



# **National Bank for Agriculture and Rural Development**

## **T E N D E R**

## **VOLUME - I**

**FOR AIR-CONDITIONING, ALLIED ELECTRICAL, PIPING, DUCTING WORKS,  
ETC. ON TURNKEY BASIS USING VRF / VRV SYSTEM FOR REGIONAL OFFICE  
BUILDING AT PUNE**

**ISSUED TO : -----**

---

*Last date of submission of Tender 2.00 p.m. on 03/07/2008*

**HVAC CONSULTANTS**

**ACR PROJECT CONSULTANTS**

**VIJAY APTS. , 39/35 ERANDAVANA, PUNE - 411 004**

**TEL : 020 – 25464327 ; TELFAX : 020-25439209**

**E-MAIL : asurange@vsnl.com**

**NATIONAL BANK FOR AGRICULTURE AND RURAL DEVELOPMENT**  
**REGIONAL OFFICE BUILDING FOR NABARD AT SHIVAJINAGAR, PUNE**

**I N D E X**

<b>S. No. CONTENT</b>	<b>PAGE NO.</b>
<b><u>Volume - I</u></b>	
1. NOTICE INVITING TENDER	1 - 3
2. FORM OF TENDER	4 - 5
3. INSTRUCTIONS TO BIDDERS	6 - 12
4. ARTICLE OF AGREEMENT	13 -16
5. GENERAL CONDITIONS OF CONTRACT	
(i). Interpretations	17
(ii) Scope of Contract	18
(iii) Drawings and Specifications	19
(iv) Schedule of Quantities	20
(v) Sufficiency of Schedule of Quantities	20
(vi) Contractor to provide everything necessary	20
(vii) Authorities, Notices, Patent Rights & Royalties	21
(viii) Materials & workmanship to conform to Description	21
(ix) Setting Out	22
(x) Contractors Superintendence and Representative on the Work	22
(xi) Dismissal of Workmen	22
(xii) Access to Works	22
(xiii) Role of the Consultants / Bank's Engineer	23
(xiv) Assignment or Sub-letting	24
(xv) Approval of suppliers	24
(xvi) Measurement of Works	24
(xvii) Prices for Extras etc. Ascertainment of	24

(xviii)	Removal of improper work and materials	26
(xix)	Defects after completion	26
(xx)	Certificate of Virtual Completion	27
(xxi)	Other persons engaged by the Employer	27
(xxii)	Unfixed materials	27
(xxiii)	Contractor's Liability and insurance	27
(xxiv)	To define Terms and Explain Plans	31
(xxv)	Date of Completion	31
(xxvi)	Delay and extension of time	31
(xxvii)	Damages for Non-Completion	32
(xxviii)	Failure by Contractor to Comply with Consulting Engineer / Employer's instructions	32
(xxix)	Suspension of Works	32
(xxx)	Certificate and Payments	34
(xxxi)	Notices	36
(xxxii)	Termination of Contract by the Employer	36
(xxxiii)	Termination of the Contract by the Contractor	38
(xxxiv)	Matter to be finally determined by the Consultant / Employer	39
(xxxv)	Foreclosure of Contract in full or in part	39
(xxxvi)	Inspection of Site and sufficiency of Tender	39
(xxxvii)	Total Security Deposit	40
(xxxviii)	Opening of Works	41
(xxxix)	Removal of offensive matters	41
(xxxx)	Variations not to vitiate contract	42
(xxxxi)	Settlement of Disputes by Arbitration	42
(xxxii)	Technical Audit Clause	43
(xxxiii)	Appendix to Conditions of Contract	45
(xxxiv)	Contractor's Liability and Insurance Summary	46

(xxxv)	Proforma 47 'C' – Indenture for Secure Advance	47
(xxxvi)	Proforma 47 'D' – Indemnity Bond	50
(xxxvii)	Proforma 47 'E' – Items Qualified for Secure Advance	51
(xxxviii)	Proforma 47 'F' – Virtual completion of certificates	52

## 6. SPECIAL CONDITIONS OF CONTRACT

(i)	Site	53
(ii)	Contractor's Working Area	53
(iii)	Entry to Site	53
(iv)	Life Saving & First Aid Appliances	53
(v)	Scope of Work	53
(vi)	Standard Specification and Code Practices	54
(vii)	Statutory Regulation Inspection of Testing	54
(viii)	Completion of Electrical Staff	55
(ix)	Drawing, Maintenance Manual etc.	55
(x)	Co-ordination	56
(xi)	Works of Owners and other agencies	56
(xii)	Existing Services	56
(xiii)	Scaffolding	57
(xiv)	Keeping Site Clean	57
(Xv)	Avoidance of Nuisance	57
(xvi)	Prevention of Fire	57
(xvii)	Advertising	57
(xviii)	Supervisory Staff	57
(xix)	Progress Report	57
(xx)	Returns of Labour & Plant	58
(xxi)	Returns and Drawings	58

(xxii)	Procurement of Material	58
(xxiii)	Names of Manufactures and copies of orders	58
(xxiv)	Test Certificates	58
(xxv)	Records and Usage of Materials	58
(xxvi)	Quality Certificates of Materials	58
(xxvii)	Material Samples	59
(xxviii)	Dispatch of Material	59
(xxiv)	Protection in Transit	59
(xxx)	Safe custody of Storage	59
(xxxi)	Testing	59
(xxxii)	Painting	61
(xxxiii)	As Built Drawing	61
(xxxiv)	Other Information	62
(xxxv)	Mobilization Advance	62
(xxxvi)	Terms of Payment	62
(xxxvii)	Wages of Labour Employed by the contractor	62
(xxxviii)	Issue of Extra Drawings	63
(xxxix)	Execution of Work	63
(xxxx)	Schedule of Quantities, No claim because actual quantities differ from Preliminary statement	65
(xxxxi)	Programme of Work	65
(xxxxii)	Work at Night	66
(xxxxiii)	Work on Holiday	66
(xxxxiv)	Action where there is no specification	66
(xxxxv)	Occupation of partially completed building by the Employer	66
(xxxxvi)	Information to be supplied by the Contractor	66
(xxxxvii)	Indebtedness and Liens	67
(xxxxviii)	Material supplied by the Employer	67

(xxxxix)	Completion Period	67
(xxxxx)	Performance Guarantee	68
(xxxxxi)	Other Important Conditions	68
(xxxix)	Safety Codes	69

\*\*\*\*\*

## NOTICE INVITING TENDER

Dear Sirs,

**Sub : INVITATION TO BID FOR Supply, installation, testing and commissioning of Air conditioning, Allied Electrical, piping, ducting works etc. On turn key basis using VRF/VRV system for one wing of NABARD Regional office Building, Pune.**

1. Bank proposes to take up central air conditioning of the entire office building, consisting of eight wings, in a phased manner. Presently, Bank proposes in the instant tender, to take up one wing for air-conditioning. The Bank, may , at its discretion, appoint the same contractor who qualify for the present work, at the same rates terms and conditions, for the remaining work to be taken up in phases. Contractors are requested to take note of the above while quoting for the present work. Bank shall without assigning any reason may decide to invite fresh offers for the remaining work to be taken up in a phased manner or in one go or not to take up any work all together, and in that case the contractor shall have no claim whatsoever on the Bank. Tenders are invited from eligible interested reputed VRV/VRF based AC Manufacturing firms or their authorized dealers for the captioned work fulfilling the following criteria. AC manufacturing firms/ their authorised dealers should have minimum experience of 3 years in undertaking similar type of work having proper supporting staff and infra structural facilities. The firms should have successfully executed minimum three similar works individually costing not less than Rs. 10.00 Lakh, during last three years ending last day of month previous to the one in which applications are invited.
2. Tender documents will be made available from the Premises section, National Bank for Agriculture & Rural Development, 54, Wellesley Road, Shivajinagar, Pune 411005 (Telephone : 25500106, 25500264 ), from 02/06/2008 to 03/07/2008 during office hours on payment of **Rs.500/- (Five hundred only) towards the cost of tender document** by demand draft drawn on any Nationalised / Scheduled bank payable at Pune drawn in favour of National Bank for Agriculture and Rural Development.
3. The tender documents can also be downloaded from the NABARD web site **www.nabard.org upto 03/07/2008**. Those who download the tender documents from the web site will be required to submit a DD of Rs.500 towards the cost of the tender document.
4. The sum of Rs.500/- towards cost of tender document is not refundable. No other form of payment will be accepted.
5. The scope of works includes supply, installation, testing and commissioning of Air Conditioning equipments, piping, ducting works and allied civil and electrical works etc. On turn key basis using VRF/ VRV system for one wing of NABARD Regional Office Building, Shivaji nagar, Pune.
6. The sealed tender in the prescribed form **in two separate envelopes** as follows should be addressed to Shri.J.R.Sarangal, Chief General Manager, National Bank for Agriculture & Rural Development, 54, Wellesley Road, Shivajinagar, Pune

411 005, and super scribed as "**Tender for SITC of AIR-CONDITIONING, PIPING, DUCTING WORKS and Allied Electrical works etc. ON TURNKEY BASIS USING VRF / VRV SYSTEM FOR NABARD REGIONAL OFFICE BUILDING, SHIVAJINAGAR,PUNE**".

**(i) Envelope No.1** shall contain sum of Rs.500.00 **towards cost of tender document** if downloaded from web site and Earnest Money deposit of Rs.40,000.00 in the form of demand draft on any Nationalised / Scheduled Bank payable at Pune drawn in favour of National Bank for Agriculture and Rural Development along with duly filled and signed, complete in all respects, Volume I of tender document comprising NIT, Form of tender, instructions to bidders, Article of Agreement , General condition of contract, special conditions of contract and Volume II comprising Technical specifications. Documentary evidence of PAN number of the firm and experience certificate from their clients of having executed satisfactory three or more similar works costing as mentioned before, a copy of the authorization letter from the AC manufacturing firm, in case of authorised dealers. The tenders submitted without EMD are liable to be rejected.

**( Copies of completion certificates, indicating value of work and period of work may be enclosed)**

**(ii) Envelope No. 2** shall contain Volume - III of the tender booklet containing BOQ or Price bids (in duplicate) duly filled and signed complete in all respects. ( Any conditions mentioned in envelope - 2 shall not be taken in to consideration for evaluation of the tender)

**(iii)** Both the envelopes shall be submitted to Shri.J.R.Sarangal, Chief General Manager, National Bank for Agriculture & Rural Development, 54, Wellesley Road, Shivajinagar, Pune - 411 005, **not later than 14.00hrs on 03/07/2008.**

**(iv)** Envelope No. 1 will be **opened on the same date i.e. 03/07/2008 at 15.00 hrs.,** at the above address in the presence of the tenderers or their authorized representatives who choose to be present.

**(v) Envelope No. 2 shall be opened only in respect of those tenderers who have complied with the requirements as laid down in Envelope. No.1/ vol I. Opening of envelope No.2 shall be done at a later date which shall be intimated after scrutiny of the documentary evidence submitted by the tenderers.**

**(vi)** After opening of the Envelope No.1 and assessing the Conditions and verifying the eligibility of the tenderers, the Employer will, inform the eligible tenderers regarding any modifications in the tender conditions. Bidders who agree to the changed conditions along with original in TOTO will be allowed to make modifications if they so wish, in their tender prices by means of a letter to be submitted in sealed cover which along with their price bid, will form the final price bid. The tender will be rejected if any bidder proposes any deviation from the above in this letter.

7. The tenderer will have to quote for all the sections included in the tender documents.

8. NABARD reserves the right to accept or reject any tender, either in whole, or in part without assigning any reason for doing so and do not bound themselves to accept the lowest or any other tender.
9. **The tenderers may please note that** NABARD also reserves the right to divide and distribute the work to more than one contractor. In such cases the decision will be solely at the discretion of NABARD including that of assignment of works. You are advised to ensure strict observance of commercial aspect of this tender and also of the following points : -
- (1) Time of completion - 06 months reckoned from the 10th day of issue of work order.
  - (2) The onus of Cooperation with other contractors for any discipline in services lies on the tenderer.
  - (3) It may please be noted that all documents that comprise the tender documents should be signed and sealed by the tenderer.
  - (4) No part of the bill of quantities including specifications should be deleted.
  - (5) Validity of offer : 120 days from the date of opening of price bids.
  - (6) Liquidated damages : 0.25% of the accepted tender value per week or part thereof week beyond the scheduled date of completion subject to a maximum of 5% of accepted tender value.
  - (7) Defects Liability Period : 12 months from the date of virtual completion, as certified by NABARD.
10. The successful tenderer will enter into an agreement with NABARD as per the standard format within 14 days on receipt of Letter of Acceptance of tender from NABARD.

This Notice Inviting Tender (NIT) shall also form part of the tender document.

Thanking you

Yours faithfully,

---

CHIEF GENERAL MANAGER  
NATIONAL BANK FOR AGRICULTURE AND RURAL DEVELOPMENT  
REGIONAL OFFICE  
54, WELLESLEY ROAD,  
SHIVAJINAGAR, PUNE.

## FORM OF TENDER

Place :

Date :

The Chief General Manager  
National Bank for Agriculture  
and Rural Development  
Regional Office,  
54, Wellesley Road,  
Shivajinagar,  
Pune

Dear Sir,

Sub :

### **TENDER FOR AIR-CONDITIONING, ALLIED ELECTRICAL, PIPING, DUCTING WORKS, ETC. ON TURNKEY BASIS FOR THE REGIONAL OFFICE BUILDING FOR NABARD AT PUNE.**

1. Having examined the conditions of contract, the plans, specifications and schedule of quantities, and having satisfied ourselves as to the location of the site and working conditions, I/We hereby offer to execute the above works at the respective rates which I/We have quoted for the items of the schedule of quantities and in accordance in all respects with the specifications, designs, drawings and instructions in writing referred to in conditions of tender, the Articles of Agreement, Special Conditions, Schedule of Quantities and Conditions of Contract and with such materials as are provided for, by and in all other respects in accordance with such conditions so far as they may be applicable.
2. I/We herewith deposit **Rs.40000.00 (Rupees Forty thousand only)** by Demand Draft of Nationalised Bank (issued by a Scheduled Bank) drawn in favour of National Bank for Agriculture and Rural Development, payable at PUNE as Earnest Money for the due execution of the works at my/our tendered rates, together with any variations in prices approved by the employer.
3. In the event of this tender being accepted, I/We agree to enter into and execute the necessary Agreement required by you. I/We do hereby bind myself/ourselves to forfeit the aforesaid deposit of Rs.40000.00 only in the event of our refusal or delay in signing the Contract Agreement.
4. I/We further agree to complete the work within Six (6) months from the 10th day of issue of work order by Bank (including monsoon month).

5. We agree not to employ Sub-Contractors other than those that may be approved by you.
6. I/We understand that you are not bound to accept the lowest offer or bound to assign any reasons for rejecting our tender.
7. I/We agree to valid our offer open for 120 days from the date of opening of Envelope No.2.
8. I/We submit the duly completed Tender Documents in the prescribed tender Form in two separate envelopes as detailed in clause 3 of notice inviting Tender (to the Chief General Manager, National Bank for Agriculture and Rural Development, Regional Office, for 54, Wellesley Road, Shivajinagar, Pune.

Thanking you,

Yours faithfully

Signature of Contractor/s with Seal & Address

## **INSTRUCTIONS TO BIDDERS**

### **1 LOCATION**

1.1 The site is at 1st Floor 'B' wing, NABARD, 54, Wellesley Road, Shivajinagar, Pune, the Regional Office for NABARD.

1.2 Bidders must get acquainted with the proposed work and study drawings, specifications of contract and other conditions carefully before tendering. No request of any change in rates or conditions for want of information on any particular issue shall be entertained after receipt of tenders.

#### **1.3 Site Visit**

The bidders 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 laws, regulations and practice.

### **2 SUBMISSION OF TENDER**

2.1 The Sealed tenders in the prescribed tender form in two separate envelopes should be submitted to the Chief General Manager, National Bank for Agriculture & Rural Development, Regional Office, PUNE as described below :

Envelope No.1 - To contain

- a) Earnest Money Deposit.
- b) Volume I - Comprising of (both copies)
  - (1) Notice Inviting Tender
  - (2) Form of Tender
  - (3) Instructions to Bidders
  - (4) Article of Agreement
  - (5) General condition of Contract
  - (6) Safety Codes
  - (7) Special Conditions of Contract
- c) Volume II - Comprising of (both copies)
  - (1) Technical Specifications

Envelope No 2 - To contain- Volume III -

I. Duly Priced Bill of Quantities (both copies ) completed in all respect.

II. Tender Drawings.

This shall not include any conditions whatsoever. In case any conditions are included in Envelope No.2, the same shall not be taken into consideration. The tender in such cases is liable to be rejected.\

The sealed envelopes containing Tender Documents shall be super scribed as "TENDER FOR AIR-CONDITIONING, ALLIED ELECTRICAL, PIPING, DUCTING WORKS, ETC. ON TURNKEY BASIS and submitted to the above office as given in Para 6 of NIT.

2.2 The tenderer shall clearly indicate on each copy of the sealed tender under their full signature whether it is original or duplicate copy

2.3 Volume-III of offer shall contain only the "Bill of Quantities" and no conditions whatsoever. Any Conditions/Stipulations mentioned in Volume-III shall not be taken into consideration for evaluation of the tenders and such tender is liable to be rejected.

2.4 You are requested to quote strictly as per the terms and conditions, specifications, standards, given in the tender document and not to stipulate any deviations. However, deviations, if unavoidable, should be indicated separately in Envelope No. 1, indicating the specific page number and clause number against which the deviations if any are proposed.

2.5 Addenda to this tender document, if issued, must be signed and submitted along with the tender document. The bidder should write clearly the revised quantities in "Schedule of Rates" of Tender document and should price the work based on the revised quantities when amendment for quantities are issued in addenda.

2.6 All Pages to be Initialed

All signatures in tender documents shall be dated as well. All pages of tender documents shall be initialed at the lower hand corner or signed wherever required in the tender papers by the bidder or by a person holding power of attorney authorizing him to sign on behalf of the bidder before submission of tender (A letter authorizing the signatory should accompany the tender).

2.7 Rates to be in Figures and Words

The bidder should quote in English both in figures as well as in words the rates and amounts tendered by him in the Bill of Quantities for each item and in such a way that interpolation is not possible. The amount for each item should be worked out and entered and requisite totals given of all items, both in figures and words. The tendered amount for the work

shall be entered in the tender and duly signed by the bidder. If on check there are differences between the rates quoted by the bidder in words and in figures or in the amount out by him, the following procedure shall be followed :

When there is a difference between the rates in figure and in words, the rates which correspond to the amount worked out by the bidder shall be taken as correct.

When the amount of the item is not worked out by the bidder or it does not correspond with the rate written either in figure or in words, then the rate quoted by the bidder in words shall be taken as correct.

When the rate quoted by the bidder in figures and in words tallies but the amount is not worked out correctly, the rate quoted by the bidder shall be taken as correct and not the amount.

## 2.8 Corrections and Erasures

All corrections, and alterations in the entries of tender papers should be signed and dated in full by the bidder. Corrections with fluid and overwriting are not permitted.

2.9 The tender shall contain the names, residence and place of business of person or persons making the tender and shall be signed by the bidder with his usual signature. Partnership firms shall furnish the full names of all Partners in the tender. It should be signed in the partnership name by all the partners or by duly authorized representative followed by the name and designation of the person signing. Tender by Corporation shall be signed by an authorized representative, and a Power of Attorney or any proof of Attorney on their behalf shall accompany the tender (Envelope I). A copy of the partnership deed of the firm with names of all partners shall be furnished.

THE LANGUAGE FOR SUBMISSION OF TENDER WILL BE ENGLISH.

### 1 Witness

Witness and sureties shall be persons of status and propriety and their names, occupation and address shall be stated below their signatures.

### 2 DRAWINGS

Drawings as mentioned in the list of Drawings enclosed in this documents are indicative only and may be modified to suit final design/site conditions.

### 3 INFORMATION REQUIRED ALONGWITH TENDER

The following details are required to be submitted along with the tender :

d) List of equipment proposed to be deployed for work.

- e) Site Organization Chart with bio-data of Resident Engineer and key personnel proposed to be deployed at site.
  - f) Latest of Income Tax, Sales Tax Clearance Certificates.
  - g) Power of Attorney in the name of persons who has signed the tender document.
  - h) Bar Chart indicating execution of work, manpower schedule and material delivery schedule to be enclosed.
  - i) Permanent Account Number (PAN) allotted by Income Tax authorities.
- 1 Any printing of typographical errors/omission in tender document shall be referred to Consultants / Bank's Engineer and his interpretation regarding correction shall be final and binding on Contractor.

## 2 TRANSFER OF TENDER DOCUMENTS

Transfer of tender documents purchased by one intending bidder to another is not permitted.

## 3 EARNEST MONEY

8.1 The bidder must pay the amount of Earnest Money Deposit as mentioned in clause 2 of Form of Tender. Earnest Money Deposited by Tenderers will not carry any interest.

- j) The Earnest Money Deposit paid by the successful bidder when he submitted his tender shall be held by Employer as security for the execution and due fulfillment of the contract. No interest shall be paid on the said deposit. The Earnest Money deposit shall be forfeited in case the successful bidder fails to commence the work awarded to him within the prescribed time limit or fails to execute the agreement.
- k) 5% of the value of the work done will be deducted by the Employer from each payment to be made to the Contractor towards Retention Money until the Retention Money and EMD together amounts to 5% of the accepted value of tender. This total amount will be termed as Security Deposit. This Retention Money/ Security Deposit so deducted/collected will carry no interest. After the Consultant issuing a 'Virtual Certificates including clearance certificate from Labour Officer is obtained and after rectification of defects pointed out during the defects liability period or after completion of defects liability period whichever occurs later. The Bank will release 50% of the SD after virtual completion certificate. The balance 50% will be released by the Bank after expiry of the defect liability period and it will not be released against any Bank Guarantee etc.

All compensation or other sums of the money payable by the Contractor to the Employer under the terms of this contract may without prejudice to the Employer's rights under Law be deducted from the Security Deposit if the amount so permits and the Contractor shall, unless such deposit has become otherwise payable, within ten days after such deduction make good in cash the amount so deducted, failing which the Employer shall be entitled to deduct the same from any money due to the Contractor.

8.2 The tenderers must submit Earnest Money with the Tender, failing which tender will not be considered.

8.3 The E.M.D. of the unsuccessful bidders will be refunded within a reasonable period of time without any interest.

8.4 The E.M.D. deposited by successful bidder(s) will be retained towards the security deposit for the fulfillment of the contract but shall be forfeited if the bidder fails to start the work within a period of twenty-one days from the date of issue of Work Order.

## 1 VALIDITY

Tenders submitted by bidders shall remain valid for acceptance as per clause 8 of Form of Tender. The bidders shall not be entitled during the period of validity, without the consent in writing of Consultants / Bank's Engineer to revoke or cancel his tender or to vary the tender given or any terms thereof.

## 2 ADDENDA

10.1 Addenda to the tender document may be issued prior to the date of opening of the priced tenders to clarify documents or to reflect modifications to the design or contract terms.

