  
.....

**(Name of the Work)**

- (a) Notice inviting tender.
- (b) Instructions to Tenderers
- (c) Technical Specifications
- (d) General Conditions of Contract including Contractors, Labour Regulations, Model Rules for Labour Welfare and Safety Code appended to these conditions together with the amendments thereto if any.
- (e) Special Conditions of contracts if any.
- (f) Bill of Quantities

I/We hereby tender for execution of the works referred to in the aforesaid documents upon the terms and conditions contained or referred to therein and in accordance in all respects with the specifications, designs, drawings and other relevant details at the rates contained in Schedule and within the period(s) of completion as stipulated in Appendix.

In consideration of I/We being invited to tender, I/We agree to keep the tender open for acceptance for 120 days from the due date of submission thereof and not to make any modifications in its terms and conditions which are not acceptable to the Corporation.

A sum of Rs. 24000/- is hereby forwarded as Earnest Money Deposit in the form of Demand Draft in favour of “The National Small Industries Corporation Ltd. ”, payable at New Delhi.

If I/We fail to keep the tender open as aforesaid or make any modifications in the terms and conditions of the tender which are not acceptable to the Corporation, I/We agree that the Corporation shall without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely. Should this tender be accepted, I /We agree to abide by & fulfill all the terms conditions of aforesaid document.

If after the tender is accepted, I/we fail to commence the execution of the work as provided in the conditions. I/We agree that Corporation shall without prejudice to any other right or remedy is at liberty to forfeit the said earnest money absolutely.

**Signature of bidder.....**

**Duly authorized to sign the tender**

Dated.....

Witness.....

Date.....

Address.....

## APPENDIX

- |   |   |
|---|---|
| 1. Competent Authority :  | C.M.D. NSIC or his<br>Authorized executives   |
| 2. Earnest money/Security deposit   |   |
| a) Estimated cost of the Works;   | Rs. 11.82 Lacs  |
| b) Earnest money:   | Rs 24,000/- in the form of<br>DD /Pay order in favour of<br>“The National Small<br>Industries Corporation Ltd.”,<br>payable at New Delhi. |
| c) Security Deposit   | 10%   |
| 3. Time allowed for execution of work   | 60 days   |
| 4. Authority competent to decide if<br>“any other cause” of delay is beyond<br>contractors’ control | CMD, NSIC or his<br>authorised representative   |
| 5. Liquidated Damaged   | 0.5% (one half of one<br>percent) per week subject<br>to a Maximum 10% value of<br>the contract   |
| 6. Defect Liability Period  | 12 months from the date<br>of Completion of work in all<br>respect  |
| 7. Authority competent to reduce<br>compensation  | CMD NSIC or his<br>authorized executive.  |

## SPECIAL CONDITIONS

1. During working at site, some restrictions may be imposed by Engineer-in-Charge/Security staff of Corporation or Local Authorities regarding safety and security etc., the contractor shall be bound to follow all such restrictions/instruction & nothing extra shall be payable on this account.
2. No compensation shall be payable to the contractor for any damage caused by rains lightening, wind, storm, floods Tornado, earth quakes or other natural calamities during the execution of work. He shall make good all such damages at his own cost; and no claim on this account will be entertained.
3. No labour hutment shall be allowed in the premises. All labourers should leave the site after day's work. The security & Watch ward of site contractor materials/work etc. shall be at his cost only.
4. All rates quoted by the bidders shall remain firm for the contract period/extended contract period.
5. If the contractor fails to proceed with the work within the stipulated time as specified from the date of issue of letter of intent/letter to proceed with the work, the Corporation shall forfeit the earnest money deposited by him along with the tender.
6. **Execution of Work At Risk & Cost of Contractor:**