10.2 Each addendum issued by the Consultants / Bank's Engineer will be distributed to each person or organization to whom a set of tender documents has been issued. Each recipients will submit the same along with his tender. All addenda issued by the Consultants / Bank's Engineer shall become part of Tender Documents.

## 3 RIGHT TO ACCEPT OR REJECT TENDER

11.1 The acceptance of a tender will rest with the Employer who do not bind themselves to accept the lowest tender and reserve to themselves authority to reject any or all the tenders received without assigning any reasons. They also reserve the right of accepting the whole or any part of the tender and the Bidders shall be bound to perform the same at the rates quoted. All tenders in which any of the prescribed conditions are not fulfilled or are incomplete in any respect or there is any correction not duly signed and dated by the bidder are liable to be rejected.

11.2 The job may be awarded to one or more agencies duly splitting the work at the entire discretion of the Consultants / Bank's Engineer/Client. The quoted rate shall hold good for such an eventuality.

4 TIME SCHEDULE

The time allowed to complete the work shall be 6 months reckoned from the 10th day of issue of work order.

5 LIQUIDATED DAMAGES FOR DELAYED COMPLETION

Liquidated damages for delayed completion shall be 0.25% of the accepted cost of tender per week beyond the scheduled date of completion subject to a maximum of 5% of the accepted cost of tender.

6 RATES

Clients are not concerned with any rise or fall in the prices of any materials. The rates quoted shall include all costs, allowances, taxes including VAT, works contract tax or any other charges including labour wages levied by central/ state/local body etc. which may be enacted from time to time by the State or the Central Government. Under no circumstances shall Clients be held responsible for compensation or loss to contractor due to any increase in the cost of labour or material etc. as result of variation of statutory levies.

7 WATER AND ELECTRICITY

Electricity :- Electric supply at 415 Volts, 3 Phase plus neutral shall be made available and the power will be given free of charge. For taking power from one of the existing feeder, the contractor shall make his own arrangement for its use in erection, testing and commissioning work and make good the system after the work is over. Damage, if any, caused by them will have to be made good by them at their cost."

Source of water:- water will be made available to the contractor for his use without any charge.

8 SIGNING OF THE CONTRACT

The successful bidder shall be required to execute an agreement in the Performa attached with this Tender document within 14 days from the date of issue of Work Order. In the event of failure on the part of the successful bidder to sign the agreement within the above stipulated period, the earnest money will be forfeited and the acceptance of the tender shall be considered as cancelled.

9 On acceptance of the tender, the name of the accredited representative of the Contractor, who would be responsible for taking instructions from the Consultants / Bank's Engineer, shall be communicated to Employer/Consultant and also to the client.

## 10 SCOPE OF WORK

The scope of work briefly described below :

- l) Supply, installation, testing and commissioning of variable refrigerant flow type machines including outdoor units, indoor units, interconnected piping, installation, cabling wiring of electric panels, finishing of all works, system balancing, etc. and all associated electric works as per BOQ.
- m) Preparation of working drawings such as concealed conduit layouts, foundation details of all electrical equipment, layout of Air-conditioning work, electrical work, single line diagrams. Submitting these drawings after getting approval from Bank/Consultant and finally to approving authorities and getting the installation approved by Electrical Inspectorate/Local authorities.
- n) Testing and commissioning of all equipment, panels and distribution boards and submit the test reports to local authorities as per relevant Rules Bye laws of Electrical Power Supply Company and Electrical Inspectorate with a copy to Bank/Consultant.
- o) For details refer Special conditions and Technical specifications.

The scope of work is broadly described in clause No.5 of Special conditions of contract shall be referred to.

The contractor shall be conversant with all codes of practice, rules of local authorities and procedures for obtaining approvals from electrical Inspector or as the case may be.

## 1 RETENTION MONEY

The total retention money recovered from running bill shall be 5% of contract value including EMD. The retention money will be deducted from running account bill @ 5% of gross value of each running bill.

The contractor would be paid 50% of the above retention deposit after the virtual completion certificate is issued by the Consultants / Bank's Engineers and the installation handed over to Bank and remaining 50% will be paid after the completion of defect liability period as mentioned in General Conditions of Contract.

- 2 Any further information may be obtained and detailed drawings may be seen at the office of Consultant in the following address.

Telephone number	:	020-25464327, 25439209
Fax. No.	:	020-25439209
Email.	:	asurange@vsnl.com
Address	:	ACR Project Consultants, Vijay Apts., 39/35, Erandwana,

Pune - 411004

## **ARTICLES OF AGREEMENT**

ARTICLES OF AGREEMENT made the \_\_\_\_\_ day of \_\_\_\_\_ 2008 between the National Bank for Agriculture and Rural Development, a body constituted by the NABARD Act 1981 and having its Head Office at C-24, G Block, Bandra-Kurla Complex, Bandra(E) Mumbai-400051 and Regional Office at 54, Wellesley Road, Shivajinagar, Pune (herein called as 'Employer') which expression shall, unless repugnant to the context mean and include its successors and assigns of the one part and of \_\_\_\_\_ of

\_\_\_\_\_ (hereinafter called "the Contractor") which expression shall unless repugnant to the context mean and include its successors and assigns of the other part.

WHEREAS The Employer is desirous of getting executed Air-conditioning, Ventilation and allied Electrical, civil, plumbing, piping, ducting and false ceiling works at the 1st Floor, 'B' wing of office complex Regional office at 54, Wellesley Road, Shivajinagar, Pune - 411005 and has caused drawings, specifications and schedule of quantities describing the works to be done; prepared by M/s. ACR Project Consultants, Vijay Apts., 39/35, Erandwana, Pune 411004 .

The Employer has appointed M/s. ACR Project Consultants., as Consultant having office at Vijay Apts., 39/35, Erandwana, Pune 411004 (hereinafter referred to as the Consultants). The consultant/ Bank's Engineer will monitor, control and supervise the day to day works and progress thereof on behalf of the employer.

THE SAID DRAWINGS numbered 1 to 3 inclusive and the Specifications and Schedule of Quantities have been signed by or on behalf of the parties hereto are annexed as Annexure.

AND WHEREAS

The Contractor has agreed to execute the said works viz. installation of Air-conditioning Ventilation system & allied Electrical works subject to the provisions hereinafter contained and subject also to the instructions to the Bidders, general conditions of contract, special conditions, specifications, the said drawings and the schedule of quantities, all of which are hereinafter collectively referred to as 'the said conditions', strictly in accordance with the said drawings annexed hereto and the Specification and Bill of Quantities referred to above at or for the respective rates set out in the Bill of Quantities annexed hereto and marked as Vol.III, amounting to the sum as there under arrived at or such either sum as may become payable hereunder (herein under referred to as the said contract amount).

NOW THEREFORE THIS AGREEMENT WITNESSETH THAT :-

1. In consideration of the said Contract Amount to be paid by the employer to the contractor at the time and in the manner set forth in the said

conditions and in accordance with the schedule of payments, the Contractor shall upon completion subject to the said conditions execute and complete the work shown in the said Drawings and described in the said Specifications (Vol.II) and Bill of Quantities (Vol.III).

2. The word "Consultant" shall mean M/s.ACR Project Consultants or in the event of their or any of them ceasing to be Consultants / Bank's Engineers as the case may for whatever reason, such other person or persons as shall be appointed by the Employer for that purpose PROVIDED always that no person subsequently appointed to be Consultants / Bank's Engineer shall be entitled to disregard any opinion or decision or approval or instruction given or expressed in writing by the Consultants / Bank's Engineer for the time being.
3. The said Conditions and the Annexure thereto shall be read and construed as forming part of this agreement and the parties hereto respectfully abide by, submit themselves to the said condition and perform the agreements on their part respectively contained in said conditions.
4. Tender documents containing notice to the Contractors, Conditions of Contract, Appendix thereto, Special Conditions of Contract, Technical Specifications and Schedule of Quantities with the rates entered therein, shall be read and stamped forming part of this agreement and the parties hereto shall positively abide by and submit themselves to the conditions and specifications and perform the agreements on their part respectively in conditions contained.
5. This Contract is neither a fixed lump sum Contract nor an item rate Contract, but is a Contract to carry out work to be paid for according to actual measured quantities and rates contained in the Schedule of Quantities and probable quantities provided in the said Conditions.
6. The Employer reserves to itself the right of altering the drawing nature of the work through the Consultants / Bank's Engineer by adding to, reducing or omitting any items of work or having portions of the same carried out without prejudice to this Contract.
7. a) The contractors should have experienced and competent staff which will enable them to ensure proper quality check on the materials, and who will ensure that the Contractor will carry out proper tests as required by the specifications and will supervise the day-to-day working and execution of contract works.  
b) If the Contractors have any doubt about the quality of any materials or any difficulty in supervision of the day to day work it shall be the duty of the Contractors to report the matter in writing forthwith to the Consultants / Bank's Engineer and for the time being, to suspend that portion of the work

about which difficulty is experienced and the Contractors will abide by the direction of the Bank.

c) The Contractors covenant and warrant that completed items of work as well as the entire work on completion will be in conformity with the Specifications and the terms and conditions of Contract and will be of proper quality and description.

8. Time shall be considered as the essence of this Agreement and Contractor hereby agrees to complete the work by Six (6) months as specified in clause 12 of Instructions to Bidders nevertheless, to the provisions of extension of time as contained in the said conditions.
9. The contract herein contained shall comprise not only the work mentioned above but all subsidiary works connected therewith within same site as may be ordered to be done from time to time by the Consultants / Bank's Engineer for the time being, even if such work may not be shown on the said drawings or described in the said schedule of specifications and quantities.
10. All payments by the Employer under this contract will be made at PUNE by cheque only.

All disputes arising out of or in any way connected with this agreement shall be deemed to have arisen at PUNE and only court at PUNE shall have jurisdiction to determine the same.

This agreement shall be signed in quadruplicate, the original document shall be kept in the custody of the Employer, the duplicate with Contractor, the triplicate with the Consultants / Bank's Engineers and the quadruplicate with the Regional Office, stamp duty shall be borne and paid by Contractor and Employer in equal proportion.

That the several parts of this contract have read by the Contractor and fully understood by the Contractor. The Contractor shall not be entitled for the payment for the quantities beyond the tendered quantities unless ordered for by specific written instructions from the Bank's Engineer.

IN WITNESS WHEREOF the Employer has set its hands hereunto and three duplicates hereunto through its duly authorized official and the contractor has caused these presents and three duplicates hereof under its common seal/by its duly authorized representative at the place and on the date and year first hereinabove written.

As witness our hands are affixed this day of \_\_\_\_\_ 2008.

Signed by the said

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Employer  
In the presence of

Witness No.1 \_\_\_\_\_

Address :

Witness No.2 \_\_\_\_\_

Address :

Signed by the said

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Contractor  
in the presence of

Witness No.1 \_\_\_\_\_

Address :

Witness No.2 \_\_\_\_\_

Address :

## **General Conditions of Contract**

### **1. Interpretations**

In construing these conditions and the specifications, Schedule of Quantities, Instructions to bidders and Contract Agreement, the following words, shall have the meanings herein assigned to them except where the subject or context otherwise requires :

- a) "Owner"/"Employer"/"Client" shall mean NATIONAL BANK FOR AGRICULTURAL AND RURAL DEVELOPMENT with its Head Office at C-24, G Block, Bandra-Kurla Complex, Bandra (E), Mumbai-400051 and Regional Office at 54, Wellesley Road, Shivajinagar, Pune – 411005 and shall include their heirs, legal representatives, assignees and successors.
- II. "Bank's Engineer" shall mean Engineer of NABARD authorized by the Regional Office , NABARD, Pune, to supervise and monitor the progress of the said work.
- III. "Contractors" shall mean the person, or persons, firm or company whose tender has been accepted by the Owner and shall include his/their heirs, and legal representatives, and the permitted assigns.
- IV. The "Consultant" shall mean M/s.A.C.R.Project consultants. appointed by NABARD for the said works.
- V. "Works" shall mean the works to be executed and recorded in accordance with the Contract and include all extra or additional or altered or substituted works as required and recorded for the performance of the Contract and "Site" shall mean the land and building and other places as shown on the site plan, on which the works are to be executed or carried out or places provided by the Employer for the purposes of the Contract.
- VI. "Contract Documents" shall include the Notice Inviting Tenders, the Articles of Agreements, the General Conditions of Contract, Special Conditions of Contract, the Schedule of Quantities, Specifications for Materials, Work-Sheet and mode of measurements and drawings pertaining to the work. All sections of this Contract Document are to be read together.
- VII. "Drawings" shall mean the drawings referred to in the specifications description of items etc., an any modifications of such drawings approved in writing by the Consultants / Bank's Engineer and such other drawings as may from time to time be furnished or approved in writing by the Consultants / Bank's Engineer and such other drawings issued by Consultants / Bank's Engineer.
- VIII. "Notice in Writing" or written notice shall mean a notice in written, typed or printed characters, sent (unless delivered personally or otherwise) proved to have been received by registered post to the last known private or business address or registered office of the

addressee and shall be deemed to have been received when in the ordinary course of post it would have been delivered.

- IX. "Act of Insolvency" shall mean any Act of Insolvency as defined by the Presidency Towns Insolvency Act, or the Provincial Insolvency Act or any Act amending such original.
- X. "Virtual Completion" shall mean that the works are in the opinion of the Consultants and Bank complete and fit for occupation and usage.
- XI. Words importing persons include firms and Corporation : Words importing the singular only also include the plural and vice versa where the context requires.
- XII. Headings and marginal notes to these conditions shall not be deemed to form a part there of or be taken into consideration in the interpretation or construction thereof or of the contract.

## **1. SCOPE OF CONTRACT**

The scope of work is briefly described in clause no.5 of Special Conditions of Contract. The Contractor shall carry out and complete the said works in every respect in accordance with this Contract and with the directions of and to the satisfaction of the Consultants / Bank's Engineer. The Consultants / Bank's Engineer may in their absolute discretion and from time to time issue further drawings and/or written instructions, details, directions and explanations which are hereafter collectively referred to as "Instructions" reflected either in the minutes or in any other form in regard to.

- a) The variation or modification of the design quality or quantity of works or the addition or omission or substitution of any work.
- b) Any discrepancy in or divergence between the Drawings or between the schedule of quantities and/or drawings and/or specifications.
- c) The removal from the site of any material brought thereon by the Contractor and the substitutions of any other materials thereof.
- d) The removal and/or re-execution of any works executed by the Contractor.
- e) The postponement of any work to be executed under the provisions of this Contract.
- f) The dismissal from the works of any person employed thereupon.
- g) The opening up for inspection of any work covered up.
- h) The amending and making good of any defects.
- i) Coordination of work with other agencies.

- j) The employer shall have a right to delete any item of work from the scope of contract and contractor shall not make any extra claim on this account.
- k) It shall be contractors responsibility to maintain the installation installed by him during the Defects Liability Period.

The contractor shall forthwith comply with and duly execute any work comprised in such Consultants / Bank's Engineer's instructions provided always that verbal instructions, directions and explanations given to the contractor or his representative upon the works by the Consultants / Bank's Engineer's shall be, if involving a variation, be confirmed in writing by the Contractor within 7 working days, and if not dissented from in writing within a further 7 days by the Consultants / Bank's Engineer such shall be deemed to be the Consultants / Bank's Engineer's instructions within the scope of the contract.

If Compliance with the Consultants / Bank's Engineer's instructions involves any variation, such variation shall be dealt with under Clause No. 18.

Where extra work cannot properly be measured and valued the contractor shall be allowed day work prices, provided that a written authority for day work is obtained by the contractor before the execution of the extra work and provided that in any case vouchers specifying the time daily spent upon the work countersigned by the Consultants / Bank's Engineer and the materials deployed, shall be delivered for verification to the Consultants / Bank's Engineer not later than the end of the week following that in which the work has been executed.

If the contractor fails to comply with Consultants / Bank's Engineer's instructions within a fortnight after the written notice from the Consultants / Bank's Engineer requiring compliance with such instructions, the Bank through the Consultants / Bank's Engineer may employ some other agency to execute any work whatsoever which may be necessary to give effect to such instructions.

For the purpose of entering day to day instructions by the Consultants / Bank's Engineer, the contractor shall maintain at his own cost, a 'Site Instruction Book' in quadruplicate in which the instructions will be entered by Consultants / Bank's Engineer.

## **2. DRAWINGS AND SPECIFICATIONS**

The work shall be carried out to the entire satisfaction of the Consultants / Bank's Engineer in accordance with the signed drawings and specifications and such further drawings and details as may be provided by the Consultants / Bank's Engineer and in accordance with such written

instructions, directions and explanations as may from time to time be given by the Consultants / Bank's Engineer, whose decisions as to the sufficiency and quality of the work and materials shall be final and binding on all parties.

No drawings shall be taken as in itself an order for variation unless, in addition to the Consultants / Bank's Engineer's signature, it bears express words stating that it is intended to be such an order or bears a remark "VALID FOR CONSTRUCTION". No claim for payment for extra work shall be allowed unless the said work shall have been executed under the provision of Clause 8 (Authorities, Notices, Patent Rights and Royalties), or by the authorities, directions in writing of the Consultants / Bank's Engineer and the Employer as herein mentioned.

One complete set of the signed drawings and specifications and schedule of quantities shall be furnished by the Consultants / Bank's Engineer to the Contractor. The Consultants / Bank's Engineer shall furnish one copy of the additional drawings which in his opinion be necessary for the execution of any work. Such copies shall be kept on the works, and the Consultants / Bank's Engineer or his representatives shall at all reasonable time have access to the same. All drawings and specifications shall be returned to the Consultants / Bank's Engineer by the Contractor before the issue of the Final Certificate. The Contract shall remain in the custody of the Consultants / Bank's Engineer and shall be produced by him at his office as and when required by the Employer or by the Contractor.

Additional prints of drawings, if required by the Contractor may be supplied by Consultants / Bank's Engineer but on the payment of charges.

### **3. SCHEDULE OF QUANTITIES**

The Schedule of the Quantities unless otherwise stated shall be deemed to have been prepared in accordance with the standard procedure of the Consultants / Bank's Engineer and shall be considered to be approximate and no liability shall attach to the Consultants / Bank's Engineer for any error that may be discovered therein.

### **4. SUFFICIENCY OF SCHEDULE OF QUANTITIES**

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 prices stated in the Schedule of Quantities and/or Schedule of Rates and prices, which rates and prices shall cover all his obligations under the Contract, and all matters and things necessary for the proper completion of the works.

### **5. CONTRACTOR TO PROVIDE EVERYTHING NECESSARY**

The Contractor shall provide everything necessary for the proper execution of the works according to the true intent and meaning of the Drawings,

Specifications and Schedule of Quantities taken together whether the same may or may not be particularly shown or described therein, provided that the same can be inferred there from and if the Contractor finds any discrepancy in the Drawings or between the Drawings, Specifications and Schedule of Quantities he shall immediately refer the same in writing to the Consultants / Bank's Engineer, who shall decide which shall be followed, and their decision shall be final and binding on all parties.

The Contractors will supply, fix and maintain at his cost during the execution of any works, all the necessary centering, scaffolding, staging, timbering, strutting, shoring, pumping, fencing, hoarding, watching and lighting by night as well as by day required not only for the proper execution and protection of the public and safety of any adjacent roads, streets, cellars, vaults, pavements, walls, houses, buildings and all other erections, matters or things.

The Contractor shall pull down and remove any or all such scaffolding, after completing his work as occasion shall require or when ordered to do so, and shall fully reinstate and make good all matters and things disturbed during the execution of the works, to the satisfaction of the Consultants / Bank's Engineer.

## **6. AUTHORITIES, NOTICES, PATENTS, RIGHTS & ROYALTIES**

The Contractor shall conform to the provisions of all the statutes relating to the works, and to the Regulations and bye-laws of any local Authority, and of any Water, Lighting of other Companies or Authorities with whose systems the structure is proposed to be connected, and shall before making any variation from the drawings or specifications that may be necessitated by so conforming, give to the Consultants / Bank's Engineer written notice, specifying the variations proposed to be made and the reason for making it, and apply for instruction thereon. In case the Contractor shall not within ten days receive such instructions, he shall proceed with the work conforming with the provisions. Regulations or Bye-laws in question.

The Contractor shall bring to the attention of the Consultants / Bank's Engineer all notices required by the said Acts, Regulations of Bye-laws to be given to any Authority by the Consultants / Bank's Engineer and pay to such Authority, or to any Public Officer, all fees that may be properly chargeable in respect of the works, and lodge the receipts with the Consultants / Bank's Engineer.

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

from such claims, unless he has informed the Consultants / Bank's Engineer, before any such infringement and received their permission to proceed, and shall himself pay all royalties, license fees, damages, costs and charges of all and every sort that may be legally incurred in respect thereof.

## **7. MATERIALS AND WORKMANSHIP TO CONFORM TO DESCRIPTION**

All materials and workmanship shall, so far as procurable, be of the respective kinds specified in the Schedule of Quantities and/or specifications and in accordance with the Consultants / Bank's Engineer's and NABARD's instructions and the Contractor shall upon the request of the Consultants / Bank's Engineer furnish to them all invoices, accounts, receipts and other vouchers to prove that the materials comply therewith. The Contractor shall at his own cost arrange for and/or carry out any test of any materials which the CONSULTANTS / BANK'S ENGINEER and NABARD may require. If the Contractor contends that any of the material, goods or workmanship specified as aforesaid, is unobtainable, he shall submit to the clients, his grounds for his contention, and thereupon, the Consultants / Bank's Engineer and NABARD shall decide whether the same is unobtainable in fact. If the Consultants / Bank's Engineer and NABARD shall decide that any of the materials, goods or workmanship is in fact unobtainable, they shall issue an order in writing as what is to be substituted thereof and such order shall be deemed to be an order for variation; such order shall however be got approved by the client before issue.

## **8. SETTING OUT**

The Contractor shall at his own expense, set out the works, accurately in accordance with the plans and to the complete satisfaction of the Consultants / Bank's Engineer and NABARD. The Contractor shall be solely responsible for the true and perfect setting out of the works, and for the correctness of the position, levels, dimensions and alignment of all parts thereof. If at any time any error shall appear during the progress or on completion of any part of the work, the Contractor shall at his own cost rectify such error if called upon, to the satisfaction of the Consultants / Bank's Engineer and NABARD. The work shall from time to time be inspected by the Consultants / Bank's Engineer and/or his representatives but such inspections shall not exonerate the Contractor in any way from his obligations to remedy any defects which may be found to exist at any stage of the work or subsequently after the same is completed.

## **9. CONTRACTOR'S SUPERINTENDENCE AND REPRESENTATIVE ON WORKS**

The Contractor shall give all necessary personal superintendence during the execution of the works and as long thereafter as the Consultants / Bank's Engineer may consider it necessary until the expiration of the "Defects Liability Period" stated in Clause-20. The Contractor shall meet the Consultants / Bank's Engineer or his representative whenever required if demanded by Consultants / Bank's Engineer.

The Contractor shall maintain and be represented on site, at all times while the work is in progress, by a responsible and efficient Engineer-in-Charge, approved by the Consultants / Bank's Engineer in consultation with Employer and who must thoroughly understand all the traces entailed and be constantly in attendance, while the men are at work. Any directions, explanations, instructions or notices given by the Consultants / Bank's Engineer to such Engineer shall be deemed to be given to the Contractor and shall be binding as such on the Contractor. The Engineer shall be thoroughly conversant with the English Language and should be able to read, write and speak English

#### **10. DISMISSAL OF WORKMEN**

The Contractor shall on the request of the Consultants / Bank's Engineer immediately dismiss from the works any person Employer thereon who may, in the opinion of the Consultants / Bank's Engineer, be unsuitable or incompetent or who may misconduct himself and such person shall not again be employed or allowed on the works without the permission of the Consultants / Bank's Engineer.

#### **11. ACCESS TO WORKS**

The Consultant /Employer and any person authorized by them shall at all reasonable times have free access to the works, and to the workshops, factories or other places where materials are being prepared or fabricated for the Contract and also to any place where the materials are lying or from which they are being obtained. The Contractor shall give every facility to the Consultants / Bank's Engineer and the Employer and their representative for inspection and examination and test of the materials and workmanship. No person unless authorized by the Consultants / Bank's Engineer or the Employer, except the Representatives of Public Authorities, shall be allowed on the works at any time. If any work is to be done at place other than the site of the works, the Contractor shall obtain the written permission of the Consultants / Bank's Engineer for doing so.

#### **12. ROLE OF THE CONSULTANTS / BANK'S ENGINEER**

Consultants / Bank's Engineer duties are to watch and supervise the works and to test any materials to be used or workmanship employed in connection with the works, quality control, project scheduling and monitoring and co-ordinating with all other agencies and Civil Contractor,

recording of measurements, certifications of bills, preparing extra deviation items, excess/scoring statement, preparing minutes of meeting etc. They shall have no authority either to relieve the Contractor of any of his duties or obligations under the Contract or, except those expressly provided hereunder, to order any work involving delay or any extra payment by the Employer or any variation of or in the works.

Wherever it is mandatory by law that the Consultants / Bank's Engineer so appointed by the Clients shall be registered with the Local Municipal Corporation as Supervisor, the incumbent so selected shall forthwith produce his registration with the Municipal Corporation.

The Contractor shall afford the Consultants / Bank's Engineer and Employer every facility and assistance for examining the works and materials and checking and measuring time and materials. The Consultants / Bank's Engineer shall have no power to revoke, alter, enlarge, or relax any requirements of this Contract, or to sanction any day-work, additions, alterations, deviations or omissions unless such an authority may be specially conferred by a written order of the Employer.

The Consultants / Bank's Engineer shall act in consultation with the Bank's Engineer in regard to the quality of all Structural aspects of the work and in consultation with the Bank's Engineer, will finalize the selection of materials involved. The Consultants / Bank's Engineer shall jointly record the measurements with Contractor's representative for all items of works and on completion hand over the records to the Employer.

The Consultants / Bank's Engineer shall have the power to give notice to the Contractor or his Engineer-in-Charge about the non-approval of any work or materials and such works shall be suspended or the use of such materials should be discontinued until the decision of the Consultant /Employer is obtained. The work will from time to time be visited by the Consultant /Employer but such examination shall not in any way exonerated the Contractor from the obligation to remedy any defects which may be found to exist at any stage of the work or after the same is completed. Subject to the limitations of this clause, the Contractor shall take instruction only from the Consultants / Bank's Engineer as the case may be.

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

### **13. ASSIGNMENT OR SUB-LETTING**

The work included in the Contract shall be executed by the Contractor and the Contractor shall not directly or indirectly transfer, assign or underlet the

Contract or any part share thereof or interest therein, nor shall he take a new partner, without the written consent of the Consultant /Employer and no undertaking shall relieve the Contractor from the full and entire responsibility of the Contract or from active superintendence of the works during their progress.

#### **14. APPROVAL OF SUPPLIERS**

For all supplies, the name of manufacturers/brands have to be got approved by the Consultants / Bank's Engineer of the Client after getting the respective samples first approved by the Consultants / Bank's Engineer as the case may be. All materials will be of tested quality and as per relevant Indian Standards. In addition to the Test Certificates, mandatory tests will also be done on them by the Consultants / Bank's Engineer at an approved laboratory at the cost of the contractor immediately as well as at regular frequency laid down in the relevant Indian Standards.

#### **15. MEASUREMENT OF WORKS**

The Consultants / Bank's Engineer may from time to time intimate the Contractor that he requires the works to be measured and the Contractor shall forthwith attend or send a qualified Engineer to assist the Consultants / Bank's Engineer or their representative in taking such measurements and calculations and to furnish all particulars or give all assistance required by either of them.

Should the Contractor not attend or neglect or omit to send such agent, then the measurements taken by the Consultants / Bank's Engineer or approved by him shall be taken to be the correct measurements. The works shall be measured according to the mode of measurements stated in the annexed general specifications. The measurement shall wherever not mentioned in the tender be taken in accordance with the Indian Standard of "Method of Measurement of Building Works (I.S. 1200 Part-B and its latest revision if any".

The Contractor or his Agent may at the time of measurement take such notes and measurements as he may require.

#### **16. PRICES FOR EXTRAS ETC. ASCERTAINMENT OF**

Should it be found after the completion of the works from measurements taken in accordance with the previous paragraph that any of the quantities or amounts of works thus ascertained are less or greater than the amounts specified for the works in the priced Schedule of Quantities and/or that any variation is made, the valuation thereof, unless previously or otherwise agreed upon, shall be made in accordance with the following rules:-

- (1) The quoted rates or prices in the original Tender shall determine the valuation of the extra work where extra work is of a similar character and executed under similar conditions as the work priced therein.
- (2) The quoted rates or prices in the original tender shall determine the value of the items omitted, provided if omissions vary the conditions under which any remaining items of works are carried out, the prices for the same shall be valued under (iii) hereof.
- (3) Where the extra works are not of similar character and/or not executed under similar condition as aforesaid or where the omissions vary, the conditions under which any remaining items of works are carried out or if the amount any omission or additions relative to the amount of the whole of the Contract works or to be any part thereof shall be such that in the opinion of the Consultants / Bank's Engineer, the net rate or price contain in the priced Schedule of Quantities or tender or for any item of the works involves loss or expenses beyond that reasonably contemplated by the Contractor or is by reason of such omission or addition rendered unreasonable or inapplicable, the Consultants / Bank's Engineer shall fix such other rate or prices as in the circumstances considers reasonable and proper, on the basis of actual rate analysis for cost of work involved plus fifteen percent (15%) towards contractor's overhead and profits, which shall be final and binding on the contractor. The rate analysis to be approved by the Bank before finalization of such rates. No escalation shall be entertained on the extra or deviated items.

The measurement and valuation in respect of the Final bill based on work executed shall be completed within the "Period of Final Measurement" or within 3 (three) months of the completion of the Contracted works as defined under Clause No.20 (Certificate of Virtual Completion), whichever is earlier.

## **17. REMOVAL OF IMPROPER WORK AND MATERIALS**

The Consultants / Bank's Engineer shall, during the progress of the works, have power to order in writing from time to time the removal from the works, within such reasonable time as may be specified in the order, of any materials which, in the opinion of the Consultants / Bank's Engineer are not in accordance with the specifications or the instructions of the Consultants / Bank's Engineer and the substitution of proper materials and the removal and proper re-execution of any such work, which has been executed with materials or workmanship, not in accordance with the Drawings and Specifications or instructions, and the Contractor shall forthwith carry out such order at his own cost. In case of default on the part of the Contractor to carry out such order the Employer shall have power to employ and pay other persons to carry out the same and all expenses consequent thereon or

incidental thereto shall be borne by the Contractor, and shall be recoverable from him on behalf of the Employer or may be deducted by the Consultants / Bank's Engineer from any money due or that may become due to the Contractor. If the correcting works are not done in accordance with the contract, the Consultants / Bank's Engineer in consultation with the Consultants / Bank's Engineer may allow such work to remain and in that case may make allowance for the difference in value together with such further allowance for damages to the Employer, as may be reasonable.

#### **18. DEFECTS AFTER COMPLETION**

Any defect, shrinkage, settlement or other faults which may appear within the "Defects Liability Period" stated in the Appendix hereto or if none stated, then for a period of 12 months after the Virtual Completion of the work and responsibility for making good at their own cost of the latent/patent imperfections or defect becoming apparent during this period arising in the opinion of the Consultants / Bank's Engineer from materials or workmanship not in accordance with the Contract, shall upon the directions and writing of the Consultants / Bank's Engineer, and within such reasonable time as shall be specified therein, be amended and made good by the Contractor, at his cost, unless, the Consultants / Bank's Engineer in consultation with the Employer shall decide that he ought to be paid for such amending and making good and in case of default the Employer may employ and pay other persons to amend and make good such defects, or faults, and all damages, loss and expenses consequent thereon or incidental thereto shall be made good and borne by the Contractor and such damage, loss and expenses shall be recoverable from him by the Employer or may be deducted by the Employer upon the Consultants / Bank's Engineer's Certificate in writing from any moneys due or that may become due to the Contractor or the Employer may in lieu of such amending and making good by the Contractor, deduct from any money due to the Contractor a sum, to be determined by the Consultants / Bank's Engineer, equivalent to the cost of amending such works, and in the event the amount retained under Clause 30 (Certificate and Payments) being insufficient, recover the balance from the Contractor.

#### **19. CERTIFICATE OF VIRTUAL COMPLETION OF WORKS**

The Contractor shall report in writing to the Consultants / Bank's Engineer in the form of a Certificate as per the Proforma 'F' given, as and when the works are completed in all respects. The Consultants / Bank's Engineer shall, after due verification of the works and in consultation with the Consultants / Bank's Engineers, issue to the Contractor a certificate to be called "Virtual Completion Certificate". A copy of such certificate shall be submitted to the Employer to enable them to take possession of the said works. The defects liability period shall commence only from the date of actual possession.

## **20. OTHER PERSONS ENGAGED BY THE EMPLOYER**

The Employer reserves the right to use the premises and any portion of the Site for the execution of any work not included in this Contract which he may desire to have carried out by other persons, and the Contractor is to allow all reasonable facilities for the execution of such work, but is not required to provide any plant or material for the execution of such work, except by special arrangement with the Employer. Such work shall be carried out in such manner as not to impede the progress of the works included in the Contract, and the Contractor shall not be responsible for any damage or delay which may happen to or be occasioned by such work.

## **21. UNFIXED MATERIALS**

When any materials intended for the works shall have been placed at site by the Contractor, such materials shall not be removed there from (except for the purpose of being used on the works, without the written authority of the Consultants / Bank's Engineer and when the Contractor shall have received payment in respect of any Certificate in which the Consultants / Bank's Engineer shall have stated that he has taken into account the value of such unfixed materials on the works, such materials shall become the property of the Employer and the Contractor shall be liable to make good for any loss or damage to any such materials.

## **22. INSURANCE CONTRACT CONDITIONS CONTRACTOR'S LIABILITY AND INSURANCE**

From commencement to completion of works, the Contractor shall take full responsibility for the care of the work and for taking precautions to prevent loss or damage to the works and to minimize the 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, inherent defects and failures due to poor workmanship and causes such as lightning, explosion, earthquake, storm, hurricane, floods, inundation, subsidence, landslides, rock slides, riots (excluding civil war, rebellion, revolution and insurrection) and shall at his own cost repair and make good the same so that at all times the work shall be in good order and condition and in conformity in every respect with the requirements of the Contract.

### **Explanation**

- a) For the purpose of this condition, the expression "from the commencement to completion of work" shall mean the time commencing from the issue of the work order to the contractor and ending with the date of issue of certificate for Virtual completion of work.
- b) Without limiting the obligations and responsibilities under this condition, the Contractor shall insure and keep insured the works from

commencement to completion, as aforesaid, for their full value provided under this Contract, increased by 25% against the risk of loss or damage from any cause whatsoever including the causes enumerated in the Clause (a) above. In the event of there being a variation in the nature and extent of the work, the Contractor shall from time to time increase or decrease the value of the insurance correspondingly. All the premium shall be borne and paid by the Contractor. The said insurance shall also provide for the removal of debris of the lost or damaged works.

The said insurance shall be in the joint name of the Employer and the Contractor, Employers name being mentioned first in policies and the Contractor should deposit with the Employer the said policy or Policies before commencing work at site. All money payable by the insurers under such policy or policies shall be recovered by the Employer only and shall be paid to the Contractor or any other agency of Employer's choice in installments for the purpose of rebuilding or replacement or repair the works and/or goods destroyed or damaged as the case may be.

- c) If the Contractor has a blanket insurance policy for all the works to be executed by him and the policy covers all the items to be insured under the condition, the said policy shall be assigned by the Contractor in favour of the Employer, provided however that if any amount is payable under the policy by the insurers in respect of works other than the work under the Contract, the same may be recovered by the Contractors directly from the insurers.
- d) The Contractor shall indemnify and keep indemnified the Employer against all losses and claims, for injuries or damage to any person or any property whatsoever which may arise out of or in consequence of the construction and maintenance of the work and against all claims, demands, proceedings, damages, costs, charges and expenses whatsoever in respect of or in relation thereto. Before commencing the execution of the works, the Contractor shall without in any way limiting his obligations and liabilities under this condition insure against any damage or loss or injury which may occur to any property including, Consultants / Bank's Engineer or his or their Agents and Servants by or in of the execution of this Contract.
- e) The Contractor shall at all times indemnify the Employer against all losses, claims or damages or compensation under the provisions of the payment of Wages Act 1936, Minimum Wages Act 1948, Employees Liability Act 1938, Workmen's Compensation Act 1923, The Maternity Benefit Act 1961, Industrial Disputes Act 1947 and Contract Labour and Regulation and Abolition Act 1970, Employer State Insurance Act 1948 or any modification thereof or any other law relating thereto and rules

made there under from time to time or as a consequence of any accident or injury to any workman or other persons in or about the work whether in the Employment of the Employer, or Contractor or not and also against all costs, charges and expenses of any suit, action or proceedings whatsoever out of such accident or injury or combination of any such claims.

Without limiting his obligations and liabilities as provided damages or compensation payable under this clause, the Contractor shall as also indemnify the Employer against damage due to fire, caused due to any reason whatsoever, to structures/Employer's property, men working around etc.

- f) Before commencing the work, the Contractor shall without limiting his obligations and responsibilities under this condition, insure against any loss of life or injury to any personnel in the employment of Contractor/Sub-Contractor/Nominated Sub-Contractor. For this purpose, an insurance shall be taken by the Contractor/Sub-Contractor. Such an insurance shall be taken to include both employees/workmen covered by the Workmen's Compensation Act 1923, as well those employees/workmen not covered by the said Act. Separate insurance policies may be taken for employees/workmen covered by Workmen's Compensation Act 1923, and employees workmen not covered by the said Act. All the premium shall be paid by the Contractor.

Policy/Policies taken under this clause for the personnel in employment with the Contractor/Sub-Contractor/nominated sub-contractors, the Employee and Contractor shall recover directly from the Insurance Company and ensure that payment of the same is made to the affected parties. The policy in original shall be deposited with the Employer.

- g) The Contractor shall at all times indemnify and keep indemnified the Employer against all losses and claims for injuries or damage to any person or any property whatsoever which may arise out of or in consequence of the construction and maintenance of the work and against all claims, demands, proceedings, damages, costs, charges and expenses whatsoever in respect of or in relation thereto. Before commencing the execution of the works, the Contractor shall without in any way limiting his obligations and liabilities under this condition, insure at his cost and expense against any damage or loss or injury which may be caused to any person or property including the Employee or servants of the Employer and the Consultants and their property by or in the course of the execution of the works. Such insurance to be known as the Third Party Insurance shall be in a sum equivalent to two percent of the Estimated value of the work, subject to the minimum sum of Rupees Five Lakhs. The Insurance Policy to be so obtained by

the Contractor shall be deposited by the Contractor with the Employer within seven days of its issue by the insurer.

- h) The Contractor shall provide the Employer with documentary evidence from time to time, that he has taken all the insurance policies mentioned in the foregoing paragraphs and that he has paid the necessary premium for keeping the policies valid till the works are completed and handed over to the Employer.
- i) The Contractor shall ensure that similar insurance policies are taken out by his sub contractors or nominated contractors, if any, and shall be responsible for any claim or loss resulting from their failure to obtain adequate insurance protection in connection thereof. While taking the insurance policies, contractor should indicate clearly to the insurance companies that policies issued shall cover their sub-contractors and nominated sub-contractors also.
- j) If the Contractor and/or his Sub-Contractor or nominated Contractor, if any, shall fail to effect and keep in force the insurance referred to above or any other insurance which he/they may be required to effect under the terms of the Contract, then in any such case, the Employer may without being bound to effect and keep in force any such insurance policy and pay such premium or premium, as may be necessary for that purpose from time to time and deduct the amount so paid by the Employer from any money due or which may become due to the Contractor recover the same as a debt due from the Contractor.

XIII. Without prejudice to any of his obligations and responsibilities under this condition, the Contractor shall within 30 days from the date of work order and thereafter at the end of each quarter send a report to the Employer in Performa of Insurance summary annexed hereto. The detailed information of the insurance policies with relevant documentary evidence.

XIV. No work shall be commenced by the Contractor unless and until he has obtained the insurance or insurance required to be obtained by him under or by the foregoing clauses and no work shall be carried out or continued by the Contractor unless and until each insurance is current and valid at that time. All the receipts in original along with two photocopies thereof, for the payment of the premium shall be furnished by the Contractor to the Employer. The original receipts will be returned to the Contractor after verification. The Employer reserves the right for payment on works done subject to fulfillment of this condition and shall instruct the Consultants / Bank's Engineer accordingly.

XV. In the event of any claim for insurance becoming due on account of any eventuality covered by the respective insurance

policy/policies, the Contractor shall reinstate the installation, replace the materials or equipments or pay compensating to the affected personnel/Employees without waiting for settlement of the claim from insurance company.

XVI. If the Contractor shall not perform and observe any of the duties and obligations devolving upon him hereunder, and such omission or breach by the Contractor shall involve the Employer in any liability tortuous or otherwise and/or loss damage, the Employer shall be entitled to recover the amount of restitution from any moneys due to the Contractor from the Employer under this Contract or any other Contract.

### **1. TO DEFINE TERMS AND EXPLAIN PLANS**

The various parts of the Contract are intended to be complementary to one another, but should any discrepancy appear, or any misunderstanding arise as to the import of anything contained therein, the explanations of the Consultants / Bank's Engineer shall be final and binding. The correction of any errors or omissions of the Drawings and Specifications may be made good by the Consultants / Bank's Engineer, when such correction is necessary to bring out clearly the intention which is indicated by a reasonable interpretation of the drawings and Specifications as a whole.

### **2. DATE OF COMPLETION**

The Contractor shall begin the works within the time frame stipulated in Clause 12.0 of the Instructions to the bidders and shall proceed regularly with and complete the same in accordance with the programme of construction to the entire satisfaction of the Consultants / Bank's Engineer within the time stipulated in Clause 12.0 of the Instructions to the Tenderer subject nevertheless to the provisions for extension of time hereinafter contained. The Contractor shall not have any lien or charge on the site, building and/or any other plant, equipment, machinery, etc. lying on the site in respect of any of his claims arising under the contract or otherwise.

### **3. DELAY AND EXTENSION OF TIME**

If in the opinion of the Consultants / Bank's Engineer the works be delayed (a) by force majeure or (b) by reason of any exceptionally inclement weather or (c) by reason of proceedings taken or threatened by the dispute with adjoining or neighboring owners or public authorities arising otherwise than through the Contractor's own default or (d) by the works or delays of other Contractors or tradesmen engaged or nominated by the Employer or the Consultants / Bank's Engineer and not referred to in the Schedule of Quantities and/or Specifications or (e) by reason of Consultants / Bank's Engineer's instructions, or (f) by reason of civil commotion, local commotion of workmen or strike or lock-out affecting any of the building trades or (g) in

consequence of the Contractor not having in due time necessary instructions from the Consultants / Bank's Engineer for which he shall have specifically applied in writing, ahead of time, giving the Consultants / Bank's Engineer reasonable time to prepare such instructions, the Consultants / Bank's Engineer shall make a fair and reasonable extension of time for completion of the Contracted works. In case of such strike or lock-out, the Contractor shall, as soon as may be, given written notice thereof to the Consultants / Bank's Engineer, but the Contractor shall nevertheless constantly use his endeavors to prevent delay and shall do all that may reasonably be required to the satisfaction of the Consultants / Bank's Engineer to proceed with the work.

The Contractor shall take all practicable steps to avoid or reduce any delay in the execution and completion of the works arising out of

- (1) Consultants / Bank's Engineer's Instructions, as the case may be
- (2) Delay on the part of the nominated Sub-Contractor or nominated supplier
- (3) Delay on the part of the other Contractor employed by the Employer

#### **4. DAMAGES FOR NON-COMPLETION**

- a) If the Contractor fails to complete the works by the date named in Clause-25 (date of completion) or within any extended time under clause-26 (Extension of Time) and if the Consultants / Bank's Engineer shall certify the last payment to which the Contractor may become entitled hereunder that the works could reasonably have been completed to the date or within the said extended time, then the Contractor shall pay or allow the Employer the sum to be recovered as Liquidated Damages (and not by way of penalty) for the delay as per the contents of clause 13.0 of instructions to the Bidders, beyond the said date or extended time, as the case may be, during which the works shall remain unfinished and such damages may be deducted from any moneys due or which may become due to the Contractor. The deduction of such sum shall not, however, absolve the Contractor of his responsibility and obligations to complete the work in its entirety.
- b) Without prejudice to the right of the Employer to recover from the Contractor the liquidated damages under the foregoing clause, the Employer shall be entitled to recover from the Contractor compensation for any loss or damage arising to the Employer from such breach of the Contract or any breach of the Contract by the Contractor including compensation under the following heads.
  - (a) Compensation payable to the Consultants / Bank's Engineer/Other Consultants in consequence of the prolongation of the Contract period.

- (b) Compensation for the cost incurred by the Employer to maintain the on-site and off-site establishment in consequence of the breach of the Contract committed by the Contractor to so complete the work.
- (c) Compensation for the cost incurred by the Employer to pay the rents of premises intended to be vacated upon the completion of the building under this contract.
- (d) Compensation for the loss of interest on the funds invested in the execution of works, such interest being at a rate 3% higher than the lending rate by the Nationalized Banks.

The deduction of such sum shall not, however, absolve the Contractor of his responsibility and obligations to complete the work in its entirety.

## **5. FAILURE BY CONTRACTOR TO COMPLY WITH CONSULTANT'S INSTRUCTIONS**

If the Contractor after receipt of notice from the Consultants / Bank's Engineer requiring Compliance, with such further drawings and/or instructions to remove, fails within seven days to comply with the same, the Consultants / Bank's Engineer may employ other persons to execute any such work whatsoever as may be necessary to give effect thereto and all costs incurred in connection therewith shall be recoverable from the Contractor by the Employer on a certificate by the Consultants / Bank's Engineer as a debt to be deducted by him from any moneys due to become due to the Contractor.