The balance work, if any, left to be completed after the determination/cancellation of the contract as per clause no. 21 of the 'General Conditions of Contract' shall be got executed by the Corporation as stipulated in the said clause at the risk and cost of the contractor and the additional expenditure, if any, incurred by the Corporation in getting the work executed in the manner stated above, the same shall be recovered from the dues of contractor. In case the dues of the contractor are not sufficient, the contractor shall be liable to deposit the excess amount incurred by the Corporation as communicated by the Engineer-in-charge within 30 days of written notice.
7. The work has to be executed in accordance with the latest CPWD specification with latest amendments if any, relevant IS specification, OEM Standards etc. shall be followed. However, the decision of the Engineer-In-Charge in this regard shall be final and binding upon the contractor.
8. The materials used for carrying out the work shall be of best available quality and the contractor has to carry out the necessary testing of the material as ordered by the Engineer-In-Charge for its conformity and all testing charges shall be borne by the contractor.
9. All the civil works, if required, like fixing of load hooks, making chases in the wall, drilling of holes, fixing of doors and finishing of jambs, providing scaffolding for carrying out complete works shall be arranged by the contractor and making good the same. Nothing extra on theses account shall be considered or paid.

10. The contractor shall be fully responsible for the any injury or damage caused to the workmen deployed by him at site for carrying out the work and Corporation has nothing to do with such happenings and in no way shall be held responsible for the same.

**11. INSPECTION & APPROVAL OF THE WORK BY LOCAL AUTHORITY:**

The contractor has to obtain all clearances & approvals from any statutory authority/local bodies pertaining to whole HVAC work, if any. The contractor shall obtain all information relating to local regulations, Bye – laws, applicable, if any and all laws relating to his work or profession and his having to execute work as required. Contractor shall obtain approval of the installation from the relevant inspection authority at all stages and on completion of the installation work if any. However, any statutory fees required to deposit for obtaining approvals shall be paid by NSIC.

12. Training: The contractor has to provide training to the client staff and also operate the system (If required) for a period of 02 days from the date of handing over free of cost.
13. Completion Drawings: After completion of the work, the contractor shall have to submit the following (which pertains to the work) set of drawings to NSIC.

4 sets of hard copies + 1 Tracing + 3 Soft Copies (in Auto CAD applicable version) in CD of the drawings related to HVAC Works.

14. Documents to be furnished on completion of installation:

- a) Completion drawings as per clause 13 above.
- b) Manufacturer's catalogues of all equipments and accessories, operation and maintenance manuals of all major equipments, detailing all adjustments, operation and maintenance procedure.
- c) Manufacturer's Guarantee / Warrantee certificates of all the equipments & material etc.
- d) Clearances/approvals of various statutory Bodies / Authorities for this system.
- e) Any other information the Engineer – in – Charge may deem fit.

No completion certificate will be issued until the above drawings and documents are submitted to the Engineer – in – charge.

15. The preparation of working drawing and as built drawing related to HVAC works shall be the responsibility of the contractor.
16. The tenderer shall quote his rates inclusive of VAT, Sales tax, octroi, service tax or any other tax / duties as applicable. However, All statutory deductions as applicable like TDS, sales tax/VAT shall be made from the due payment of the contractor

**17. All communication should be addressed to Chief General Manager – SG (Works), NSIC Ltd., Okhla Industrial Estate, New Delhi - 110020.**

**Signature of bidder**

## **Technical Specifications**

### **A - VRV / VRF System**

#### **1. General**

- 1.1 The equipment for variable refrigerant volume/flow (VRV/VRF) system shall be air-cooled consisting of Outdoor units and multiple Indoor units for cooling the space in summer and heating in winter (whenever Heat pumps are specified).
- 1.2 The system shall consist of suitable Outdoor units, Indoor units as required, interconnecting refrigerant piping, control cabling and accessories as required.
- 1.3 It shall be possible to connect multiple Indoor units on a single refrigerant circuit. The Indoor units on any circuit may be of different type and should allow individual control.
- 1.4 The minimum length of Refrigerant piping in a branch circuits or all circuits shall be as per chart given later on but the total piping length shall not be more than 300 m.