## **6. SUSPENSION OF WORKS**

If the Contractor except on account of any legal restraint upon the Employer preventing the continuance of the works, on account of any of the case mentioned in clause 26 (Extension of Time) in the case of a certificate being withheld or not paid when due, shall suspend the works, or, in the opinion of the Consultants / Bank's Engineer, shall neglect or fail to proceed with due diligence in the performance of his part of the Contract or if he shall more than once make default in the respects mentioned in clause 18 (Removal of improper work and materials), the Employer through the Consultants / Bank's Engineer shall have power to give notice in writing, to the Contractor requiring that the works be proceeded with a reasonable manner and with reasonable dispatch. Such notice shall not be unreasonably given and must signify that it supports to be a notice under the provisions of this clause and must specify the act or defaults on the part of the Contractor upon which it is based. After such notice shall have been given, the Contractor shall not be at liberty to remove from the site of work, or from any ground continuous thereto, any plant or materials belonging to him which shall have been placed

thereon for the purpose of the works, and the Employer shall retain and hold a lien upon such plant and materials until the works shall have been completed. If the Contractor shall fail, for 7 (seven) days after such notice has been given to proceed with the works as therein prescribed, the Employer may enter upon and take possession of the works and of all such plant and materials thereon intended to be used for the work, and the Employer shall retain and hold a lien upon all such plant and materials until the works shall have been completed under powers hereinafter conferred upon him. If the Employer shall exercise the above power, he may engage any other person to complete the works and exclude the Contractor, his agents and servants, from entry upon or access to the same, except that the Contractor or any person appointed in writing may have access at all reasonable times during the progress of the works to inspect, survey and measure the works. Such written appointment or a copy thereof shall be delivered to the Consultants / Bank's Engineer before the person so appointed comes on to the works, and the Employer shall take such steps as in the opinion of the Consultants / Bank's Engineer may be reasonably necessary for completion of the works, without undue delay or expenses, using for that purpose the plant and materials above mentioned in so far as they are suitable and adaptable to such use. Upon the completion of the work the Consultants / Bank's Engineer shall certify the amount of the expenses properly incurred be less than the amount which would have been due to the Contractor upon the completion of the works by him, the difference shall be paid to the Contractor by the Employer; should the amount of the former exceed the latter, the difference shall be paid by the Contractor to the Employer.

The Employer shall not be liable to make any further payment or compensation to the Contractor for or on account of the proper use of the plant for the completion of the works under the provision herein before mentioned other than such payment as included in the Contract. After the works shall have been so completed by persons, other than the Contractor, under provision herein before contained, the Consultants / Bank's Engineer shall give notice to the Contractor, to remove his plant and all surplus materials as may not have been used in the completion of the works, from the site. If such plant and materials are not removed within a period of 14 days, after the notice shall have been given, the Employer may cause to remove and sell the same, holding the proceeds, less the cost of the removal and sale, to the credit of the Contractor. The Employer shall not be responsible for any loss sustained by the Contractor from the sale of the plant in the event of the Contractor not removing it after notice.

## **7. CERTIFICATE AND PAYMENT**

The Contractor shall be entitled under the Interim Certificates to be issued by the Consultants / Bank's Engineer to the Contractor, against his checked bills for work done and within 30 working days from the date of each interim




**Note :**

If any part/reduced rate is proposed by the Contractor (recommended by Consultants / Bank’s Engineer) the same should be brought out in the remarks column along with reasons.

The Employer shall carry out test checking of measurement as and when required.

The Contractor shall be paid 65% of the value of the materials brought and stacked at site on a Certificate, issued by the Consultants / Bank’s Engineer, in regard to quantity and, in conformity with the Contract Specifications as per proforma in Annexure 47-C . However, this advance will be given to the Contractor against the undertaking as per the Performa in Annexure-C. On payment of the property in goods shall vest in the Employer and the Contractor will keep it in his custody indemnifying the Employer against any damage, loss, theft or mishap attributable to their storage.

The final bill shall be submitted by the Contractor within three months of Virtual Completion Certificate received from the Contractor duly endorsed by the Consultants / Bank’s Engineer and the Consultants / Bank’s Engineer, and such bill shall be settled and certified for payment by the Consultants / Bank’s Engineer within three months of the submission of the bill.

Payments upon the Consultants / Bank’s Engineer's Interim Certificate shall be made within a period named in the appendix as "Period of Honoring of Interim Certificates" after such certificates have been delivered to the Employer. Payment upon the Consultants / Bank’s Engineer's final certificate shall be made within a period of six months from the date of its receipt by the Employer.

The Contractor shall submit extra/deviated items of work in Proforma approved by Consultants / Bank’s Engineer.

R.A. Bills/Final Bill received without the test certificates /results /measurements duly approved by Consultants / Bank’s Engineer shall be returned to the Contractor for the reason of the same being not submitted duly.

**1. NOTICES**

Notices of the Employer, to the Consultant or the Contractor may be served personally or by being left at or sent by registered post to the last known place of the business of the party to whom the same is given or in the case

of the Contractor by being left on the works. In the case of company or corporation, notices may be served at or sent by registered post to the Registered Office of the Company or Corporation. Any notice sent by registered post shall be deemed to be served at the time when, in the ordinary course of post, it would be delivered.

## **2. TERMINATION OF CONTRACT BY THE EMPLOYER**

If the Contractor being an individual or a firm, commit any "Act of Insolvency" or shall be adjudged an Insolvent or being an Incorporated Company shall have an order for compulsory winding up voluntarily or subject to the supervision of the Court and of the Official Assignee or the Liquidator, in such acts of insolvency or winding up shall be unable within seven days after notice to him requiring him to do so, to show to the reasonable satisfaction of the Consultants / Bank's Engineer that he is able to carry out and fulfill the Contract, and to give security, therefore, if so required by the Consultants / Bank's Engineer, or if the Contractor (whether an individual; Firm or Incorporated Company) shall suffer execution to be issued, or shall suffer any payment under this Contract to be attached by or on behalf of any of the creditors of the Contractor, or shall assign or sub-let the Contract without the consent in writing of the Consultants / Bank's Engineer first obtained, or shall charge or encumber this Contract or any payments due or which may become due to the Contractor hereunder, or if the Consultants / Bank's Engineer shall certify in writing to the Employer that the Contractor.

- (1) has abandoned the Contract, or
- (2) has failed to commence the works, or has without any lawful excuse under these conditions suspended the progress of the works for seven days after receiving from the Consultants / Bank's Engineer, written notice to proceed, or
- (3) has failed to proceed with the works with such due diligence and failed to make such due progress as would enable the works to be completed within the time agreed upon, or
- (4) has failed to remove materials from the site or to pull down and replace work for seven days after receiving from the Consultants / Bank's Engineer written notice that the said materials of work were condemned and rejected by the Consultants / Bank's Engineer under these conditions, or
- (5) has neglected or failed persistently to conserve and perform all or any of the acts, matters or things 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

- (6) has to be detriment of good workmanship or in defiance of the Consultants/ Bank's Engineer's instructions to the contrary sub-let any part of the Contract.

Then and in any of the said cases the Employer 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 Consultants / Bank's Engineer or the obligations and liabilities of the Contractor, the whole of which shall continue in force as fully as if the Contract has not been so determined and as if the works subsequently executed has been executed by or on behalf of the Contractor. And further, the Employer may enter upon and take possession of the work and all plant, tools, scaffoldings, sheds, machinery, steam and other power utensils and materials lying upon the 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 workmen in carrying on and completing the works or by employing any other contractors or other 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 works shall be completed or as soon thereafter as convenient, the Consultants / Bank's Engineer shall give a notice in writing to the contractor to remove his surplus materials and plant, and should the Contractor fail to do so within a period of 14 days after receipt thereof by him, the Employer shall sell the same by public auction, and shall give credit to the Contractor for the amount realized on deducting there from the costs of the removal and sales. The Consultants / Bank's Engineer shall (if anything) shall be due or payable to or by the Employer for the values of the said plant and material so taken possession of by the Employer and the expense or loss which the Employer shall have been put to in procuring the works to be completed and the amount, if any, owing to the Contractor and the amount which shall be so certified shall thereupon be paid by the Employer, to the Contractor or by the Contractor to the Employer, as the case may be and the certificate of the Consultants / Bank's Engineer shall be final and conclusive between the parties. On termination of the Contract, the Contractor shall forthwith remove himself and his workmen from the works site.

### **3. TERMINATION OF THE CONTRACT BY THE CONTRACTOR**

If payment of the amount payable by the Employer under the Certificates of the Consultants / Bank's Engineer with interest as provided for hereunder shall be in arrears and unpaid for 30 (thirty) days after notice in writing requiring payment of the amount with interest as aforesaid shall have been

given by the Contractor to the Employer (or if the Employer interferes with or obstruct issue of any such Certificates), or the Employer commits any 'Act of Insolvency', or if the Employer being an individual, or firm shall be adjudged insolvent or (being an incorporated company) shall have an order made against it or pass an effective resolution for winding up either compulsorily or subject to the supervision of the court or voluntarily, or if the Official Assignee of the Employer shall repudiate the Contract, or if the Official Assignee or the Liquidator in any such winding up fails within 15 (fifteen) days after notice to him requiring him to do so, to show to the reasonable satisfaction of the Contractor that he is able to carryout and fulfill the Contract and to make all payments due, and to become due hereunder and if required by the Contractor, to give security for the same, or if the works be stopped for 3 (three) months under an order of the Consultants / Bank's Engineer or the Employer or by injunction or other orders of any court of law, then and in any of the said cases the Contractor shall be at liberty to determine the Contract by Notice in writing, to the Employer, or through the Consultants / Bank's Engineer, and he shall be entitled to recover from the Employer payment for all works executed and for any loss he may sustain upon any plant or material supplied or purchased or prepared for the purpose of the Contract.

In arriving at the amount of such payment, the net rates contained in the Contractor's original tender shall be followed, or where the same may not apply, valuation shall be made in accordance with Clause-17 (Prices for Extras, etc. Ascertainment of) hereof.

**4. MATTER TO BE FINALLY DETERMINED BY THE CONSULTANTS / BANK'S ENGINEER**

The Consultants / Bank's Engineer's decision, opinion, direction, Certificates (except for payments) with respect to all or any of the matter under Clauses-2,7,9,15,19,27(a), (b), (c), (d), (f) and the Schedule of Rates as contained in Volume-III hereof and as to the exercise by him under Clause-40 of the right to have any works opened up, (which matters are here in referred to as the except matters) shall be final and conclusive and binding on the parties hereto and shall be without appeal. Consultants / Bank's Engineers instructions if any, in this regard in case of any urgency, shall also be confirmed/vetted by the Consultants / Bank's Engineer at the earliest possible.

**5. FORECLOSURE OF CONTRACT IN FULL OR IN PART**

If at any time after acceptance of the tender the Consultants / Bank's Engineer shall decide to abandon or reduce the scope of the works for any reason whatsoever and hence not require the whole or any part of the works to be carried out they shall inform the Contractor in writing to that effect and the Contractor shall have no claim to any payment or

compensation or otherwise whatsoever, on account of any profit or advantage which he might have derived from the execution of the works in full, but which he did not derive in consequence of such foreclosure of the whole or part of the works.

The Contractor shall be paid at the contract rates full amount for works executed at site, and in addition, reasonable amount as Certified by the Consultants / Bank's Engineer for the value of such material (which material shall thereupon become the property of the Employer) and also such further allowances as the Consultants / Bank's Engineer may consider reasonable and fair in respect of (a) any preliminary works etc. and (b) other reasonable and proper commitment the contractor may have entered into for carrying out the work.

## **6. INSPECTION OF SITE AND SUFFICIENCY OF TENDER**

- a) The Contractor shall inspect and examine Site and its surroundings and shall satisfy himself before submitting his tender as to the nature of the ground and subsoil, hydrological, climatic and physical condition of the site, the form and nature of the Site, the quantities and nature of work and materials necessary for the completion of the works and the means of access to the Site, the accommodation he may require outside the project site and in general shall himself obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect his tender.
- b) 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 Work/Items/Quantities or in Bills of Quantities, which rates and prices shall, except as otherwise provided, cover all his obligations under the Contract and all matters and things necessary for proper completion and maintenance of the works.
- c) No extra charges consequent on any misunderstanding or otherwise shall be allowed.

### **Notice to Local Bodies**

The Contractor shall comply with and give all notices required under any law, rule regulations, or bye-law of parliament. State Legislature or Local Authority relating to works. The Contractor shall before commencing the execution of work issue a certificate to the Consultants / Bank's Engineer that he has obtained all the permissions Registrations and give all the notice as are required to be obtained or given under law particularly the Police permission etc.

## **7. TOTAL SECURITY DEPOSIT**

Total Security Deposit shall comprise :

II. Earnest Money Deposit

III. Retention Money

**IV. Earnest Money Deposit**

Earnest Money Deposit shall be furnished/deposited along with the tender as mentioned in clause 2 of Form of Tender. No tender shall be considered unless the Earnest Money is so Deposited. No interest shall be paid on this Earnest Money Deposit. The Earnest Money of an unsuccessful bidder will be refunded, without any interest, soon after the decision to award the work is taken. The Earnest Money Deposit shall stand absolutely forfeited if the bidder revokes his tender at any time during the period when he is required to keep his tender open for acceptance by the Employer, or if, after the tender is accepted, the Contractor fails to enter into a formal agreement/or if he fails to pay the security deposit as stipulated/or if he fails to commence the work within stipulated time limit. The EMD of the successful contractor is transferred to Security Deposit till the date of its release as per contract.

**V. Retention Money**

5% of the value of the work done will be deducted by the Employer from each payment to be made to the Contractor towards Retention Money until the Retention Money and Earnest Money Deposit together amounts to 5% of the accepted value of tender. This total amount will be termed as Security Deposit. This Retention Money/ Security Deposit so deducted / collected will carry no interest. After the PMC/ Architect issuing a 'Virtual Certificates including clearance certificate from Labour Officers if required as per local rules. The balance 50% will be released by the Bank after expiry of the defect liability period or settlement of final bill whichever is later and it will not be released against any Bank Guarantee etc.

On virtual completion of the job and on the Contractor's submitting to the Consultants / Bank's Engineer the "As Built" drawings, maintenance manual and list of spares the Consultants / Bank's Engineer shall declare the job to be virtually complete and upon this an amount equivalent to 50% of the total security deposit will be refunded to the Contractor and the balance shall be retained by the clients till the end of the Defects Liability Period.

If the Contractors do not carry out the rectification work during the Defects Liability Period, the clients shall have the right to get such defective work rectified after giving due notice in writing to the Contractors and recover the cost of repair from the money so retained.

**1. OPENING OF WORKS**

The contractor shall notify the Consultants / Bank's Engineer in writing immediately the trenches breaking of plaster or excavation are got ready or as soon as any ground is cut into, which from unexpected causes, appears to need immediate attention. After notifying the Consultants / Bank's Engineer he shall await instructions which shall be given within seven days of receipt of such notice. If the Contractor proceeds with the work before he has so notified the Consultants / Bank's Engineer and received instructions, he shall be liable to reinstate all work that may subsequently be, at any time, damaged on account of any defect in or insufficiency. The contractor shall, at request of the Consultants / Bank's Engineer within such time as the Consultants / Bank's Engineer shall name, open up for inspection any other work and should the contractor refuse or neglect to comply with such requests, the Employer through the Consultants / Bank's Engineer, may employ other workmen to open up the same. If the said work has been covered up in contravention of the Consultants / Bank's Engineer's instructions, or if on being opened up, it be found not in accordance with the drawings, and specifications, or the instructions, the expenses shall be borne by the employer and aforesaid shall be borne by the Employer and be added to the Contract sum provided always that work so opened up and requiring immediate attention, the Consultants / Bank's Engineer shall within seven days after receipt of written notice from the contractor that the work has been opened, make or cause the inspection thereof to be made, and at the expiration of such time, if such inspection shall not have been made, the contractor may cover the same, and shall not be required to open it up again, except at the expense of the Employer.

## **2. REMOVAL OF ALL OFFENSIVE MATTERS**

All soil, filth or other matter of an offensive nature taken out of any trench, sewer, drain, cess-pool or other place shall not be deposited on the surface, but shall be at once carried away by the contractor to some pits or place provided by him and shall be disposed off as per the rules and regulations of the local authorities concerned beyond the property limits.

## **3. VARIATIONS NOT TO VITIATE CONTRACT**

The contractor shall when directed in writing by the Consultants / Bank's Engineer omit from or vary any works shown upon the drawings or described in the specifications or include in the priced Scheduled of Quantities, but the Contractor shall not make any alterations on the provisions of the Contract without such authorization or direction in writing from the Consultants / Bank's Engineer.

No claim for an extra shall be allowed unless it shall have been executed by the authority of the Consultants / Bank's Engineer as herein mentioned. Any such extra is hereinafter referred to as an authorized extra. No authorized variation, i.e. additions, omissions or substitutions shall vitiate the contract.

The rate of the items not included in the Bill of Quantities shall be settled by the Consultants / Bank's Engineer in accordance with the provisions of Clause 18 hereof.

#### **4. SETTLEMENT OF DISPUTES BY ARBITRATION**

All disputes and differences of any kind whatsoever arising out of in connection with this agreement or the carrying out of the works (whether during the progress of the works or within one year after their completion or within one year after the termination or abandonment or breach of the contract) excepting however on matters referred to in Clause-36 of General Conditions of Contract hereof shall be referred by either party for arbitration after giving at least 30 days' notice in writing to the other(s) (hereinafter referred to as the 'Notice for Arbitration') clearly settling out the items of disputes for reference to a Sole Arbitrator to be appointed as hereinafter provided.

For the purpose of appointing the Sole Arbitrator referred to above, the Employer will send to the Contractor within thirty days of the Notice for Arbitration, a panel of three names of persons who shall be presently unconnected with the organization of the Employer and the Contractor.

The Contractor shall on receipt of the names as aforesaid select any one of the persons so named to be appointed as a Sole Arbitrator and communicate his name to the Employer within thirty days of receipt of the names. The Employer shall thereupon without delay appoint the said person as the Sole Arbitrator. If the Contractor fails to communicate such selection as provided above within the period specified, the Employer shall make the selection and appoint selected person as the Sole Arbitrator.

If the Employer fails to send to the Contractor the panel of three names as aforesaid within the period specified, the Contractor shall send to the Employer a panel of three names of persons who shall all be unconnected with either party. The Employer shall on receipt of the names as aforesaid select any one of the person's name and appoint him as the Sole Arbitrator. If the Employer fails to select the person and of the panel and inform the Contractor accordingly, the Contractor shall be entitled to appoint one of the persons from the panel as the Sole Arbitrator and communicate his name to the Employer.

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 as aforesaid.

The conciliation / Arbitration shall be governed by the Conciliator and Arbitrator Act 1996 as in force time to time. Where the parties do not agree the conciliator or and appoint an Arbitrator(s) the award of Arbitrator(s) shall be final and binding on the parties. It is hereby agreed that in all the

disputes referred to Arbitrator shall give a separate award in respect of each dispute or difference in accordance with the terms of the reference and the award shall be reasoned award.

The fees, if any, of the conciliators or the Arbitrator shall initially be paid in equal proportion by each of the parties. The cost of the Conciliation / Arbitration including the fees, if any, of the Conciliator or the Arbitrator, shall be directed to be finally borne and paid by such party or parties to the dispute, in such manner or proportion as may be directed by the Conciliators or the Arbitrator as the case may be in the award.

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

## **5. TECHNICAL AUDIT CLAUSE**

The work is liable to be technically audited by the Chief Technical Examiner of the Central Vigilance Commissioner, Government of India from time to time. Any defects, improvements or posting etc. pointed out by the Chief Technical Examiner should be carried out by the Contractor at his own cost and any deduction suggested by the CTE will be effected.

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

Any sum of money due and payable to the Contractor (including Security Deposit returnable to him) under this contract may be appropriated by the Employer and set off against any claim of the Employer for the payment of a sum of money arising out of or under any other contract made by the Contractor with the Employer.

## 6. APPENDIX TO CONDITIONS OF CONTRACT

Earnest Money Deposit Rs. 40,000.00

### Clause Nos.

- 19 Defects Liability Period - 12 months
- 25 Date of commencement - 10<sup>th</sup> Day from the date of issue of work order.
- 25 Date of completion - 6 (Six) months from the 10<sup>th</sup> day of issue of work order.
26. Extension (Date of Completion)
- No.1 Ref. Extended Date
- No.2 Ref. Extended Date
- No.3 Ref. Extended Date
27. Agreed Liquidated Damages As specified in relevant clauses.
- 30 Period of Final Measurement - 90 working days from the date of issue of VCC
30. Minimum Value of work for the issue of Rs. 5,00,000.00 (Rs.Five Lacs)

### Interim Certificates

37. Retention Percentage - 5% (Five Percentage) as specified in relevant clause 39-b
30. Period of Honouring Interim Certificate 30 working days from the date of receipt of the bill at RO after scrutiny by the Consultant in the following manner
- a) 75% release of adhoc payment by RO within 10 working days from the date of receipt of Consultant's certificate in RO
- b) Balance 25% - on approval from H.O. with in 30 working days from the date of receipt of consultant's certificate in R.O.
30. Period of Honouring Final Certificate 180 working days from the date of receipt of bill at RO after scrutiny and certification by the Consultant.

**Signature of Contractor /s**

**7. CONTRACTOR'S LIABILITY AND INSURANCE SUMMARY**

S R. NO.	NATURE AND SCOPE OF WORK	VALUE OF INSURANCE	VALIDIT Y PERIOD OF INSURANC E	NAME OF INSURER	INS
1	Loss or damage to works or any part thereof and all materials at site from any cause whatsoever	125% of Contract Value			
	Damage, loss or injury to any property of the Employer or Consultant to any person including the Employer or Consultant or his Agents and servants	Not less than five lacs			
2	Claims under the Workmen's Compensation Act, 1923, the Minimum Wages Act 1948 and the Contract Labour (Regulation and Abolition) Act 1970.	Not less than five lacs			

Signature of Contractor

Address : .....

.....

.....

Witness : .....

.....

**PROFORMA 47 'C'**

**(On Stamp Paper of appropriate value)**

**INDENTURE FOR SECURED ADVANCE**

THIS INDENTURE made the ..... day of ..... 2006 between ..... (hereinafter called the "Contractor" which expression shall where the context so admits or implies be deemed to include his executors, administrators and the assigns) of one part and National Bank for Agriculture and Rural Development (NABARD) (hereinafter called the (NABARD) which expression shall where the context so admits or implies be deemed to include its successors in office, and assigns) of the other part.

WHEREAS by an agreement No..... dated..... (hereinafter called the said agreement) the Contractor has agreed .....

AND WHEREAS the Contractor has applied to the National Bank for Agriculture and Rural Development (NABARD) that he may be also allowed advance on the security of materials absolutely belonging to him and brought by him to the site of the works, the subject of the said agreement for the use in the construction of the works as he has undertaken to execute at rates fixed for the finished work (inclusive of the cost of materials and labour and other charges) and whereas the National Bank for Agriculture and Rural Development (NABARD) has agreed to advance to the Contractor an amount upto Rs..... (Rupees..... only) on the security of the quantities and other particulars of the materials on the security of which the advance or advances are made as retailed in the secured advance account forming part of the running count bill preferred from time to time and signed by the Contractor for the said works.