#### **2. Outdoor Unit**

- 2.1 The Outdoor unit shall be a factory assembled unit housed in a sturdy weather proof casing, constructed from rust-proofed mild steel panels complete with powder coated finish.
- 2.2 Each module of Outdoor units shall consist of scroll compressor(s), air-cooled condenser as Heat Exchanger, high efficiency propeller fans with low noise motor, internal Refrigerant piping, safety controls, Air Inlet grilles, fan protection grille etc. all enclosed in weather proof housing.
- 2.3 The Outdoor unit shall have multiple scroll compressors and shall be able to operate even in case of breakdown of one of the compressors. (The smallest capacity unit may have only one compressor).
- 2.4 The Outdoor unit shall be suitable for mix and match connection of various types and capacities of Indoor units as per demand.
- 2.5 The noise level shall not be more than 62 dB(A) under normal operation, measured horizontally, 1 m away and 1.5m above ground.
- 2.6 The Outdoor unit shall be modular in design and shall allow for side by side installation of multiple Outdoor units, to match the requirement.
- 2.7 All the units shall be provided with built-in microprocessor control panel, for automatic operation and capacity control.
- 2.8 The units shall be suitable for Refrigerant R-410A.

#### **3. Compressor**

- 3.1 Each unit shall have single/multiple hermetically sealed scroll compressor.
- 3.2 The scroll compressor shall consist of two spiral disc, where one is fixed and the other rotate. The disc shall be mounted eccentrically to allow orbital movement. This shall permit compression of Refrigerant gas, as it move up between the eccentric discs.
- 3.3 Both the spiral disc out rotor shall be mounted on a common shaft with antifriction bearing, suitable for handling both radial and axial thrust.

- 3.4 The compressor casing shall be fabricated from mild steel of thickness capable of withstanding the working pressures. The casing shall have built-in oil reservoir with a sump of adequate capacity.
- 3.5 The compressor shall be complete with a suitable High efficiency motor hermetically sealed within the compressor housing.
- 3.6 The compressor housing shall also have oil reservoir for lubrication and suitable means like an oil pump or pressure differential device shall be provided to lubricate all moving parts.
- 3.7 One or more compressor shall be provided with suitable sine wave or equivalent DC Inverter for capacity modulation.

#### 4. **Condenser / Heat Exchanger and Fans**

- 4.1 The condenser shall be air-cooled type, where heat exchanger shall be fabricated from copper tubes, mechanically bonded to aluminum fins to form a cross fin coil. The aluminum fins shall be given anti-corrosion treatment. This treatment shall be suitable for areas of high pollution, moisture and salt laden air.
- 4.2 The condenser fans shall be with multi blades of aerofoil design for low noise level, high efficiency and fitted with an high efficiency fan motor.
- 4.3 The fan outlet shall be protected by a suitable wire guard on the outside.
- 4.4 Suitable devices and heat exchanger means shall be built-in the unit to provide maximum super-cooling of refrigerant to increase system efficiency.
- 4.5 The unit shall be complete with safety controls and suitable microprocessor based master control module.
- 4.6 The module should be capable of connecting to web or to other devices through common Bacnet or LAN networks.
- 4.7 All the above component shall be housed in a compact mild steel cabinet having air Inlet louvers, safety guard on the condenser fan. The ambient shall be made weather proof using suitable anti corrosion treatment and finishing point.

#### 5. **Indoor Units (IDU)**

- 5.1 The system shall permit connection of a variety of non ductable or ductable Indoor units on to single refrigerant piping circuits, as per description given later.
- 5.2 The capacity of the IDU shall vary as per the requirement of the given area.
- 5.3 The types of IDU which may be connected may be any of these given below:
  - 5.3.1 High Wall mounted Unit.
  - 5.3.2 Cassette type of different configuration.
  - 5.3.3 Concealed Ceiling suspended units.
  - 5.3.4 Ceiling Suspended High static Unit.
  - 5.3.5 Ceiling Mounted Exposed unit.
  - 5.3.6 Floor standing (exposed or concealed) units.
  - 5.3.7 Ductable ceiling mounted High Capacity units.

#### 5.3 **Common features of Indoor Units**

- 5.3.8 The cooling / heating evaporator coils of the various types of Indoor Units shall be of direct expansion type.