NOW THIS INDENTURE WITNESSETH that in pursuance of the said agreement & in consideration of amounts aggregating to the sum of Rs..... (Rupees..... only) on or after the execution of these presents paid to the Contractor by the National Bank for Agriculture and Rural Development (NABARD) (The receipt whereof the Contractor hereby acknowledge) Contractor both hereby covenant and agree with the Owner NABARD and declare as follows :

1. That the said sum aggregating to Rs..... (Rupees ..... only) so advanced by the National Bank for Agriculture and Rural Development (NABARD) to the Contractor as aforesaid shall be employed by the Contractor in or towards expediting the execution of the said works and for no other purpose whatsoever.
2. That the materials detailed in the said Running Account Bills which have been offered to and accepted by the National Bank for Agriculture and Rural Development (NABARD) as Security are absolutely the Contractor's own property,

and free from encumbrances of any kinds and the contractor will not make any application for or receive a further advance on the security of materials which are not absolutely his own property and free from encumbrances of any kind and the Contractor hereby agrees to indemnify the National Bank for Agriculture and Rural Development (NABARD) against all claims to any material in respect of which an advance has been made to him as aforesaid.

3. That the materials detailed in the said Running Account Bills (hereinafter called the said materials) shall be used by the Contractor solely for the execution of the said works in accordance with the directions of the Consultant and in terms of the said agreement.
4. That the Contractor shall make at his own cost all necessary and adequate arrangement for the proper watch, safe custody and protection against all risk of the said materials and that until used in construction as aforesaid the said materials shall remain at the site of the said works in the Contractor's custody and on his own responsibility and shall at all times be open to inspection. In the event of the said materials or any part thereof being stolen, destroyed or damaged the Contractor will forthwith replace the same with other materials of like quality or repair and make good the same as required by the Consultant.
5. That the said materials shall not on any account be removed from the site of the said work except with the written permission of the Consultant or an officer authorized by him on that behalf.
6. That the advance shall be payable in full when or before the Contractor receives payment from, the National Bank for Agriculture and Rural Development (NABARD) of the price payable of him for the said work under the terms and the provisions of the said agreement provided that if any intermediate payments are made to the Contractor on account of work done, then on the occasion of each such payment the National Bank for Agriculture and Rural Development (NABARD) will be at liberty to make recovery from the Contractors bill for such payments by deducting there from the value of the said material they actually used in the construction and in respect of which recovery has not been made previously the value for this purpose being determined in respect of each description of materials at the rates at which the amounts of the advances made under these presents were calculated.
7. That if the Contractor shall at any time make any default in the performance or observance in any of the terms and provisions of the said agreement the total amount of the advantage or advances that may still be owing to the National Bank for Agriculture and Rural Development (NABARD) together with the interest thereon at 17% per annum from the date of repayment will, with all costs, charges, damages & expenses incurred by the National Bank for Agriculture and Rural Development (NABARD) in the recovery thereof or the enforcement of the security or otherwise by reason of the default of the Contractor shall become payable by the Contractor and the Contractor hereby covenants and agrees with the Bank to repay and pay the same respectively to him accordingly.
8. That the Contractor hereby gives charges all the said materials for the repayment to the National Bank for Agriculture and Rural Development (NABARD) of the said sum amounting to Rs..... (Rupees ..... only) and all costs, charges, damages and

expenses payable under these present PROVIDED always and it is hereby agreed and declared that notwithstanding anything in the said agreement and without prejudice to the powers contained therein if and whenever the money owing shall not be paid in accordance herewith, the National Bank for Agriculture and Rural Development (NABARD) may at any time thereafter adopt all or any of the following courses as they may deem best :

- a) Seize and utilize the said materials or any part thereof in the completion of the said works on behalf of the contractor in accordance with the provisions in that behalf contained in the said agreement, debiting the contractor with the actual cost of affecting such, completion and the amount due in respect of advance under these presents and crediting the Contractor with the value of work done as if he had carried it out in accordance with the said agreement and the rates thereby provided. If the balance is against the Contractor he is to pay the same to National Bank for Agriculture and Rural Development (NABARD) on demand.
- b) Remove and sell by the public auction and the seized material or any part thereof and out of the moneys arising from the sales retain all the sums aforesaid repayable to the National Bank for Agriculture and Rural Development (NABARD) under these presents and pay over the surplus (if any) to the Contractor.
- c) Deduct all or any part of the money owing out of the security deposit or any sum due to the Contractor under the said agreement.
- d) That in the event of any conflict between the provisions of these presents and the said agreement the provisions of the said agreement shall prevail and in the event of the dispute or difference arising over the construction or effect of these presents the settlement of which has not been hereinbefore expressly provided for the same shall be referred to arbitration as provided in the said agreement.

IN WITNESS WHEREOF .....  
and ..... by the order  
and under the direction of the ..... having  
hereunto set their respective hands the day and year first above written.

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

Witness  
Signature

Name

Address

Signed by the order and direction of  
..... in the presence of

Witness  
Signature

Name

Address

**PROFORMA 47-D**  
**(On Rs.20/- Stamp Paper)**  
**INDEMNITY BOND**

KNOW all men by these presents that I/We..... do hereby execute Indemnity Bond in favour of :

..... having their Registered Office at..... and amongst other offices, at No..... and M/s..... having their office at..... on this ..... day of ..... 2006.

WHEREAS ..... the ..... have appointed ..... as the ..... Contractors for their Proposed A.C. work on turnkey basis at Pune and M/s. ACR Project Consultants as their Consultant.

THIS DEED WITNESSETH AS FOLLOWS :-

I/We ..... here by do Indemnify, and same harmless (1) ..... and (2) M/s ..... against and from.

1. any third party claims, civil or criminal complaints liabilities, site mishaps and other accidents or disputes and/or damages occurring or arising out of any mishaps at the site due to fault work, negligence, faulty construction and/or for violating any law, rules and regulations in force, for the time being while executing/executed works by me/us.
2. any damages, loss or expenses due to or resulting from negligence or breach of duty on the part of me/us or any sub-contractor/s if any, servants or agents.
3. any claim by an employee of mine/ours or of sub-contractor/s, if any, under the workmen Compensation Act and Employers Liability Act, 1939 or any other law rules and regulations in force for the time being and any Acts replacing and/or amend the same or any of the same as may be in force at the time and under any law in respect of injuries to persons or property arising out of and in the course of the execution of the contract work and/or arising out of and in the course of employment of any workmen/employee.
4. any act or omission of mine/ours of sub-contractor/s if any, our/their servants or agents which may involve any loss, damage liability, civil or criminal action.

IN ..... WITNESS ..... WHEREOF ..... THE ..... has set his/their hands on this day of ..... 2006.

SIGNED AND DELIVERED BY THE AFORESAID .....

IN THE PRESENCE OF WITNESS :

1) .....

.....

.....

.....

.....

.....

2)

## **PROFORMA 47-E**

### **ITEMS QUALIFIED FOR SECURED ADVANCE**

1. Variable Refrigerant Flow type units
2. Pipes, valves, etc.
3. Insulation material.
4. G. I. Sheet
5. Electrical panels, cables.

**PROFORMA 47- 'F'**

**VIRTUAL COMPLETION CERTIFICATE**  
**(Ref : Clause 21 of General Conditions of Contract)**

Draft of the letter to be written by the contractor to the CONSULTANTS / BANK'S ENGINEER in connection with the Virtual Completion Certificate as per clause no. 20 on page \_\_\_\_\_ of the contract.

Having executed the work in terms of the contract, we hereby certify and affirm that we have virtually completed the contracted works.

We hereby certify that the work has been executed wholly to our satisfaction and with materials and workmanship in accordance with the contract.

We do certify further that we have executed the work in accordance with the applicable laws and without any transgression of such laws.

Signature of the Contractor

Name :

Address :

## **SPECIAL CONDITIONS OF CONTRACT**

### **1. SITE**

The building premises is situated at Regional Office at 54, Wellesley Road, Shivajinagar, Pune –411005.

### **2. Contractor's Working Area**

The Contractor shall make necessary arrangement with the National Bank for Agriculture and Rural Development with regard to entry and use of a suitable working area to accommodate the Contractor's temporary site office, stores, etc. The Contractor shall not be allowed to demolish any structure demarcated for demolition without prior permission from Owner in writing. The owner's normal business activities will be carried out in an around the works site and any temporary measures, as approved by the owner, may have to be incorporated to separate the working areas by the Contractor. The Contractor shall include the cost so involved and shall plan his work so that there is no undue hindrance to the Owner's activities or the activities of neighboring office personnel.

### **3. Entry to Site**

The approach to the site shall, unless otherwise decided by the Consultant / Employer be through the main gate or any other entry gate as permitted by Owner. The Contractor's workers, labourers, employees and materials shall be brought to site through such gates only. The Contractor may also make provision to transport his men and materials by designated route so as to meet the requirement of the work program without any hindrance to any activity of the Owner or the neighboring office personnel.

### **4. Life Saving and First Aid Appliances**

The Contractor shall at his own expense provide and maintain upon the works to the satisfaction of the Consultant / Employer sufficient, proper and efficient life-saving and first-aid appliances which shall at all times be available for use.

### **5. Scope of Work**

The work comprises broadly the following items;

- a) Supply, installations, testing and commissioning of variable refrigerant flow type air conditioning units including indoor units, outdoor units and interconnected refrigerant piping.
- b) Supply, installation, testing and commissioning fresh air unit.
- c) Fabrication and installation of fresh air ducting for connecting fresh air units.
- d) Supply, installation, testing and commissioning of condensate drain piping for the indoor units.
- e) Supply, installation, testing and commissioning of motor switchgear, sub-distribution boards, cables and earthing system pertaining to A/C works and modification/additions/ alterations to existing Electrical system as required.

- f) Supply, laying and commissioning of cables in Trench/ tray/wall/ duct as required.
- g) Supply, installation, commissioning and testing of necessary controls and safeties along with control wiring.
- h) All the civil work relating to air conditioning job including making and finishing up the minor civil openings for refrigerant piping, drain piping, fresh air ducting, etc.
- i) Painting and final finishing of all the works.
- j) System balancing and prescribed seasonal performance test of all the equipment / system.
- k) Obtaining approvals for enhancement of electrical loads/Transformer/system and the entire electrical work executed from concerned authorities / Electricity Boards including Liasoning and obtaining all necessary clearances and NOCs from various concerned authorities for final commissioning of the entire system.
- l) Any other work not covered above but required to make the complete system operational and comply with the full intent of this contract.
- m) Electrical installation and related other works.

## **6. Standard Specification and Code Practices**

Except where otherwise stated or permitted by Owner, all materials and workmanship shall conform to latest Indian Standard Specification issued by the Bureau of Indian Standards (hereinafter abbreviated to IS). In the absence of any IS, the work shall conform to latest equivalent British or American Standard. All workmanship shall be best of its particular kind.

Wherever the names of manufacturers are indicated against specified items, it is to be understood that items shall be of established best quality. If contractor desires to offer alternate manufacturer, he should provide sufficient information/documents to allow owner/engineer to decide if the products are of equivalent or superior quality. The Engineer's decision in this respect shall be final and binding on the Contractor.

The generalized technical specifications of the various Equipment / materials which has been mentioned in the Tender Specifications shall be applicable, unless otherwise specified. However the description given in the "Brief Technical Specifications" in the "Schedule of Quantities" shall prevail in case of any variations between the generalized and the brief specifications. In case any clarifications is required regarding specifications or drawings, the Tenderer / Contractor may contract the Consultant.

It is not the intent of this tender to completely specify all details of design and construction. Nevertheless the system, shall conform in all respect to a high standard of engineering design and workmanship and shall be capable of performing in continuous operation in a manner acceptable to owner.

The electrical equipment supplied and installed shall comply in all respects with Indian Electricity Act and Indian Electricity Rules (1956) as amended upto date.

**7. Statutory Regulations Inspection and Testing**

It will be the Contractor's responsibility to prepare and submit and get approval of the drawings, test certificates and any other information as may be required by the local authorities to obtain supply and commissioning of the equipment. Necessary fees as required for inspection will be paid by the contractor, however, if any deposit are required to be paid to local/Govt. authorities the same shall be paid by the employer.

**8. Competency of Electrical Staff**

Accepted norms of good workmanship is required. The related electrical works shall be done by qualified and trained staff having sufficient competency in electrical works and under the overall supervision of electrical contractors licensed by the Government of such works.

**9. Drawing, Maintenance Manual etc.**

On the award of the work the Contractor shall immediately proceed with the preparation of detailed fabrication drawings, detailing the equipment that are to be installed and the ancillary works that are to be carried out. Shop drawings for related electrical work shall be inclusive of conduit layout, location of junction and pull boxes and number of wires through each section of conduit. GA drawing of switch gear panel, cable layout and schematic of related electrical system, earthing layout, control circuit of individual feeder and interlocking etc. Three sets of all such drawings shall be submitted to the Consultant / Employer for his approval to ensure that the works will be carried out in accordance with the specifications and drawings, including such changes as may have been mutually agreed upon. All the drawings shall be delivered to the Consultant / Employer for his approval, within four weeks of the award of work. The approval of the drawings by the Consultant / Employer shall in no way relieve the contractor from his obligations to provide a complete and satisfactory plant and installation as per intent and purpose as laid down in the specifications. Any omissions, and/or errors shall be made good or rectified whether or not the drawings are approved. Prior to the completion of the work the contractor shall furnish to the Owner four (4) sets of as built drawings approved by the Consultant / Employer and comprehensive manuals, describing at components and furnishing a list of instructions for the operation and maintenance manual shall also include the list of spare and consumable for all the serviceable equipment/components.

The successful Tenderer shall, on award of the contract, furnish details as listed below and get them approved from the Consultants/Owners.

- (1) Foundations drawings (as applicable) for all the equipment, drawings showing structural openings in walls, slabs etc. and other civil engineering requirement.
- (2) Equipment layout drawing in A.C area.
- (3) Refrigerant piping flow diagrams with details of instrument and controls.

- (4) Fresh Air distributions systems, plans and sections
- (5) Electrical power wiring and control diagrams.
- (6) Any other relevant drawings.

The contractor shall also furnish the following documents:

- (a) Bar chart for execution to be submitted on award of contract.
- (b) Test Certifications and test readings for all the tests carried out on equipment before the delivery.
- (c) Operation, maintenance and service manuals
- (d) List of spare parts for 2 years operation.
- (e) As built drawings for the system.

Items (ii), (iii) and (iv) shall be submitted at the time of the delivery of the main equipment . Item (v) shall be submitted before handing over the system.

The contractor shall also fix in the plant room neatly typed and framed, instructions in detail for starting and running of the plant.

Any special tools required for the operation or the maintenance of the plant shall be supplied free with the plant.

## **10. Coordination**

Apart from false ceiling work, no work will be provided by any other agency. The entire work shall be done by the HVAC contractor. In view of the above, air-conditioning contractor will not be allowed to put forth any claims for extra charges after award of the contract over and above the total value of the contract. This aspect should be kept in mind by the tenderer while submitting their quotations.

After award of contract, air-conditioning contractor shall be solely responsible to provide all items at site without any extra cost implication to the Owner, as required to complete the erection and commissioning of air-conditioning plant on turnkey basis for safe, smooth and trouble free operation and foolproof performance.

The contractor shall coordinate the requirements for holes fixing and other similar work with the Consultant / Employer. However, it will be the contractor's responsibility to carry out all such work after receiving due clearance from the Consultant / Employer.

The contractor shall ensure that such work as shown on Engineer's drawing are in accordance with the specialist sub-contractor's/suppliers requirements. Details of holes, fixing, etc. which are not shown on Engineer's drawings but are required by the contractor or by a subcontractor shall be forwarded to the Engineer for his written approval at least one week before the work proceeds. No holes or fixing shall be formed without prior approval by the Engineer.

## **11. Works of Owners and other Agencies**

The ordinary business and works of the OWNER and other agencies being as carried out on and in the vicinity of the site will be continued during the construction, completion and maintenance of the works and the contract shall be conducted in such a way as to avoid interference with traffic of every kind by land and with any other works in progress in the vicinity.

## **12. Existing Services**

Drains, pipes, cables, overhead wires and similar services encountered in the course of the works shall be guarded from injury by the contractor at his own cost so that they may continue in full and uninterrupted use to the satisfaction of the owners thereof and the contractor shall not store materials or otherwise occupy any part of the site in a manner likely to hinder the operation of such services.

Should any damage be done by the contractor, to any mains, pipes, cables or lines (whether above or below ground) whether or not shown on the drawings and the contractor must make good or bear the cost of making good the same without delay to the satisfaction of the Engineer and of the owners.

## **13. Scaffolding**

The Contractor shall provide all necessary temporary scaffolding for the proper execution and completion of the works. These shall be relocated and adapted from time to time as necessary. The Contractor is to ascertain whether any scaffolding is required by any Sub-contractor before striking. If the contractor should strike any scaffolding before it is so required, he shall re-erect it at his own expense.

## **14. Keeping Site Clean**

The contractor shall at all times keep the Site clean and shall dispose of all rubbish and offensive material in a manner approved by the Consultant / Employer.

## **15. Avoidance of Nuisance**

The Contractor shall take all necessary precautions in reducing noise of plant by means of mufflers, silencers, screens, etc.

Work liable to create dust shall be well wetted before being executed.

The work shall be carried out strictly in accordance with the time schedule and other instructions given by the Consultant / Employer taking care to cause minimum amount of noise, dust and other nuisance at the site.

## **16. Prevention of Fire**

Contractor shall provide at all time adequate portable fire extinguishers in his work area and take all adequate precautions against fire hazard.

## **17. Advertising**

No advertisement may be placed on any hoarding, fencing, building or scaffolding erected in connection with this contract without the written permission of the employer.

## **18. Supervisory Staff**

Contractor shall arrange for required supervisory staff as and when required. He shall submit staff deployment schedule at the time of tendering. However, it is understood that contractor shall depute a qualified senior and well experienced Engineer at the site for all the working days until the completion and successful handing over of the plant.

**19. Progress Report**

The Contractor shall submit to the Consultant / Employer on the first day of each week a progress report for the proceeding week showing upto date progress and progress during the previous period of all important items of each section or portion of the works.

**20. Return of Labour and Plant**

The contractor shall supply to the Consultant / Employer by 10 A.M. every working day a return of the man employed in the previous working day and of the work on which they were engaged, specifying also the number employed in each trade. He shall also supply monthly and other returns which may be required as to the number of men and constructional plant employed and the nature and quality of the work done.

**21. Returns and Drawings**

All reports, statements, returns, diagrams or drawings, etc. which the contractor is required to submit during the progress of the works to the Consultant / Employer or to be Consultant / Employer representative shall unless otherwise directed to be furnished in triplicate and at expense of the Contractor.

**22. Procurement of Material**

It will be the responsibility of the Contractor to procure material such as structural steel, cement etc. for works. No essentially certificate for acquiring steel and cement shall be issued by the Employer.

**23. Names of Manufacturers and Copies of Orders**

Before ordering any material of any description for the permanent works the Contractor shall submit for the approval of the Consultant / Employer, the names of the makers and suppliers proposed and any other detail required by the Consultant / Employer. Contractor shall also furnish in duplicate the order copies of the material, if desired by the Consultant / Employer.

**24. Test Certificate**

All manufacturer's certificates of test proof sheets, mill sheets, etc. showing that the materials have been tested in accordance with the requirements of the appropriate Indian Standard, other relevant standard specification or this specification, are to be supplied free of charge as and when required by Consultant / Employer.

**25. Records and usage of materials**

The Contractor shall maintain a detailed record of all materials received on the site or in his stores or storage and working areas in the vicinity of the Site and shall make such records available to the Consultant / Employer at such times as the later may reasonably require.

## **26. Quality certificate of Materials**

The Contractor shall be required to produce manufacturer's quality certificates for the materials supplied by the Contractor. Notwithstanding the manufacturer's certificates, the Consultant / Employer may ask for testing of materials in approved test houses. The test result shall satisfy the requirements of the relevant Indian Standards.

Whenever quality certificates are missing or incomplete or when material quality differs from standard specifications, the contractor shall conduct all appropriate tests as directed by the Consultant / Employer at no extra cost.

Materials for which test certificates are not available or for which test results do not tally with relevant standard specifications, shall not be used.

## **27. Material Samples**

Samples of the following materials wherever applicable are to be submitted to the Employer for testing and approval before use on works.

- (1) Duct sheets
- (2) Pipes
- (3) Insulation material
- (4) Controls
- (5) Cables
- (6) Earthing material

Sampling of materials for approval and testing as called for under appropriate Indian Standard or other relevant standard specification, and sampling and testing referred to later in this specification is to be done without charge.

Samples once approved will remain with the Engineer till the completion of works, Samples rejected will have to be replaced for fresh approval.

Samples provided to the Engineer or the Engineer's Representative for their retention are to be labeled boxes suitable for storage.

Materials and workmanship not corresponding in character and quality with approved samples will be rejected.

## **28. Dispatch of Material**

Materials shall not be dispatched from the manufacturer's works or to the site without authority from the Employer or his representatives.

## **29. Protection in Transit**

All the fabricated and delivered items shall be suitably protected to prevent damage during transport. Any damage caused at any time shall be suitably rectified free of cost by the Contractor.

### **30. Safe Custody and Storage**

Safe custody of all machinery and equipment supplied by the Contractor shall be his own responsibility till the final taking over by the Employer. He shall, therefore, employ sufficient staff for watch and ward at his own expenses. The Employer may however, allow the Contractor to use the plant room/weather maker rooms, etc. for temporary storage of equipment, if such spaces are ready and available.

### **31. Testing**

All types of routine and type tests shall be carried out at the works of the Contractor or the manufacturers of components. The Bank's Engineer shall be free to witness any or all tests, if he so desires.

On the completion of the installation, the Contractor shall arrange to carry out various initial tests as detailed below in the presence of and to the complete satisfaction of the Consultant/Employer, and their representatives. Any defects or shortcomings found during the tests shall be speedily rectified or made good by the Contractor at his own expenses.

The initial tests shall include but not be limited to the following.

To operate and check the proper functions of all electricity operated components viz. compressor, pumps, blowers, fans etc. as well as its motors.

To test and check the switch gears, safety and other controls to ensure their proper functioning.

To check the air distribution of the system and to provide design air flow in all areas as shown on the drawings.

To check the systems against leaks in different circuits, alignment of motor, "V" belt, adjustable control setting and all such other tests which are essential for smooth functioning of the plant.

In addition to the "Initial" tests the Contractor shall demonstrate the trouble free running of the plant for a period of not less than 120 hours.

Contractor shall carry out specified performance tests of various equipment/system including efficiency, capacities, noise level etc. during continuous running period and in presence of Engineer.

On the satisfactory completion of all above tests the plant be considered to be "Virtually complete" for the purpose of taking over by the Employer.