- 5.3.9 The coils shall be fabricated from copper tubes of min 8 mm dia. with extended aluminium fins and designed for low velocity.
- 5.3.1 The fins shall be bonded to the tube using hydraulic expansion of tubes ensuring tight bonding between tube and fins for efficient heat transfer.
- 5.3.2 The coils shall be complete with well-designed tube circuiting and liquid distributor.
- 5.3.3 All types of units shall have a built in electronic expansion valve and suitable control units.
- 5.3.4 The control units shall control temperature, fan speed and features specific to each unit such as night mode, set back, etc.
- 5.3.5 Suitable drain pan and drain arrangement shall be part of all IDUS.
- 5.3.6 The control units shall permit control from a corded or a wireless remote controller.

## 6. **High Wall Mounted units**

- 6.1 The high wall mounted units will be complete with cross flow fan, vertical DX coil, filters, control units and plastic outer cabinet.
- 6.2 The cross flow fan should be of generous dia. and length to deliver the required air quantity at high speed and be very quiet with Noise level below 38 dbA.
- 6.3 The fan assembly shall be directly mounted on a low noise, high efficiency motor.
- 6.4 The DX evaporator coil and other common features shall be as given under para 5.3.
- 6.5 The air filter shall be electrostatic type to remove dust, polan and other impurities.
- 6.6 The outer casing shall be made of high grade plastic, complete with return air grille, motorized supply air louvered opening and suitable metallic back panel for mounting all items.

## 7. **Cassette type units**

- 7.1 The cassette type Indoor Units may be of any of the three configurations, as given below and as may be mentioned in Bills of quantity.
- 7.2 Four way or circular air distribution arrangement whichever is specified or is available.
- 7.3 2-way air distribution arrangement.
- 7.4 1-way or corner type air distribution arrangement.
- 7.5 The unit shall be complete with turbo fans of multi-blade type, duly statically and dynamically balanced to give the required air flow.
- 7.6 The filter shall be of synthetic type to suit the configuration.
- 7.7 The unit housing shall have provision for connecting fresh air duct, wherever required.
- 7.8 The unit shall be complete with built-in high head fail-safe pump with safety cutouts.
- 7.9 The unit shall include all items as given in 5.3
- 7.10 Each type of unit shall be supplied complete with **Air distribution panel** whether specified or not.
- 7.11 The panel shall have removable return air core for cleaning air filter and maintaining motor etc.

8. **Concealed ceiling suspended unit**

- 8.1 The concealed units shall be complete with fan assembly, DX evaporator coil, air filter, outer casing and control unit.
- 8.2 The fan shall be centrifugal type with housing and mounted directly on the motor shaft.
- 8.3 The air filter shall be preferably electrostatic type.
- 8.4 The outer casing shall be of heavy gauge G.I. sheet duly treated for long life and shall be complete with 25 mm deep duly insulated drain pan.
- 8.5 The unit shall include all other items as listed in Para 5.3

9. **Ceiling Suspended High Static Unit**

- 9.1 The unit shall be complete as described in Para 8, except for the fan section.
- 9.2 The fans shall be selected and designed for highest air static pressure, to allow for at least 5 to 6 m of ducting with grilles.

10. **Ceiling Mounted Exposed Unit**

- 10.1 The exposed type unit shall be similar to the concealed type as described in Para 8, except for the outer casing.
- 10.2 The unit shall have a decorative outer casing with built-in supply air grilles and return grilles.
- 10.3 The casing shall be with anti-corrosive treatment and finished with powder coated paint in attractive finish.

11. **Floor Standing Units**

- 11.1 The floor standing units shall be vertical in design and may be suitable for concealed furred in installation or cabinet type for exposed installation.
- 11.2 The fans shall be centrifugal type mounted directly on the motor shaft.
- 11.3 The air filter shall be cleanable electrostatic type.
- 11.4 The concealed type of vertical unit casing shall be of heavy gauge galvanized sheet with anti-corrosive paint.
- 11.5 It should be complete with deep drawn insulated drain pan and shall permit easy access for filter cleaning and maintenance of coil and fan motor.
- 11.6 The cabinet type of exposed vertical units shall in addition have a decorative cover with built in supply and return air grilles.
- 11.7 All other components in both type shall be as in para 5.3

12. **Ductable Units**

- 12.1 The ductable indoor units shall be ceiling suspended type, complete with fan assembly, DX coil, air filters, control units and outer casing.
- 12.2 The fan shall be centrifugal suction type with fan casing and direct driven motor. The fan shall have a minimum external static pressure of 100 Pa.
- 12.3 The air filter shall be cleanable type with mold resistant resin net fixed to an integrally moulded plastic frame. The filter shall be sliding type with frame for ease of insertion and removal.



cable through its entire length. The piping shall be continuously kept clean of dirt etc. while construction the joints. Subsequently, it shall be thoroughly blown out using carbon dioxide/nitrogen.

- c. Refrigerant lines shall be sized to limit pressure drop between evaporator and condensing unit to less than 0.2 kg per Sq.cm.
- d. Removable type combination drier and filter shall be installed in liquid line of the refrigeration system incorporating a three way valve bypass. After ninety days of operation, liquid line drier and filter cartridges must be replaced.
- e. After the refrigerant piping installation has been completed the refrigerant piping system shall be pressure tested using, Freon mixed with nitrogen/carbon dioxide at a pressure of 20 Kg per Sq. cm. (High side) and 10 Kg per Sq. cm (Low side) pressure shall be maintained on the system for a minimum of 12 hours. The system shall then be evacuated to a minimum vacuum of 70 cm. of mercury and held for 24 hours, during which time, change in vacuum shall not exceed 12 cm of mercury. Vacuum shall be checked with vacuum gage.
- f. All refrigerant piping shall be installed strictly as per the instructions and recommendations of air conditioning equipment manufacturers.

#### **16. Testing & Balancing:**

- a. All piping shall be tested to hydrostatic test pressure of at least two and half times the maximum operating pressure, but not less than 24 hours. All leaks and defects in joints revealed during the testing shall be rectified and gotten approved at site.
- b. Piping repaired subsequent to the above pressure test shall be retested in the same manner.
- c. System may be tested in sections and such sections shall be securely capped, then retested for entire system.
- d. The contractor shall give sufficient notice to all other agencies at site, of his intention to test a section or sections of piping and all testing shall be witnessed and recorded by Owner's site representative.
- e. The contractor shall make sure that proper noiseless circulation of fluid is achieved through all coils and other heat exchange equipment in the system concerned. If proper circulation is not achieved the contractor shall rectify the defective connection. He shall bear all expenses for carrying out the above rectifications, including the tearing up and refinishing of floors and walls as required.

- f. The contractor shall provide all materials, tools, equipment, instruments, services and labour required to perform the test.
- g. Complete certified report shall be submitted for evaluation and approval. Upon approval, four copies of the balancing report shall be submitted with complete drawings and documents.

**17. Refrigerant Piping**

17.1 All refrigerant piping for the VRV/VRF system shall be carried out using hard drawn seamless copper pipe using either soft, half hard or hard pipes as per chart below:

17.1.1 The piping thickness shall be as follows:

OD(Inch)	OD(mm)	Min. Wall Thickness (mm)	Soft	Half Hard or Hard
1/4"	6.35	0.80	√	√
3/8"	9.52	0.80	√	√
1/2"	12.70	0.80	√	√
5/8"	15.88	1.00	√	√
3/4"	19.05	1.00	√	√
7/8"	22.20	1.00	X	√
1.1/8"	28.58	1.00	X	√
1.3/8"	34.92	1.10	X	√
1.5/8"	41.28	1.25	X	√

17.2 The branching of refrigerant piping from the main line shall be carried out using either specially designed ‘Tee’ connectors or ‘Y’ joints. These joint should ensure that each branch receives the required refrigerant flow.

17.3 All pipe sizing shall be on the basis of sizing data of the concerned manufacturer and should ensure adequate oil return back up to the compressor.

**18. Pipe Insulation**

**18.1 Refrigerant Pipe Insulation**

18.1.1 The whole of the liquid and suction refrigerant lines including all fittings, valves and strainer bodies, etc. shall be insulated with 19mm thick Nitrile close cell rubber, so that condensation does not occur.