Contractor shall carry out three seasonal tests each of 48 hours during defect liability period on the dates approved by Engineer.

The Contractor shall provide all necessary tools, instruments, gauges, ammeter, etc. as may be required for conducting the various tests. He shall also provide required personnel for the tests.

It should be noted that the work is going to be carried out in a working office. There is a possibility of a shut-down for half of the office being considered as phase-1 and the remaining office being considered as phase-2. Here the responsibility of effective cordoning off of the office from the work-place (using tarpolin sheets / GI corrugated sheets) will be with the HVAC contractor. In case such phasing is not possible, the contractor will have to work only during non-office hours and on weekends and holidays for completion of erection work. In either case, the existing workstations shall not be shifted. The contractor shall have to create a scaffolding with platform large enough to ensure that the office equipment below the platform is not disturbed or damaged in any way. This platform shall be easy dismantling type so that least amount of time is put in for the same. The contractor should synchronize the execution of work in such a way that working of the office is not disturbed. Necessary permissions from local authorities for work during no-office hours etc shall be the responsibility of the contractor and there shall be no extra payment for the same.

The system, after proper erection and completion of piping etc. shall be tested in accordance with a standard engineering practice. This will include pressure and vacuum tests for refrigeration systems, leak test for ducts and other tests as are required at site and as directed by the Architect / Consultant. There shall be the following tests for electrical equipment :

- (1) Wire and cable continuity tests
- (2) Insulation resistance tests, phase to phase and phase to earth, on all circuits and equipment, using a 500 volt meggar. The meggar reading shall be not less than one mega ohm
- (3) Phasing out and phase rotation tests.
- (4) Operating tests on all protective relays to prove their correct operation before engineering the main equipment.
- (5) Operating tests on all starters, circuit breakers, etc.

All tools, tackles, instruments and equipment etc. as required for the installation, testing and commissioning of the system shall be arranged by the Contractor at his own cost. After the commissioning of the system, running test readings shall be furnished for certifications of the desired performance.

There shall be performance testing in all three seasons and final handing over will be taken only on satisfactory performance in all three tests. The testing shall be done with the help of the Test Readings Datasheet as provided in the Tender document. In case the plant is commissioned during Winter running test shall be conducted and the plant shall be taken over provisionally by the Owner, subject to approval of the Consultants and testing shall be conducted in summer and Monsoon under full load condition.

## **32. Painting**

All equipment such as package units, pumps, pipe lines, valves, etc. and ancillary items such as Ducts and pipes supports etc. will be painted in approved manner, using colour scheme as follows or as approved by the Bank's Engineer at site.

Refrigerant suction line	Yellow
Refrigerant liquid line	Dark blue
Steel supports	Battle ship gray
Electrical switch board and cable trays	Battle ship gray

### **33. As Built Drawings**

The Contractor shall submit 4 sets of following 'As built drawings' while handing over the installation.

- a) Plant installation drawings giving complete details of the entire equipment including foundations.
- b) Fresh air Ducting drawings showing all sizes, dampers, etc.
- c) Electrical drawings for the entire electrical equipment showing cable sizes, equipment, capacities, switch gear ratings, control components, control wiring.
- d) Schematic control drawings giving detailed sequence operation notes to explain the operation of the control circuit.
- e) Piping drawing showing all pipe sizes, their lengths, location, for the entire piping.

### **34. Other information**

Contractor shall also submit the following information while handing over the plant :

- a) Four sets of detailed drawings and specifications in respect of wearing parts and parts likely to be damaged.
- b) List in quadruplicate, of components like thermostats, humidistat and other control components giving their type, designation and function.
- c) Four sets of manufactures catalogues of the main equipment and accessories.
- d) Four sets of service and maintenance manuals in respect of the entire air-conditioning system detailing all adjustments, operations and maintenance procedures.
- e) Schedule in quadruplicates of the items of which the contractor is not the manufacturer or manufacturers authorized dealer. This should contain the specifications of each item and the agency from which these items are purchased.

### **35. Mobilization Advance**

No mobilization advance will be given to the Contractor.

### **36. Terms of Payment**

- a) 65% of the unit rates against item-wise supply of materials as detailed in Clause 30 of GCC.

- b) 25% of the unit rates against installation of the item and successful tests as prescribed are carried out and recorded progressively.
- c) 10% after successful commissioning and testing of the entire installation and after obtaining approvals from all concerned authorities as required for usage of the system.

### **37. WAGES OF LABOUR EMPLOYED BY THE CONTRACTOR**

The contractor shall pay all labour employed by him at rates fixed by competent authority for minimum wages as applicable for the duration of the contract. All wages shall be paid in full and without any deduction whatsoever at the approved rates and for full time actually worked during the wage period. The Consultant / Employer shall have power to exercise supervision over the labour employed by the contractor, and for such purpose Consultant / Employer's officers may inspect the wages books, muster books and other labour records of the contractor. In the event of the report of the Inspecting Officer showing that the proper rates of wages are not being paid, or that in any manner whatsoever the dealings between the contractor and his labour are not satisfactory, the Consultant / Employer shall pass such orders upon, the report as he considers desirable, and those orders shall be final and binding upon the contractor.

The contractor shall indemnify and keep indemnified the Consultant / Employer against any claim arising from failure of the contractor to comply with Such labour laws.

### **38. ISSUE OF EXTRA DRAWINGS**

Consultant / Employer shall supply three set of drawings to the contractor for contract.

Extra prints of drawings for construction issued on chargeable basis by Consultant / Employer as detailed hereunder :

A0	-	Size	Rs. 50/-to 100/- each depending on size of drawing
A1	-	Size	Rs. 30.00 each
A2	-	Size	Rs. 25.00 each
A3	-	Size	Rs. 20.00 each
A4	-	Size	Rs. 20.00 each

The contractor shall ensure that all the bills in this regard furnished by the Consultant / Employer's Office are honored, failing which the certificate for payment of contractors for net Interim Bill will be withheld. The drawings are to be used only for the Project concerned.

### **39. EXECUTION OF WORK**

The whole of the work as described in the Contract (including the Schedule of Quantities, the Specifications and all drawing pertaining thereto) and as advised by the Consultant / Employer from time to time is to be carried out and completed in all its parts to the entire satisfaction of the Consultant / Employer. Any minor

details of construction which are obviously and fairly intended, or which may not have been specifically spelt out in this Contract, but which are usual in sound building construction practice and essential to the work, are to be included in the contract. The rules and regulations of Local Bodies, State Government and the Government of India in respect of Building services system has to be catered to as applicable, and to the full intent of job requirement.

Tender shall be on Individual Supply and Erection basis for the total system including delivery of equipment, installation, testing and commissioning in accordance with the specifications and the drawings referred to in the Tender.

The Tender value shall be inclusive of all taxes, duties & levies and the rates should be applicable at all lifts and levels. Statutory changes, however, in the quantum of taxes or duties, if applicable, during the execution of the contract, shall become adjustable only in the final bills of the contractor.

Unit rates for equipment and accessories and electrical works etc. shall remain valid till the completion of work in all respect and shall be free from variations due to increase or decrease in the cost of material, labour or any other reason whatsoever.

Quantities given herein for electrical work etc, are average and are available only for the contractor's guidance. However, the contractor shall provide for the Quantities as per actual requirement at site and the variations in quantities shall be adjusted as per the unit rates of the respective items.

The rates quoted in the Tender shall be deemed to include all the charges for :

- a) Labour, maintenance, fixing, carrying, cleaning, making good, hauling, watering etc.
- b) Plant, double scaffolding, frame work, English ladders, ropes, nails, spikes, tools, material and workmanlike protection from weather, shuttering , temporary supports, enabling tools and plant for and the maintenance of the same.
- c) Covering for the walling and other works during inclement weather or strikes or whenever directed, as necessary.
- d) All temporary canvass lights, tarpaulin, barricades, etc.
- e) All stairs and steps, thresholds and any other requisite protection of the works.
- f) All such temporary weatherproof sheds at such places and in a manner approved by the Consultant /Employer for the storage and protection materials against the effects of Sun or rain.
- g) All such temporary fences, guards, approaches and roads as may be necessary for execution of the Contract works and for safeguarding the public/workmen.
- h) All necessary plant, welding / brazing machines, and all such appurtenants accessories, hoist, scaffolding, tackles, cartage, labour and removal of the same on the completion of the work. The Consultant / Employer will be the

sole judge in deciding as to the suitability of the tools and plant that may be brought at the works by the contractor for the proper execution of the work.

- i) Testing the installation, as often as necessary. Necessary stoppers, screws, plugs, hose etc. must be provided for. These shall be taken out and re-laid at the Contractor's expenses. Suitable testing equipment required for the purpose shall be procured by the contractor and kept at site for the duration of the job.
- j) Every pipe, device, valve and fittings used in Hydro mechanical system shall be capable of withstanding a pressure of 100 p.s.i. in excess of the pressure designed in the system but, in no case less than 150 p.s.i. gauge pressure.
- k) Painting, pipes fittings and accessories with approved primer and necessary coats of paint of approval make as per specification, to the colour code prescribed.
- l) Apportionment of cost for general facilities to be used by the contractor's staff such as Lifts/Electricity/Telephone etc., during erection, due to the general contractor ;or to Employer who arranges or such facilities in the first instance.
- m) Fees for testing the materials / permission / inspection by appropriate authorities.
- n) All civil work connected with installation of equipment piping etc.
- o) Numbering the installation as directed.

The rate quoted by the tenderer in the schedule of probable quantities will be deemed to be for the finished work inclusive of all freights, Octroi, Sales Taxes, Work Contract tax, Royalties etc. as well as transport and handling so as to execute the works as per codes of practices and local bye laws and regulations.

#### **40. SCHEDULE OF QUANTITIES-NO CLAIM BECAUSE ACTUAL QUANTITIES DIFFER FROM PRELIMINARY STATEMENT.**

A schedule of probable quantities in respect of work and Specifications accompany these conditions. The schedule of probable quantities is liable to alterations by omissions, deductions or additions at the discretion of the Consultant / Employer.

The quantities of the various kind of work to be done and materials to be furnished under this contract which have been estimated and are set forth in the proposal or the agreement or the lists of contract prices, are the best available, but may not be accurate in any or all particulars and are only for the purpose of comparing on a uniform basis the bids offered for the work under this contract. The contractor agrees that neither the Employer nor the Consultant / Employer any of the employees or agents here of shall be held responsible if any of the said estimated quantities shall be found to be not even approximately correct in the construction of the works and that he will not anytime dispute or complain of such statement nor assert that there was any misunderstanding in regard to the character, size and type of work to be done or the kind or amount of the materials to be furnished or

work to be done. Further, the contractor shall make no claim for anticipated profits, or for loss of profits or for damages because no work is ordered under certain items or because of differences between the quantities of the various kinds of work to be done or materials actually delivered and the estimated quantities set forth by the Employer or the Consultant / Employer.

#### **41. PROGRAMME OF WORK**

The tenderer shall, along with his bid, submit a schedule for completion of work, either in the form of a CPM Net work or in the form of a bar chart, showing how he proposes to complete the works. This programme shall be prepared in sufficient detail and shall indicate among other things, the following details on a month-to-month basis for each month to cover the period of completion based on his site visit.

- a) Quantum of work under each major item of work that would be carried out.
- b) Amount of resources that would be deployed (e.g. materials skilled/unskilled labour, plumbers, masons, fitters, equipment etc.)
- c) Schedule of delivery of materials to site.
- d) Approximate value of work contemplated to be completed each month.
- e) Time period allowed for other agencies work.
- f) Various milestones to be achieved.

The successful tenderer shall supply the following information to the Consultant / Employer so as to suit the overall scheme of the completion of the project in its entirety.

- (1) A complete set of installation drawings clearly covering the scope of contractor's work.
- (2) Certified drawings and test reports and manufacturer's certificates/ISI certificates material and equipment before dispatch to site. The data must also include the actual dimensions/material specifications, test pressures and actual performance figures, weight etc.

The contractor on starting the work shall furnish to the Consultant / Employer a programme for carrying out the work stage by stage to the stipulated time. A graph, or chart on individual work shall be maintained showing the progress each week at site prepared in consultation with Consultant / Employer.

This programme, suitably amended after discussions with the Consultant / Employer shall become binding on the contractor. However, during the execution of the project, should it become necessary, in the opinion of the Consultant / Employer to reschedule some of the activities, the contractor shall do so at no extra cost and/or without any other claim.

Acceptance of a bidder a tender does not necessarily imply acceptance of the schedule submitted and the Consultant / Employer reserves the right to the contractor shall adhere to these revisions/modifications at no extra cost to the Employer.

#### **42. WORK AT NIGHT**

- a) If the contractor is required to work at night in order to complete the work within the Time Schedule, the contractor shall provide and maintain at his own cost sufficient lights to enable the work to proceed satisfactorily without danger, Approaches to the site also shall be sufficiently lighted by the contractor, No extra payments will be made for night work.
- b) The Contractors should, however, synchronized the execution of work in such a way that working of office is not disturbed. If it is required, contractor can carry out work after 6.00 p.m. with the written permission from Consultant / Employer. However, contractor can carry out preparatory work viz shifting of materials, cutting and bending of pipes etc. before 9.00 a.m. and after 6.00 p.m. at his cost and risk.

#### **43. WORK ON HOLIDAY**

Work on holiday shall be as decided by the Employer / Bank's Engineer.

#### **44. ACTION WHERE THERE IS NO SPECIFICATION**

In the case of any class of work for which there is no specifications mentioned, the same shall be carried out in accordance with the Indian Standard Specifications subject to the approval of the Bank's Engineer.

#### **45. OCCUPATION OF PARTIALLY COMPLETED BUILDING BY THE EMPLOYER**

The Employer shall be entitled to and at liberty to occupy even the partially completed building or any portion thereof by themselves or through their agents and servants if they so desires. Necessary extension of time for completing the building shall however be granted to the contractor, but he shall have no claim for any compensation whatsoever due to the delay involved in completing the building. Both the Employer and the contractor will work out the repercussions on the insurance clause mentioned above to mutual satisfaction safeguarding each other's interest.

#### **46. INFORMATION TO BE SUPPLIED BY THE CONTRACTOR**

The contractor shall furnish the Bank the following :

- a) Detailed industrial statistics regarding the labour employed by him, etc.
- b) The power of Attorney, name and signature of his authorized representative who will be in charge for the execution of the work.
- c) Electrical load requirements for equipments, their power factor and arrangement for correction to limits within the local supply agency's requirements.
- d) Weight of the equipment, distribution point loads, live loads for suspension or fixing in respective location.
- e) Safety features incorporated.

- f) Automatic start/out off, visual and/or audio visual devices to indicate healthy and faulty situation, proposed for respective control areas to meet emergencies, and suited in the system with Building Automatic work.
- g) Description and specifications for any additional item suggested and indication of the quantity and unit rate to evaluate additional cost.

#### **47. INDEBTEDNESS AND LIENS**

The contractor agrees to furnish the Employer from time to time during the progress of the work if required, verified statements showing the contractors' total outstanding indebtedness with the sub contractors and or venders for the work covered by the contract. Before final payment is made, the Employer may require the contractor to furnish the Employer with satisfactory proof that there are no outstanding debts or liens in connection with the contract. If during the progress of the work, the contractor shall allow any indebtedness to accrue to subcontractors or other and shall fail to pay or discharge same within five (5) days after demand, the Employer may withhold any money due to the contractor until such indebtedness is paid, or apply the same towards the discharge thereof.

#### **48. MATERIALS SUPPLIED BY THE EMPLOYER**

If any materials supplied by the Employer, the contractors must satisfy themselves that the same conform to the specifications. If the contractors have any complaint, about the said materials, on the quality thereof, the contractor before using the said materials, must communicate in writing all their objections to the CONSULTANT / EMPLOYER, who will give their final decisions. Should the contractors fail to do so, they will be deemed to have satisfied themselves as to the quality and the suitability of the said materials for being used in the contract works and the contractors will be in the same position as if the contractors themselves had purchased the said materials.

#### **49. COMPLETION PERIOD**

Completion schedule for the complete work shall be 6 months from date of award of contract to the contractor. As is mentioned later in the document, the work has to be done in either a half-office shut-down condition, or in a working office but during non-working hours. The completion period of 6 months shall include all incidental delays like delays in getting various permissions from local authorities, non availability of working area on certain days owing to official events or requirements, etc and no additional time consideration shall be allowed for completion apart from force majeure.

Extension of time owing to inordinate delay for reasons beyond control of the contractor shall be considered only on submission of express request for such extension in writing. However, the granting of such request shall rest with the owner only.

#### **50. PERFORMANCE GUARANTEE**

The contractor shall guarantee to maintain the inside space conditions as described under the basis of design in the General Description of work. Under the operating conditions described in the specifications, the sling psychrometer reading shall show

the dry bulb temperature and relative humidity within the limits specified in the basis of design.

It is to be clearly understood that the drawings, schedule of quantities and computed refrigeration, air-conditioning loads, etc. given in this Tender represent a feasible scheme. The Tenderers may, if so desire, carry out comprehensive load calculations and any minor technical deviations made by the Tenderer to meet the performance requirement or for any other reasons may be mentioned clearly in the relevant space marked "Technical Deviation". Deviations mentioned else where shall not be considered.

The power consumption is the most essential consideration factor for the AC system. As such, the power consumption will be used as a factor to arrive at the lowest tenderer. The following methodology will be used to arrive at the same :

The power consumption in kW / TR for only the compressor(s) at 100% load, 75% load, 50% load and 25% load at the summer design conditions will be considered in an average and that will be multiplied to the tonnage of the AC plant (in TR) as per tender to arrive at the power consumption figure in kW. This will be considered at Rs 5 / unit electricity charge for 200 working days in a year for 8 hours operation per day for a period of 5 years. [Thus a power loading of (avg kW) x 8 hours x 200 days x Rs. 5 = cost considered for power consumption will be added to the final price of the tender]. In case the power consumption figures for any of the above loads goes higher than 5% of the committed figure, the contractor shall replace the unit free of cost to the satisfaction of the owner / consultant.

## **51. OTHER IMPORTANT CONDITIONS**

- a) Conditional Tender will not be accepted.
- b) No price escalation clause shall be acceptable
- c) Works Contract or other relevant Tax if applicable will be to Contractor's account.
- d) If any damage to the materials supplied by the Owners, free of cost, is noticed, the cost of such materials /equipment will be recovered from Contractor's bills.
- e) Water for construction/ erection purpose only will be supplied by the Owners at one Point.
- f) Electrical connection will be supplied at One point by the Owners.
- g) As the work may be executed during office hours and in a working building, all ducting shall be fabricated at the contractor's / subcontractor's workshop and only assembly of ducting shall be allowed at site.

## **SAFETY CODE**

1. Suitable scaffolds shall be provided for workmen for all works that cannot safely be done from the ground, or from solid construction except in the case of short duration work which can be done safely from ladders. When a ladder is used, it shall be of rigid construction made either of good quality wood or steel. The steps shall have a minimum width of 450 mm and a maximum rise of 300 mm. Suitable hand holds of good quality wood or steel shall be provided and the ladder shall be given an inclination not steeper than 1/4 to 1(1/4 horizontal to 1 vertical).
2. Scaffolding or staging more than 4m. above the ground floor, swung or suspended from an overhead support or erected with stationary support shall have a guard rail properly bolted, braced or otherwise secured at least one meter (1.0m) above the floor or platform of such scaffolding or staging and extending along the entire length of the outside and ends thereof with only such openings as may be closely for the delivery of materials. Such scaffolding or staging shall be fastened to prevent it from swaying from the building or structure.
3. Working platforms, gangways and stairways shall be so constructed that they do not sag unduly or unequally and if the height of the platform, gangway or stairway is more than 4m. above ground level or floor level, they shall be closely boarded and shall have adequate width and be suitably fenced as described in (ii) above.
4. Every opening in the floor of a building or in a working platform shall be provided with suitable means to prevent the fall of persons or materials by providing suitable fencing or railing whose minimum height shall be one meter (1.0m).

Wherever there are open excavations in ground, they shall be fenced off by suitable railing and danger signals installed and visible at night so as to prevent persons slipping into excavations.

5. Safe means of access shall be provided to all working places. Every ladder shall be securely fixed. No portable single ladder shall be over nine meters (9.0m) in length while the width between said rails in rung ladder shall in no case be less than 290 mm for ladder upto and including three meters (3.0m ) in length. For longer ladders this width shall be increased at least 20 mm for each additional meter length.
6. A sketch of the ladders and scaffolds proposed to be used shall be prepared and approval of the Consultant / Employer obtained prior to construction.
7. OTHER SAFETY MEASURES
  - a) All personnel of the Contractor working within the building site shall be provided with safety helmets. All welders shall wear welding goggles while doing welding work and all metal workers shall be provided with safety gloves. Persons employed on metal cutting and grinding shall wear safety glasses.

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

Presents and crediting the Contractor with the value of work done as if he had carried out in accordance with the said Agreement and at the rates thereby

provided. If the balance is against the Contractor, he is to pay same to the Employer on demand together with interest accruing thereon.

- b) Remove and sell by Public auction the seized materials or any part thereof and out of the monies arising from the sale retain all the sums aforesaid repayable or payable to the employer under these including expenses incurred by Employer in connection with such auction and pay over the surplus (if any) to the Contractor.
  - c) Deduct all or any part ;of the money owing hereunder out of the Security Deposits or any sum payable to the Contractor under the said Agreement.
8. That except in the event of such default on the part of the Contractor as aforesaid, interest on the said amounts shall not be payable.
9. That in the event of any conflict between the provisions of these presents and the said agreement the provisions of these presents shall prevail and in the event of any dispute of difference arising over the construction of effect of these presents the settlement of which has not been herein before expressly provided for, the same shall be referred to the Employer's Chief Engineer, whose decision shall be final and no appeal shall lie against the decision before any court, Arbitrator or Authority.
10. The provisions of this undertaking shall be deemed to be supplemental to the said Agreement.

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

SIGNED, SEALED AND DELIVERED IN  
THE SAID CONTRACTOR IN THE PRESENCE

WITNESS :  
SIGNATURE \_\_\_\_\_  
NAME \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
\_\_\_\_\_

WITNESS :  
SIGNATURE \_\_\_\_\_  
NAME \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
\_\_\_\_\_



# **National Bank for Agriculture and Rural Development**

## **T E N D E R**

### **VOLUME - II**

**FOR AIR-CONDITIONING, ALLIED ELECTRICAL, PIPING, DUCTING WORKS,  
ETC. ON TURNKEY BASIS USING VRF / VRV SYSTEM FOR REGIONAL OFFICE  
BUILDING AT PUNE**

**ISSUED TO : -----**

---

*Last date of submission of Tender: 2.00 p.m. on 03/07/2008*

**HVAC CONSULTANTS**

**ACR PROJECT CONSULTANTS**

**VIJAY APTS. , 39/35 ERANDAVANA, PUNE - 411 004**

**TEL : 020 – 25464327 ; TELFAX : 020-25439209**

**E-MAIL : [asurange@vsnl.com](mailto:asurange@vsnl.com)**

**NATIONAL BANK FOR AGRICULTURE AND RURAL DEVELOPMENT**  
**REGIONAL OFFICE BUILDING FOR NABARD AT PUNE**  
**INDEX TO TECHNICAL SPECIFICATION**

<b>S. No.</b>	<b>CONTENT</b>	<b>PAGE NO.</b>
<b><u>Volume - II</u></b>		
<b>1. <u>TECHNICAL SPECIFICATION</u></b>		
Section -1 –	Basis of Design	1 – 2
Section -2 –	General Technical Specification for HVAC System	3 – 3
Section -3 –	System Description	3 - 10
Appendix – I –	Acceptable makes of Equipment	11 – 11
Appendix – II –	Technical Deviations and Alternatives	12 – 12
Appendix – III –	Exclusions/services provided by other agencies	13 – 13
Appendix – IV –	Schedule of Technical Details	14 – 15
Appendix – V –	Test Readings	16 – 16
Appendix – VI –	Drawings forming part of this tender documents	17 - 19

**NATIONAL BANK FOR AGRICULTURE AND RURAL DEVELOPMENT**  
**REGIONAL OFFICE BUILDING FOR NABARD AT PUNE**  
**TECHNICAL SPECIFICATION**

**Section 1: BASIS OF DESIGN AND UNIT SELECTION**

Outside conditions

	Summer	Monsoon	Winter
Dry Bulb Temp. deg C	40	24.4	10
Relative Humidity %	28	82	50

Inside Conditions

	Summer / Monsoon	Winter
Dry Bulb Temp. deg C	24 ± 2 deg C	24 ± 2 deg C
Relative Humidity %	< 60%	< 60 %

Outside Air

Outdoor air requirement would be taken as 10 cfm /person or one air change, whichever is higher.

Ventilation & Exhaust

The toilet exhaust shall be considered @ 20 air changes / hour.

Areas to be Air Conditioned & Estimated Cooling Loads

Considering the various areas to be air conditioned with respective human loads, lighting & equipment load, outdoor air loads & estimated heating / cooling loads , the total cooling load comes to 88 kW (25 TR)

Type of System

The AC system incorporates variable refrigerant flow system (VRF) with the outdoor condensing unit located at a designated location.

The low side of the system includes cassettes in the office areas. The system operation allows both cooling & heating and will have microprocessor based control system.

### **Low side equipment**

The type of low side equipments shall be as follows:

#### **Cassette type units**

These are square shaped units & have two way / four way air distribution as specified. They can be mounted at the false ceiling level & no separate ducting is required. A water pump incorporated in the unit removes the condensate as and when necessary. The units are designed for both heating & cooling operation.

#### **Fresh Air Units**

In order to provide desired quantity of fresh air it would be necessary to provide fresh air units, designed to supply fresh air to each fan coil or cassette units. These can be installed on each floor to cater to the fresh air requirement & air shall be carried through ducts.

The following drawing is enclosed for ready reference, showing indoor unit locations and fresh air unit location :

Drg No. : AC-161/VRF/02 dated 14/08/2006

Titled : Indoor Unit layout for VRF System - 1st Fl. 'B' Wing

## Section 2: GENERAL TECHNICAL SPECIFICATION FOR HVAC SYSTEM

### VARIABLE REFRIGERANT FLOW (VRF) SYSTEM

<b>A</b>	<b>PROJECT NAME</b>	<b>NABARD - Pune</b>			
<b>B</b>	<b>AREA NAME</b>	<b>1st Fl. - 'B' Wing</b>			
<b>C</b>	<b>PROJECT NAME</b>	<b>RO Bldg</b>			
<b>IMPORTANT INPUT PARAMETERS</b>			<b>P</b>	EQPM LOAD [KW]	12.5
<b>D</b>	ROOM LENGTH.(ft)	40.0	<b>Q</b>	LIGHT LOAD [W]	6000
<b>E</b>	ROOM WIDTH..(ft)	91.0	<b>IMPORTANT OUTPUT PARAMETERS</b>		
<b>F</b>	RM.HT.(RF to FL.ft)	11.8	<b>R</b>	WALL+GLASS GAINS [Btuh]	93,576
<b>G</b>	RM.HT.(FC to FL.ft)	11.8	<b>S</b>	ROOF+FLOOR GAINS [Btuh]	46,452
<b>H</b>	INSIDE TEMP (DB - F)	75.2	<b>T</b>	FA LOAD [Btuh]	29,470
<b>I</b>	INSIDE RH (%)	55	<b>U</b>	OCCUP LOAD [Btuh]	17,100
<b>J</b>	SUMMER (OUT) DB -F..	104	<b>V</b>	LIGHTING LOAD [Btuh]	20,460
<b>K</b>	SUMMER (OUT) WB -F..	76	<b>W</b>	EQUIPMENT LOAD [Btuh]	42,625
<b>L</b>	SPECIAL SENSIBLE (Btu/hr)	0	<b>X</b>	<b>SHR %</b>	<b>96.3%</b>
<b>M</b>	SPECIAL LATENT (Btu/hr)	0	<b>Y</b>	<b>ADP [F]</b>	<b>56.6</b>
<b>N</b>	OCCUPANCY (# of persons)	38	<b>Z</b>	<b>AIR QTY (CFM)</b>	<b>15,373</b>
<b>O</b>	FA LOAD [C]	670	<b>AA</b>	<b>SUMMER TR</b>	<b>24.7</b>

## Section 3: SYSTEM DESCRIPTION

### 1. VRF / VRV System

The Variable Refrigerant Flow (VRF) System should be air cooled, split type air conditioning system consisting of singular condensing units connected to multiple indoor units, each having the capability of individual set point control. The system should have the ability to connect each condensing unit to required indoor units of different types and capacities on one refrigerant circuit. The system is to be of the cooling / heating type. Each Condensing unit should incorporate at least one inverter based variable speed / digital scroll or a combination of compressors, to obtain 10% to 100% stepless capacity control for enhanced Power saving. The Indoor units should be provided with Cordless Remote Control as a standard accessory.

The Indoor and outdoor units should be BMS Compatible and it should be possible to monitor required number of indoor units from a single PC.

### 2. Refrigerant

The Entire Condensing unit and Evaporating unit should be Factory assembled and tested .The units should come with an initial charge of

refrigerant R22 / R410A / other HFC from the factory. Any additional refrigerant is to be added at site.

### **3. Ambient conditions**

To be capable of operating within a wide range of ambient temperatures, the Condensing units should be capable of provide cooling within an ambient range of 5 Deg. C to 43 Deg. C. DB, and heating in the range –10 Deg. C to 15 Deg. C DB. The regulation in Refrigerant flow is to be achieved by Variable speed / digital scroll or a combination of compressors, head pressure control (by varying fan speeds) and hot gas bypass connection.

### **4. Refrigerant Piping Distance Limits**

To be capable of refrigerant piping runs up to 150m between the condensing unit and fan coil units with 50m level difference without any oil traps or double risers. The Oil Equalising line should be inside the Condensing unit, to avoid 'inverted' oil traps at site.

### **5. Condensing Units**

They shall be fully weatherproofed, factory assembled and pre-wired with all necessary electronic and refrigerant controls. The casing shall be from mild steel panels coated with a baked enamel finish. Provide the condenser coil fins with a corrosion resistant finish.

Larger Condensing Units shall incorporate 2 compressors in condensing units with at least one Variable / Digital Scroll type.

The design shall be modular type allowing for side by side installation of the condensing Units.

Fan Motor Speed Control:

The condensing unit fan motors to have at least two speed operation to maintain constant head pressure control in all ambient temperatures and modes of operation.

#### **Compressors**

The compressor shall be highly efficient hermetic scroll type compressors. The Variable speed / digital scroll or a combination of compressors shall have electronic controls, capable of loading and unloading to follow the variations on cooling and/or heating loads, using the latest axial compliant sealing technology. The microprocessor panel should incorporate control for precise monitoring of status of the system.

### Heat Exchanger:

The heat exchanger shall be constructed from seamless copper tubes mechanically bonded to aluminium fins to form a cross fin coil. The aluminium fins shall be treated with an anti-corrosion film.

### Refrigerant Circuit:

The refrigerant circuit shall be complete with condensing unit with refrigeration compressors, motors, fans, condenser coils, electronic expansion valve, solenoid valves, 4 way valve, distribution headers, capillaries, filters, shut down valves, service ports, receivers and accumulators and all other components which are essential for safe and satisfactory operation.

### Safety Devices:

Provide the following safety devices as a part of the outdoor unit:  
High pressure switch, fuses, crank case heater, fusible plug, over current protector.

### Oil Recovery:

Equip the unit with an oil recovery system to ensure stable operation for systems with long refrigerant piping. Operate the oil recovery system after the first hour of operation and then every consecutive 4 hours of operation. Also fit high efficiency oil separators to the discharge side of the compressor together with factory fitted oil equalization system.

### Selection Switches:

Fit the condensing unit printed circuit board (PCB) with selection switches for the length of pipe work, emergency operation switches and service mode switches, together with LED indications for operation / fault indication.

## **6. Refrigerant Pipework**

The scope of Refrigerant Piping work shall include Supply, installation, testing and commissioning all interconnecting pipework between the condensing unit and the fan coil units. The piping shall be refrigerant quality seamless copper tube with brazed connections and with the appropriate Distribution joints and headers. The piping should be routed at site in such a manner, that brazed joints in the Ref.Piping are kept to a minimum. During brazing, pass dry nitrogen through the pipework. For outdoor piping, the pipes, after insulation, should be covered with Woven Glass Cloth 125 gsm finished in U/V Treated, pigmented Epoxy for Outdoor Piping, as per relevant code.

#### Joint Orientation:

The Distribution refrigeration pipe joints and headers shall be located in an appropriate orientation to enable correct distribution of refrigerant. The Distribution Joints should be factory insulated with pre-formed sections of EPDM / Equivalent.

#### Cleanliness of piping:

All pipework must be kept clean and free from contamination to prevent breakdown of the system. Seal all pipe ends and keep sealed until immediately prior to making a joint.

#### Pressure Testing:

The piping shall be vacuum dehydrated immediately after installation of pipe work and prior to sealing of insulation joints and start up of equipment & pressure tested to 3,800kPa; held for a minimum of 24 hours & checked for leaks and repaired if necessary. Following this, the pipe work to be vacuum dehydrated to (-755mmHg) and held for one to four hours depending on the pipe length.

#### Fixing Pipe work

Pipe supports shall be fixed at minimum of 2 meter centers with suitable saddling arrangement. Exposed Refrigerant pipes on the terrace shall be covered with openable GI Cable trays.

### **7. Indoor Units:**

#### **Cassette type indoor units**

These units shall be installed between the bottom of finished slab & top of false ceiling. The maximum allowable height for the cassette type units shall be 288 mm.

It will be preferred that the indoor units shall have air flow such that there is no direct draught on the persons in the air-conditioned area.

The unit must have in built drain pump, suitable for vertical lift of 750 mm.

The unit casing shall be Galvanized Steel Sheet.

Unit must be insulated with sound absorbing thermal insulation material, Polyurethane foam. The noise level of unit at the highest operating level shall not exceed 42 dB(A), at a vertical distance of 1.5 m from the grille of the unit.

Unit shall have provision of connecting fresh air without any special chamber & without increasing the total height of the unit (288 mm maximum).

The unit shall be supplied with suitable decorative panel.

The unit shall be supplied with Resin Net filter with Mold Resistance. The filter shall be easy to remove, clean & re install.

The unit will be connected in series to a suitable out door unit & it must be possible to operate the unit independently, through corded/ cordless remote specified in the "Bill of quantities". The unit will be further connected to Intelligent Building Management System (To be supplied by other vendors) & it shall be possible to operate the unit through this IBMS system.

The unit shall be supplied with following from the factory

- Operation Manual
- Installation Manual
- Paper pattern for installation
- Drain hose/ Clamp metal/ Washer fixing plate/ Sealing pads/ Clamps/ Screws/
- Washer for hanging bracket/ Insulation for fitting

The units should be available in various capacities similar to those given below or close to these capacities

0.8 TR, 1 TR, 1.25 TR, 1.5 TR, 2 TR, 2.5 TR, 3 TR, 4 TR

#### **Electronic Expansion Valve:**

Each indoor unit should be fitted with an electronic expansion valve which controls the refrigerant flow in response to the load variations in the room. The electronic expansion valve is to be controlled via a computerized control sensing the return air temperature, refrigerant inlet and outlet temperatures. During the cooling operation the electronic expansion valve controls the refrigerant superheat degree at the evaporator.

#### **Indoor Unit Fans:**

The fans shall be direct driven of the DIDW multi-blade type, statically and dynamically balanced to ensure low noise and vibration free operation.

#### **Coils:**

The coils shall be direct expansion, constructed from copper tubes expanded into aluminium fins to form a mechanical bond.

**Supply Air Discharge Louvres:**

The indoor units should be provided with auto swing of the supply air louvers for cassette and under ceiling type fan coil units. The louvers should be capable of providing continuous swing operation or to be fixed in any direction required.

**Unit Control Board:**

The fan coil unit shall incorporate a printed circuit board complete with address switches for a variety of operation controls, emergency operation switch and fault/operation indication LED's. Thermally protect fan motors.

**Unit Casing:**

The fan coil unit casing (ceiling mounted units) to be fully insulated and sealed to prevent condensation.

**Condensate Drain:**

The Drain connection of each Fan coil unit to the main Header should be of 25mm Dia. The Header Pipe should be of atleast 40mm Dia. The Drain Pipe should be of Hard PVC, whereas the connection of the Fan-coil unit to the Hard PVC Pipe should be with flexible braided pipe. The Drain piping should be insulated with 9mm thick tubular Nitrile Rubber Elastomeric insulation.

**Unit Control:**

In case of individual and group control, set the addresses of each fan coil unit to minimize commissioning time. In case of centralised control, set the addresses by the remote controller.

**8. Additional charge:**

Additional refrigerant charge weight must be calculated based on the actual length of the refrigerant pipe work. The refrigerant charging process must be carried out with an appropriate charging station and under supervision.

**9. Piping insulation**

Insulate all Suction Lines in the Refrigerant pipe work with slip on closed cell Nitrile Rubber elastomeric / EPDM pipe insulation having a wall thickness of not less than 19mm thickness. Insulation must be protected when exposed to the atmosphere by special paint or covering as mentioned in Point No. 6. Glue all insulation (after pressure and leak testing) to provide a complete seal to prevent any condensation.

Unless otherwise specified, where indoor refrigerant pipe work is located in roof spaces or spaces that may exceed 30C and 80% RH the thickness of pipe insulation shall be 25 mm or more.

## **10. Control**

Use computerised control to maintain a correct form of temperature. For the fan coil units incorporate an on/off switch, fan speed selector, thermostat setting and liquid crystal display which indicates temperature setting; operational mode, malfunction codes etc.

Fan coil control:

Accomplish by the use of individual controllers for each fan coil unit.

Fault Diagnosis:

The system shall be equipped with a diagnostic function for quick and easy maintenance and service.

## **11. Fresh Air Units**

The fresh air treatment units shall be double skin construction and shall be horizontal design, ceiling suspended type. The casing shall have rust & corrosion proof paint. The unit shall incorporate

- a. Washable type synthetic air filters suitable for a minimum of 90% efficiency upto 20 microns particle size.
- b. Centrifugal fan double width double inlet type with statically & dynamically balanced forward curved impeller, designed for low noise operation. The fan shall have 'V' belt drive set & a TEFC squirrel cage motor with 'F' class insulation.
- c. Suitable support arrangements with anti vibration-pads.
- d. Adjustable Louvers for fresh air suction

## **12. Fresh Air Ducting**

The fresh air ducting shall be fabricated as per IS standard 655 norms (latest version). All ducting below 750 mm width shall be in 0.63 mm (24 G) class VIII (120 gsm) / class VII (180 gsm) GS Sheet construction.

Duct construction shall, generally, confirm to IS-655 "Specifications for Metal Air Ducts". Thickness of sheets for rectangular duct work shall, however, be as follows:

Longer side (mm)	Minimum G.S.S (mm)	Short Thickness Gauge
750 and below	0.63	24

The thickness of all four sides shall be determined by the thickness required for the longest side of the duct.

Supports used for the duct work shall be using clits anchor-fastened to the slab and 6 mm MS rods duly painted with primer and oil paint. A minimum of 6 mm neoprene or other vibration isolation packing shall be provided between the duct and the MS angle iron support/ bracket. Where metal ducts or sleeves terminate in woodwork, brick or masonry openings, tight joints shall be made by means of closely fitting heavy flanged collar.

Suitable volume control dampers shall be provided in the branch ducts for balancing air quantities.

One fire damper shall be provided in the Fresh Air duct immediately after the blowers. It should have centrally hinged flap held in position by spring and fusible link. An electrical thermostatic control should be provided for switching off the blower in the AHU in case the fire damper operates.

All joints shall be made air tight and all interior surfaces shall be smooth.

Duct connection to the air handling units shall be made by inserting a double canvas sleeve 100 mm long. The canvas connection shall be made from 'VIPER ' or equivalent fire resistant material. The sleeve shall be securely bent and bolted to the duct and the unit casing.

**APPENDIX I**

**ACCEPTABLE MAKES OF EQUIPMENT**

VRF Systems (outdoor and indoor units)	Voltas Ltd (GD Midea China) / Blue star/ LG Electronics / ETA (Fujitsu General) / York / Toshiba Airconditioning / Daikin Industries/ Mitsubishi Electric/ Mitsubishi Heavy Electricals / Hitachi
Fresh Air Handling Units	Carryaire / ETA / Zeco / Blue Star / Daikin / Voltas / Fujitsu General
Ventilation Fans	Alstom / GEC / Crompton / Kruger / Greenheck
PVC Pipes	Astral / Jain Irrigation / Finolex
Pipe Insulation Nitrile rubber EPDM	Armacell / Vidoflex Aeroflex / Equivalent
Cables Power cables Control Cables	Polycab / Finolex / CCI / Universal / Incab Polycab / Finolex / Universal / Incab
Switch Fuse Units	L&T / Siemens / Schneider
Controls Thermostat / TICs	Danfoss / Honeywell / Maniks / Siemens / Johnsons
MCB / MCCB	L&T / Siemens / Schneider
Starters, Contactors, Push Buttons, relays	L&T / Siemens / Schneider

**TECHNICAL DEVIATIONS AND ALTERNATIVES**

Sr.No.	Section & Item No.	Deviation / Alternative	Price ( Rs.)
1.	<u>V.R.F. Units</u>		
	(a) Condensing Units		
	(b) Low side Units 4 way Cassettes		
	(c) Fresh Air Handling Units		
	(d) Control System		
	(e) Any Other Item		

NOTE : Use additional sheets, if necessary.

**EXCLUSIONS / SERVICES PROVIDED BY OTHER AGENCIES**

1. False ceiling, ceiling insulation.

Apart from the above, all other services related to the HVAC works have to be taken care of by the AC contractor only.

## APPENDIX IV

### SCHEDULE OF TECHNICAL DETAILS

(attach separate sheets if required to cover all possible unit combinations)

Sl.No.	Item	Details
1.0	<b>V.R.F.Units</b>	
1.1	<b>Condensing Unit</b>	
1.1.1	Make	
1.1.2	Model No.	
1.1.3	Cooling Capacity kW/TR at 40 °C ambient	
1.1.5	Power consumption in kW at above condition	
1.1.5.1	1kW/TR AT 100% LOAD	
1.1.5.2	1kW/TR AT 75% LOAD	
1.1.5.3	1kW/TR AT 50% LOAD	
1.1.5.4	1kW/TR AT 25% LOAD	
1.1.6	Refrigerant used	
1.1.7	Type of compressor (Scroll / Recip)	
1.1.8	Type of capacity regulator	
	Inverter control	
	Digital Scroll	
	Multi no. of compressors	
1.1.9	Number of compressors in condensing unit	
1.1.10	Overall dimensions in mm	
1.1.11	Weight in Kg	
2.0	<b>LOW SIDE UNITS</b>	
2.1	<b>4 way Cassettes</b>	
2.1.1	Make	
2.1.2	Model No.	
2.1.3	Cooling capacity in kW / TR	
2.1.4	Heating capacity in kW	
2.1.5	Air Flow cmh / cfm	
2.1.6	Air Throw M	
2.1.7	Type of Fan	
2.1.8	Motor kW	
2.1.9	Type of condensate pump / motor kW	
2.1.10	Fresh air inlet connection size	
2.1.11	Overall dimension in mm	
2.1.12	Weight in Kg	

3.0	<b>Controls</b>	
3.1	VRF system control - Make & Type	
3.2	Low side controls - Thermostats Make & Type	
3.2.1	Type of remote control - wired / infra red	
4.0	<b>THERMAL INSULATION</b>	
4.1	<b>For Piping</b>	
4.1.1	Type	
4.1.2	Make	
4.1.3	"K" value in w / m k	
4.1.4	Density in kg / m <sup>3</sup>	
5.2	<b>Drain Piping (PVC)</b>	
5.2.1	Make	
5.2.2	Material	
5.2.3	Test Pressure Kg / m <sup>2</sup>	
5.2.4	Type of Air Flow	
6.0	<b>Fresh Air Handling Units</b>	
6.1	Make	
6.2	Type of fan	
6.3	Motor kW	
6.4	Heater type & kW	
6.5	Type of Filter	
6.6	Air Flow cmh / cfm	
	Ext. Static pr. mm wg	

**TEST READINGS**

The Readings shall be submitted as follows :

Sr.No.	Item	Test Results	
1.	Ambient Condition	D.B. Temp. 0 deg. C	
		W.B Temp 0 deg. C	
		RH - %	
2.	Refrigerant Pressure	Evaporating (Kg/m <sup>2</sup> )	
		Condensing (Kg/m <sup>2</sup> )	
3.	Voltage	Current Amp	
		At Full load (Amp)	
		At Partial load (Amp)	
		(Amp)	
		(Amp)	
4.	Low Side Units		
		(a) Cassettes	Room Temp (Deg. C )
			Air outlet at grille (Deg. C )
		Fan Amps	
	(b) Fan Coil Units	Room Temp (Deg. C )	
		Air outlet at grille (Deg. C )	
		Fan Amps	
5.	Fresh Air Handling Units	Ambient Temp. (Deg. C )	
		Supply Air Temp. (Deg. C )	
		Fan Amps	



# **National Bank for Agriculture and Rural Development**

## **T E N D E R**

### **VOLUME - III**

**FOR AIR-CONDITIONING, ALLIED ELECTRICAL, PIPING, DUCTING WORKS,  
ETC. ON TURNKEY BASIS USING VRF / VRV SYSTEM FOR REGIONAL OFFICE  
BUILDING AT PUNE**

**ISSUED TO : -----**

---

*Last date of submission of Tender 2.00 p.m. on 03/07/2008*

**HVAC CONSULTANTS**

**ACR PROJECT CONSULTANTS**

**VIJAY APTS. , 39/35 ERANDAVANA, PUNE - 411 004**

**TEL : 020 – 25464327 ; TELFAX : 020-25439209**

**E-MAIL : [asurange@vsnl.com](mailto:asurange@vsnl.com)**

**NATIONAL BANK FOR AGRICULTURE AND RURAL DEVELOPMENT**  
**REGIONAL OFFICE BUILDING FOR NABARD AT PUNE**  
**INDEX TO TECHNICAL SPECIFICATION**