18.1.2 The joints shall be properly sealed with synthetic glue to ensure proper bonding of the ends.

19. **Drain pipe insulation**

- 19.1 Drain pipe carrying condensate water shall be insulated with 6 mm nitrile rubber insulation having K value 0.037 W/mk at a mean temperature of 20oC at min.density of 55 kg. /m3.
- 19.2 The joint shall be properly sealed with synthetic glue to ensure proper bonding of the ends.

20. **Centralized Intelligent Touch Remote controller**

- 20.1 A multifunctional compact centralized controller shall be provided with the system.
- 20.2 The Graphic controller shall act as an advanced air conditioning management system to given complete control of VRV/VRF air conditioning equipment. It shall have ease of use for the user through its touch screen. Icon display and colour LCD display.
- 20.3 It shall be able to control up to 64 groups of Indoor Units with the following functions:
- 20.3.1 Starting/stopping of air-conditioning as a zone or group of individual units.
- 20.3.2 Temperature setting for each Indoor units of zone.
- 20.3.3 Switching between temperature control modes, switching of the fan speed and direction of airflow, enabling/disabling of individual remote controller operation.
- 20.3.4 Monitoring of operation status such as operation mode & temperature setting of individual indoor units, maintenance information, trouble shooting information.
- 20.3.5 Display of air conditioner operation history.
- 20.3.6 Daily management automation through yearly schedule function with possibility of varying schedules.
- 20.3.7 The controller shall have wide screen, user friendly colour LCD display which could be wired by a non-polar 2 wire transmission cable to a desired location from the Indoor unit.

### List of Approved 'Makes'

**Note :**

S. No.	Items	Approved Makes
	<b>EQUIPMENT/UNIT</b>	
1.	VRV/VRF System/Split units	Daikin/Mitsubishi Electric/ Trane/ /Hitachi/O-General.
	<b>FANS</b>	
1.	Inline Fan/Propeller Fan	Systemair/Air Flow/Magneto
2.	Fan Section/HRV	Edgtech/Crystal/VTS
	<b>PIPING</b>	
1.	Refrigerant Copper Pipe	Mettube/Totaline/Rajco Metals/Jindal Refrigeration
2.	PVC Drain Pipe	Polypack/Supreme/Akg/BEC
	<b>INSULATION</b>	
1.	Nitrile Rubber	A-flex /Armaflex/superflex/K-flex/Supreme
2.	Crossed linked Polyethylene	Torcellene/Thermobreak/Supreme
	<b>ELECTRICAL</b>	
3.1	Electrical Panel Board/ Motor Control Centre (Power Coated)	EAP, Tricolite, CWS, Electra Power, RR Control
1.	Power Cable	KEI/Gloster/ Rallison/National/Polycab
2.	Control Cable	KEI/ Gloster / Rallison/National/Polycab
3.	XLPE / PVC Insulated Aluminum Conductor Armored Power Cables	Skytone/Universal/Delton/NICCO/ RPG Asian
	<b>DUCTING &amp; GRILLS</b>	
1.	Rectangular	Zeco/ Voltas/Ecoduct
2.	Round	Atco/GP Spiro
3.	G.I. Sheet Metal Duct	Jindal/National/Tata
4.	Grilles/ Diffusers	Air Master/ Airflow/Dynamic/Ruskin-titus
5.	VCD/Gravity louvers/ Exhaust & fresh air louvers	Air Flow/ Mapro/Tristar/Dynamic
6	Fire Dampers	Airflow/ Tristar/ Dynamic

**Note:**

1. The contractor shall supply ISI marked material for the makes/brands indicated above. IN case, the firm is not manufacturing ISI marked material for any of the brands, first quality material shall be accepted. The sample of the material shall in either case have to be got approved from the Engineer – in – charge.
2. Material where no make / brand has been mentioned, IN this case ISI marked samples shall be submitted by the contractor for approval of Engineer.

3. For those class of materials, where no firm exists with ISI approval, sample of the first quality material of the firm shall be submitted for the approval of Engineer – in – charge.
4. Contractor will be responsible to ensure the quality of products listed in approved list of makes/brands. Contractor will have to replace the defective and substandard material at his own cost.



**Bill of Quantities**

S.N o.	Description of item	Unit	Quantity	Rate		Amount
				In Figures	In Words	
1.	Supply of air cooled & inverter based variable refrigerant volume/ variable refrigerant flow modular type air conditioning system with R410A suitable for 415 ± 10%, 50 Hz. The unit shall consist of indoor units and external condensing units and other accessories as listed below complete in all respects as under:					
	<b>Out Door Unit</b>					
1.1	12 HP	Each	02			
	<b>Note:</b> This item includes Supply & Installation of central control monitor panel (LCD colour display) ant its wiring up to appropriate location. Nothing shall extra be payable on this account.					
2	<b>Indoor Units</b>					
	Supply of Air Cooled VRF Indoor units equipped with pre-filter, fan section with low noise fan, multispeed motor, coil section with DX coil, electronic expansion valve, outer cabinet, drain pan, insulation, pipe connections, control and power panel with remote control etc. of various capacities as per specifications and drawings.					
	<b>Cassette Type Unit</b>					
2.1	3.2 TR	Each	04			
	<b>High Wall Type Unit</b>					

2.2	1.6 TR	Each	01			
2.3	1.0 TR	Each	04			
	<b>Note:</b> The Indoor units shall includes the cost of supply & installation of drain pump to drain out the water & Remote controller. Nothing shall extra be payable on this account.					
3	<b>Supply of Refnet Joints</b>	Nos.	07			
4	Installation Testing & Commissioning of air cooled & inverter based variable refrigerant volume/ variable refrigerant flow modular type air conditioning system with R410A suitable for 415 ± 10%, 50 Hz. The unit shall consist of indoor units and external condensing units and other accessories as listed below complete in all respects as under:					
4.1	Outdoor Unit 12 HP	Each	02			
	<b>Note:</b> This item includes necessary foundation of the outdoor units. Nothing shall extra be payable on this account.					
	<b>Cassette Type Unit</b>					
4.2	3.2 TR	Each	04			
	<b>High Wall Type Unit</b>					
4.3	1.6 TR	Each	01			
4.4	1.0 TR	Each	04			
5	Installation, testing & commissioning of REFNET JOINTS	Each	07			
6	<b>Refrigerant Piping</b>					
	Supply, installation, testing and commissioning of Interconnecting refrigerant pipe work with (19mm/13 mm thick) closed cell elastomeric nitrile rubber tubular					

	insulation between each set of indoor & outdoor units as per specifications, all piping inside the room shall be properly supported with MS hanger & clamps.					
6.1	22.2 mm O.D. (insulation : 13 mm)	Metre	15			
6.2	19.1 mm O.D. (insulation : 13 mm)	Metre	15			
6.3	15.9 mm O.D. (insulation : 13 mm)	Metre	25			
6.4	12.7 mm O.D. (insulation : 13 mm)	Metre	15			
6.5	9.5 mm O.D. (insulation : 13 mm)	Metre	50			
6.6	6.4 mm O.D. (insulation : 13 mm)	Metre	15			
	Note: It is to be noted that the refrigerant & drain piping shall be done under existing false ceiling. It shall ensure that the same shall not be damaged during execution of the work. In case any damage occur to false ceiling, the same shall be replaced by the contractor without any extra charge.					
7	<b>Drain Piping</b>					
	Supply, installation, testing and commissioning of rigid PVC piping complete with fittings, supports as per specifications and duly insulated with 6 mm thick cross linked poly ethylene foam .					
7.1	32 mm dia	Metre	20			
7.2	25 mm dia	Metre	20			
8	<b>Electrical &amp; Communication Cable</b>					
	Supply, installation, testing and commissioning of Electrical Cabling in PVC Conduit, complete with					

	fittings, supports as per requirement from nearest available point					
8.1	4 x 16 Sqmm Copper cable for ODU Unit	Rmt.	20			
8.2	3 x 1.5 Sqmm Copper Cable for Indoor Unit	Rmt.	35			
8.3	3 x 1.0 Sqmm Shielded Cable for Communication	Rmt.	150			
9	Supply of M S Stand for Outdoor Units	Nos.	02			
<b>Total Amount</b>						

**Total Amount in words**

**(Signature & Stamp of the Bidder)**