S. No. CONTENT	PAGE NO.
----------------	----------

**Volume - III**

1. BILL OF QUANTITIES	1-3
2. DRAWINGS ( 3nos)	

**AIR CONDITIONING WORKS FOR REGIONAL OFFICE BUILDING NABARD,PUNE.**

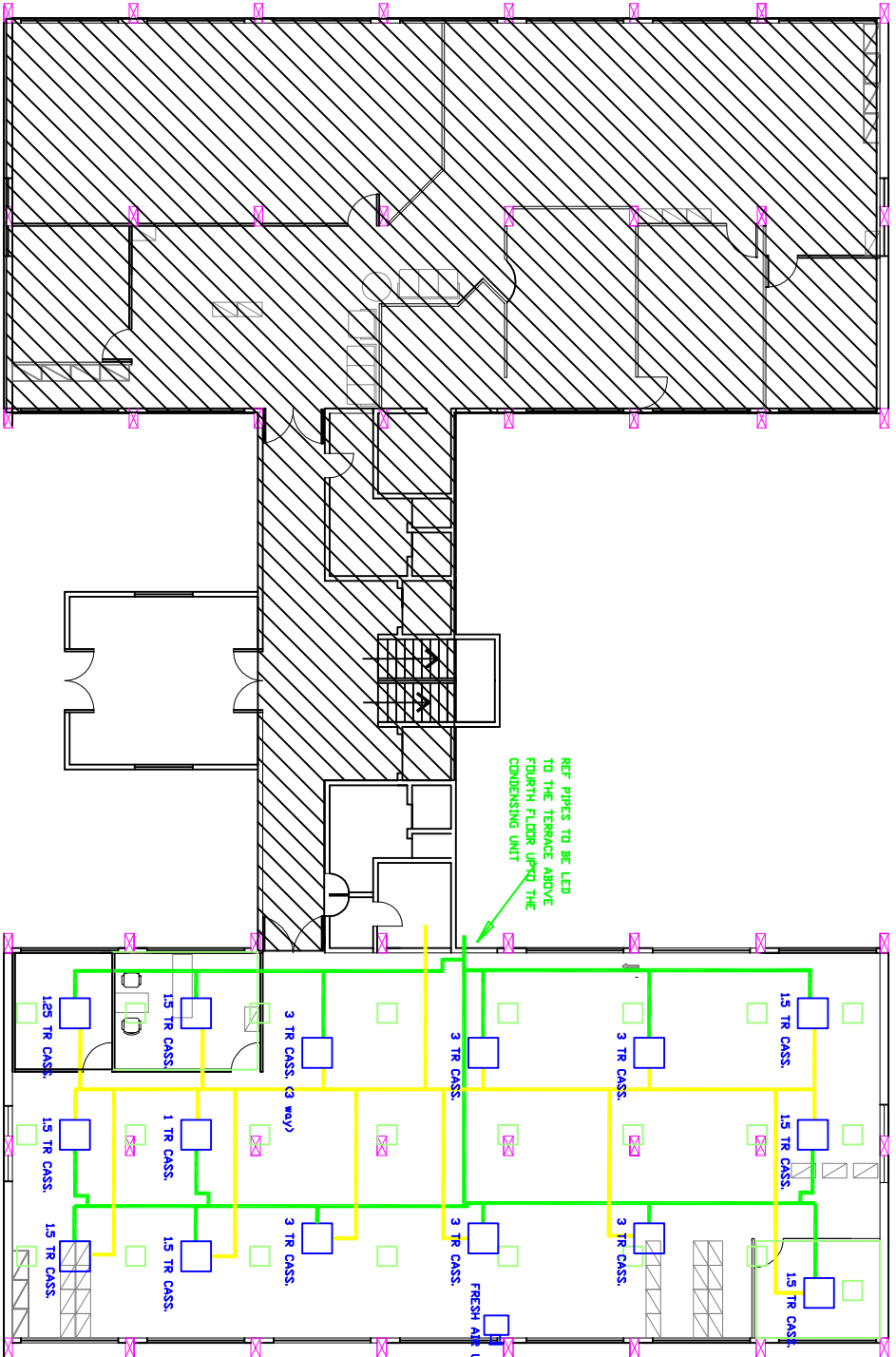
<b>SCHEDULE OF QUANTITIES</b>					
<b>SI No</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QTY</b>	<b>Rate In Rs</b>	<b>Amount In Rs</b>
1	SITC of Outdoor units as per specifications working on R-22 / R407C / R410A / R507C / other HFC for Minimum cooling capacity as below at design conditions; and suitable for operation in Cooling & Heating mode, complete with sturdy MS Stand with two coats of primer and two coats of oil paint of approved colour, etc as required. In case the unit control panel is separate from the condensing unit, the power & control wiring as required between the panel and condensing unit to be included in the quoted rate.				
1.1	88 kW (25 TR)	Nos	1		
2	<p>SITC of Indoor Units, 4 way Cassette Units, complete with inbuilt supply and return air Grills, Pumping Kits, Fresh Air connections, Wireless Remote Controllers for Cassette Units with battery and ON/OFF functions along with temperature setting, etc. The rate for the unit shall include SITC of Refrigerant Piping consisting of Copper Liquid and Suction Piping with pipe sizing as per the manufacturer's standard, (minimum sizing for liquid line is 6.4 mm OD / 0.8 mm thk and for suction line is 12.7 mm OD / 0.8 mm thk). There shall be refnet type Flow Divertors of correct size for diversion / confluence of refrigerant flow. There shall be insulation on the piping as required to ensure that there will be no condensation above the false ceiling under any circumstances.</p> <p>Minimum insulation for suction piping should be 25 mm / 9 mm nitrile foam for suction line / liquid line respectively. G.I. Saddles / Stand as required for proper support at maximum 2 m intervals for refrigerant piping to be provided. The lengths of piping are to be estimated by the contractor with the help of drawings / site visits as required. The rate shall also include SITC of Drain Piping using strong PVC pipe with 6 mm EPDM / Nitrile foam insulation. The drain shall be led to the nearest toilet or drain point as specified by the owner. Power wiring to individual cassette units from DB as defined in Sr. No. 13. to individual cassette units and earthing to be included.</p> <p>Electrical control cabling to ensure fully automatic operation and communication between indoor and outdoor units shall be included in the rate quoted. Fresh air ducting work with 0.63 mm (24G) GS Sheet as per specifications including duct dampers and fusible link type fire damper to be included. The ducting shall be designed for maximum air velocity of 250 m/min shall be included in the rate. The last 1 meter ducting (approx) to the individual cassette units shall be flexible ducting for ease of installation. The rate for the joints for rectangular to circular ducting to be included, considering that the fresh air unit would be located anywhere within the office premises, not necessarily at the location shown in the tender drawing. Minor civil openings as required shall be made and finished and the same to be included in the rate.</p>				
2.1	2.8 kW (0.8 TR)	Nos.	RO		
2.2	3.5 kW (1 TR)	Nos.	1		
2.3	4.4 kW (1.25 TR)	Nos.	1		
2.4	5.2 kW (1.5 TR)	Nos.	7		
2.5	7 kW (2 TR)	Nos.	RO		
2.6	8.8 kW (2.5 TR)	Nos.	RO		
2.7	10.5 kW (3 TR)	Nos.	6		
2.8	14 kW (4 TR)	Nos.	RO		
3	SITC of Central Remote Controller with functionality of controlling ON/OFF and temperature setting of all cassette units at single location	Nos.	1		

**AIR CONDITIONING WORKS FOR REGIONAL OFFICE BUILDING NABARD,PUNE.**

<b>SCHEDULE OF QUANTITIES</b>					
<b>SI No</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QTY</b>	<b>Rate In Rs</b>	<b>Amount In Rs</b>
4	SITC of Hardware / Software for connection to PC with all necessary wiring and programs for controlling the entire VRF setup from a single location including outdoor units, indoor units, temperature settings, etc	Sets	RO		
5	Fresh Air System consisting of :-				
5.1	SITC of Double Skin fresh air blower with washable filter having efficiency 90% down to 20 micron, and 25 mm wg static pressure. The rate should include SITC of the starter panel and cabling from the DB to the starter panel and starter panel to Fresh air blower.				
	1250 CMH	Nos.	1		
6	SITC of Automatic Duct Flow Controllers (Aldes or equivalent) for supply of controlled air flow as per individual fresh air requirement of the indoor units.				
6.1	100 mm dia	Nos.	15		
6.2	125 mm dia	Nos.	RO		
6.3	150 mm dia	Nos.	RO		
7	Commissioning and additional charge of Gas and compressor Oil as required upto commissioning and handing over	Lot	1		
8	Treatment of Exposed Piping with Woven Glass Cloth 125 gsm finished in U/V Treated, pigmented Epoxy for Outdoor Piping, as per relevant code.	Rmt	25		

**AIR CONDITIONING WORKS FOR REGIONAL OFFICE BUILDING NABARD,PUNE.**

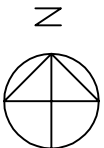
<b>SCHEDULE OF QUANTITIES</b>					
<b>SI No</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QTY</b>	<b>Rate In Rs</b>	<b>Amount In Rs</b>
<b>ELECTRICALS</b>					
9	MCC panel				
	SITC of MCC Panel as per the SLD provided in the tender for supply to condensing unit panel and indoor unit distribution board with necessary switchgear including MCCB for condensing unit, MCB for indoor unit DB, interconnecting wiring, etc as required	Nos	1		
10	Supply and erection of Armoured Power cabling for Connection from existing Main LT Panel to MCC panel and from MCC panel to outdoor unit or the condensing unit panel if it is separate from the unit including necessary terminations on either side as required.				
10.1	3.5 C x 35 sq mm Al armoured cable	RMT	100		
11	Supply and erection of Armoured power cabling from MCC panel to DB located on first floor for power connection points to cassette units				
11.1	4 C x 6 sq mm Multi-strand type Copper Armoured cabling	RMT	30		
11.2	4 C x 4 sq mm Multi-strand type Copper Armoured cabling	RMT	RO		
12	SITC of "6/16" Power points to the individual cassette units, including earthing This will include all necessary wiring in conduits supported with GS Saddles (above false ceiling) and casing capping (below false ceiling). The supply will be taken from the DB on first floor as per Sr. No. 13. Wire size shall be 2 C x 4 sq mm Copper	Nos	15		
13	SITC of Distribution board for Indoor cassette units and fresh air blower as per the SLD with necessary switchgear and provision for power supply to the respective equipment. Per phase isolation RCCB (residual current circuit breaker) should be provided.	Nos	1		
14	Supply and erection of Copper earthing for Condensing units / DB panel / MCC panel to be connected to the main LT panel / other suitable earthing point				
14.1	4 mm wire (8 G) for outdoor units & panels	RMT	100		
<b>TOTAL</b>					



AREA NOT CONSIDERED FOR AC IN CURRENT TENDER

NOTE : 1) DRAIN SHALL BE LEAD TO THE TOILET BLOCKS

2) LAST METER CONNECTIONS FOR INDIV. CASSETTES SHALL BE SOFT COPPER PIPING



**REFRIGERANT & DRAIN PIPING LAYOUT - 1st Fl. B' W/ing**

M/S NABARD, PUNE

DRG NO. - AC-161/VR/02

Rev No. - 2

DATE-25/09/06

SCALE- NTS

DATE- 22/07/06

DRAWN- SN

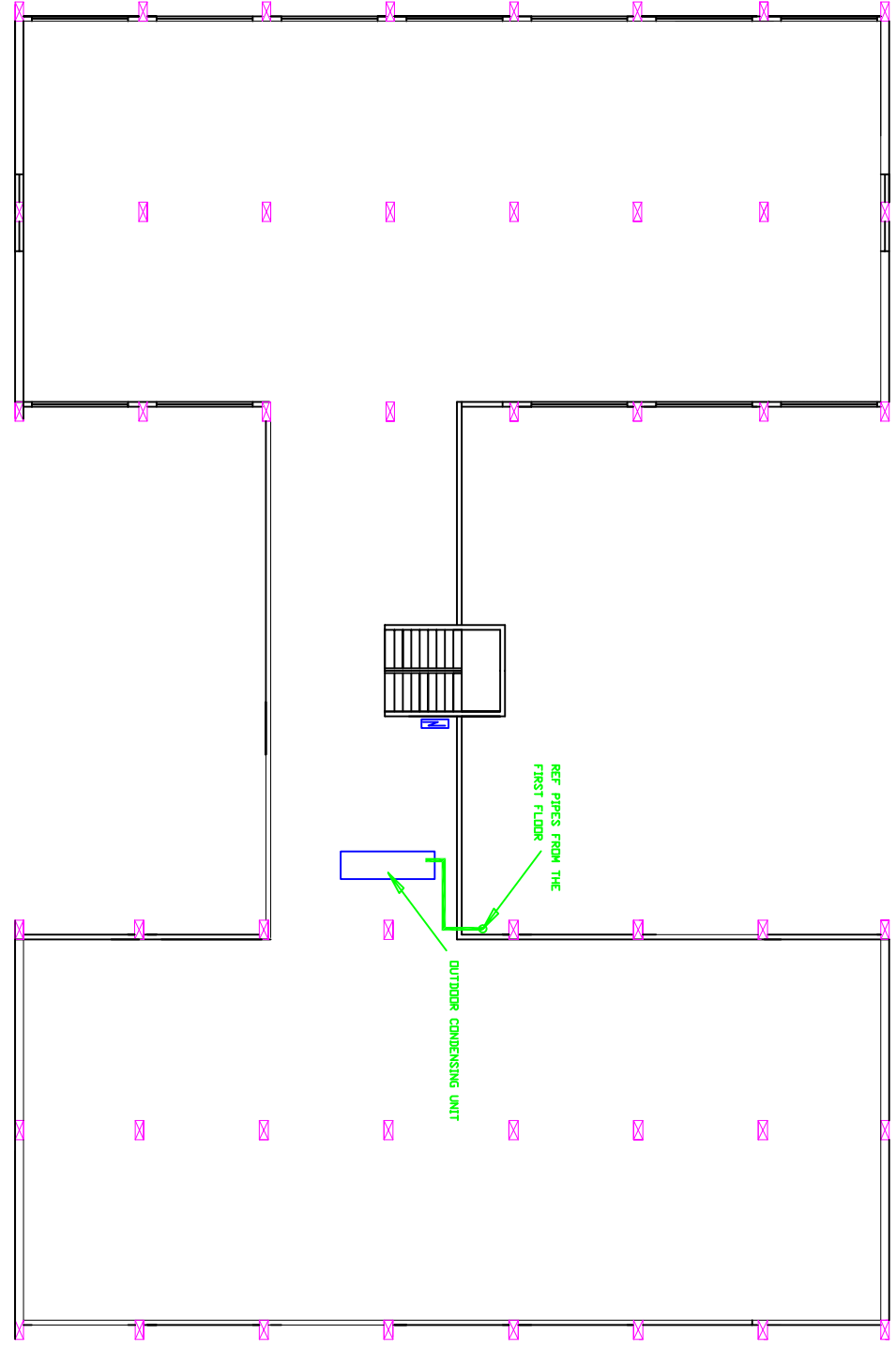


**ACR PROJECT CONSULTANTS**

39/35, ERANDAVANA, PUNE 411 004

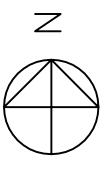
TEL. - (020) 25432764 / 25439209


E-MAIL : saurange@vsnl.com



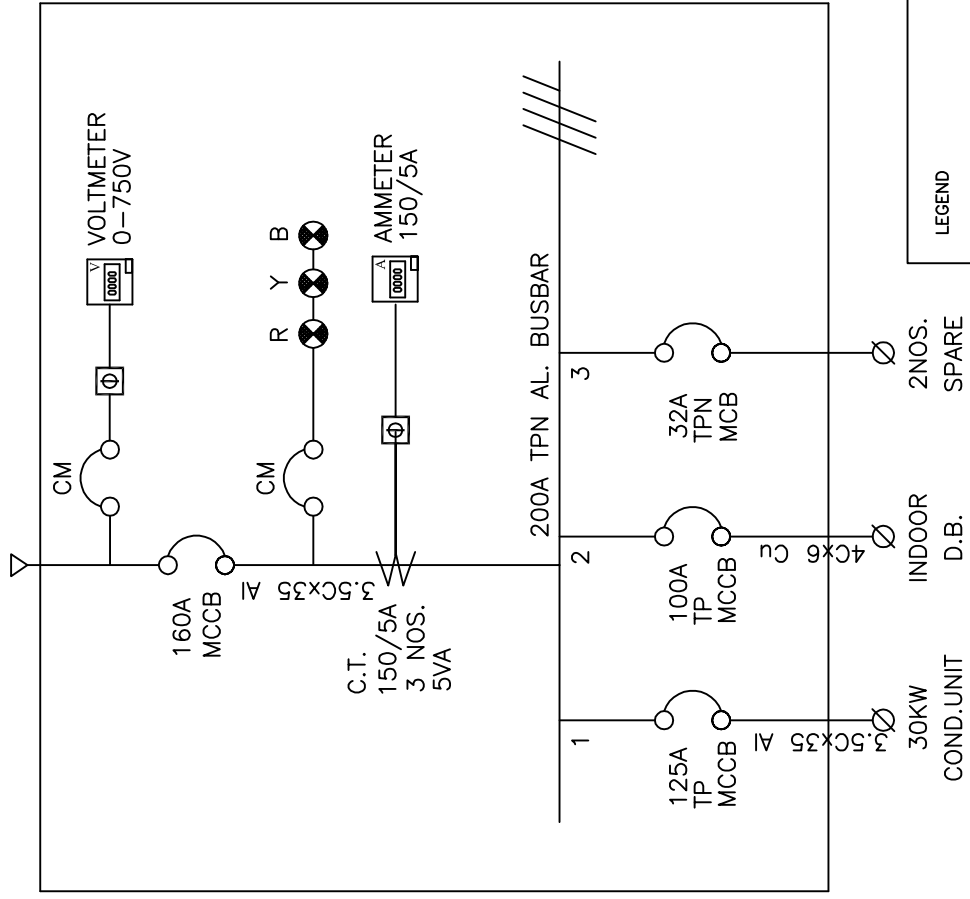
TENDER DRAWING

NOTE  
 THE GRID UNIT LOCATION SHOWN IS INDICATIVE  
 BIDDER SHOULD VERIFY ACTUAL CONDITION AT SITE



<b>PROPOSED TERRACE EQUIPMENT LAYOUT</b>	
M/s NABARD, PUNE	
DRG NO. - AC-161/REF/03	
SCALE- NTS	
DATE- 22/10/06	
DRAWN- SN	
 <b>ACR PROJECT CONSULTANTS</b> 39/35, ERANDAVANA, PUNE 411 004 TEL. - (020) 25432764 / 25439209 E-MAIL : asurange@vsnl.com	

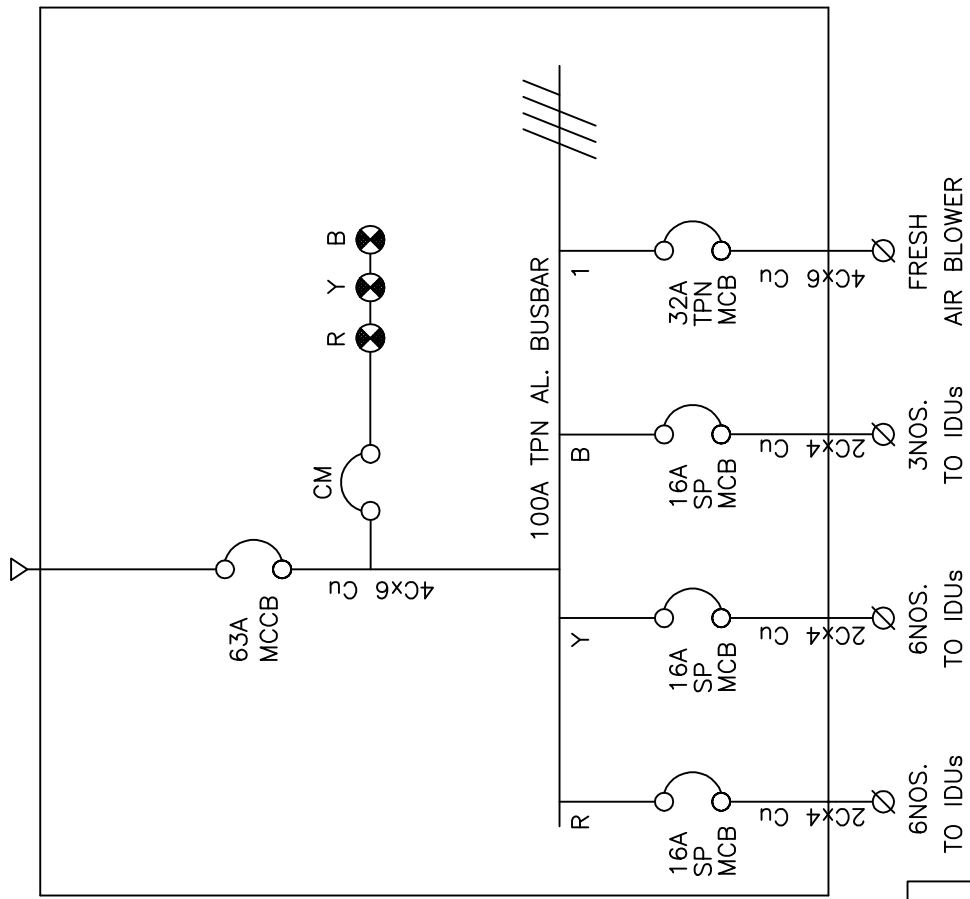
MAIN INCOMING  
415V 3PH ,4W,50HZ.  
AC SUPPLY



S.L.D. FOR MCC PANEL.

NOTE : SELECTION OF MCCBs/MCCBs TO BE MADE AS PER MANUFACTURER'S TYPE 2 COORDINATION CHART

MAIN INCOMING (FROM MCC PANEL)  
415V 3PH ,4W,50HZ.  
AC SUPPLY



S.L.D. FOR INDOOR D.B.

LEGEND  
MCB - MINIATURE CIRCUIT BREAKER  
CM - CONTROL MCB  
CT - CONTROL TRANSFORMER  
SP - SINGLE POLE  
MCCB - MOULDED CASE CIRCUIT BREAKER

PROJECT : NABARD.		PANEL TYPE : P.D.B.	
TITLE : S.L.D. FOR MCC PANEL.&INDOOR D.B.		DRG. NO. : AC-161/VRF/04	
DRN : Sikarwar		DATE : 24/11/06.	
SHT. NO. : 01		SCALE : N.T.S.	
...	...	...	...
REV.	DRN.	CHD.	DATE
...	...	...	...
...	...	...	REMARKS

**ACR PROJECT CONSULTANTS**  
39/35, ERANDAVANA, PUNE 411 004  
TEL - (020) 25432764 / 25439209  
E-MAIL : asurange@vsnl.com