



AROR UNIVERSITY OF ART, ARCHITECTURE, DESIGN AND HERITAGE SUKKUR
SINGLE STAGE TWO ENVELOPE

NAME OF WORK : - HVAC SYSTEM FOR AROR UNIVERSITY OF ART & HERITAGE SUKKUR SINDH.

NAME OF SUPPLIER : - M/S _____

TENDER FEE NO. AMOUNT : -

WITH DATE.

NAME OF BANK : -

BIDDING DOCUMENT

Procurement of Goods

Important Note:

- Tender bids must be submitted electronically through EPADS, any clause in this tender document asking for manual submission must be replaced and read as “through EPADS”
 - Please attach a copy of Bid Security with the financial proposal through EPADS.
 - Only the Bid Security Pay Order in favor of ‘The Aror University of Art, Architecture, Design, and Heritage, Sukkur is to be sent in original on/before the last date & time for electronics bid submission through EPADS.
- For any query/confusion related to this bid document, please contact in writing the following through email:

PROJECT COORDINATOR

Aror University of Art, Architecture, Design And Heritage

RCW Rohri Bypass, Sukkur, Sindh.

TEL: +92 71 5651900-902 EMAILS: project.coordinator@aror.edu.pk

M&P CONSULTANT.



**N.Z ENGINEERING
M&P CONSULTANT**

SUPPLIER/MANUFACTURER

ARCHITECT.

M/s HABIB FIDA ALI.

PROJECT COORDINATOR

AROR UNIVERSITY OF ART, ARCHITECTURE,
DESIGN AND HERITAGE
SUKKUR

BIDDING DATA

THIS SECTION SHOULD BE FILED BY THE AROR UNIVERSITY OF ART, ARCHITECTURE, DESIGN & HERITAGE SUKKUR, BEFORE THE ISSUANCE OF THE BIDDING DOCUMENTS

- | | | | |
|-------|---|----|---|
| i) | Name of Procuring Agency | :- | AROR UNIVERSITY OF ART, ARCHITECTURE, DESIGN AND HERITAGE SUKKUR |
| ii) | Brief Description of Works | :- | HVAC SYSTEM FOR PHASE-1 AROR UNIVERSITY OF ART & HERITAGE SUKKUR SINDH. |
| iii) | NIT No: & Date | :- | No: PC/AU-SKR/- 08 of 2025 Dated: 12/10/2025 |
| iv) | Procuring Agency Address | :- | The Aror University of Art, Architecture, Design and Heritage Sindh, RCW Rohri Bypass, Sukkur, Sindh 65170 |
| v) | Period of Bid Validity (Days) | :- | 90 Days |
| vi) | Security Deposit (i/c bid Security) | :- | 2% |
| vii) | Deadline for submission of bids along with times | :- | Date: - 05/11/2025 time 02:30 PM |
| viii) | Venue Time & Date of Bid Opening | :- | Date: - 05/11/2025 time 03:00 PM |
| ix) | Time for completion from written order of commences | :- | Six (06) Month |
| x) | Defect Liability Period after completion of Work. | :- | One Year (12) Months |
| xi) | Deposit Receipt No: date & amount with the Name of Bank | :- | No: _____ Dated. _____ 2025
For Rs: _____ /- |
| xii) | CNIC No. | | _____ |
| xiii) | NTN No. | | _____ |
| xiv) | Tender Issued to M/S | :- | M/S _____
Supplier |

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HVAC SYSTEM WORKS		
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SECTION – 01
SPECIMENGUARANTEES, ETC.

01. FORM OF CONTRACT AGREEMENT

THIS AGREEMENT made and entered at ----- on this ----- day of by
and between

------(name and address)----- (hereinafter called the "Employer" which expression shall include its successors, assigns and legal representatives) of the one part and ----- (name and address) ----- (hereinafter called the "Contractor" which expression shall include its successors, legal representatives and permitted assign) of the other part.

WHEREAS the Employer is desirous for the manufacture, supply, assembly, construction, installation, completion, testing, commissioning, adjusting, balancing and maintenance of certain works, viz., ------(hereinafter called the "works") and has caused his Consultants, NZ ENGINEERING, M-01, Plot # 70c Jami Commercial Lane-9 Phase-7 DHA , KARACHI. Pakistan, (hereinafter called the "Consultant") to prepare specifications, schedules, and drawings detailing and describing the works.

WHEREAS, under the procedure, tenders have heretofore been received by the Employer for the works and the tender of the Contractor for the works has been accepted by the Employer.

NOW THEREFORE, for and in consideration of the promises, covenants, agreements hereinafter contained and to be performed by the parties hereto, the said parties hereby covenant and agree as follows:

1. In this Agreement words and expressions shall have the same meaning as are respectively assigned to them in the General Conditions of Contract hereinafter referred to:
2. The following documents shall be deemed to form and be read and constructed as part of this Agreement, viz.,
 - (a) The said Tender No. ----- dated ----- and Salient Features of Contract, as amended herein.
 - (b) The instructions to tenderers & terms & conditions
 - (c) The Special Conditions of Contract.
 - (d) The term and payment
 - (e) The evaluation criteria
 - (f) The Specifications.
 - (g) The Drawings.
 - (h) The Schedule of bill of quantities.
 - (i) Addenda Nos. (if any).
 - (j) The letter of Award of Work No. ----- dated -- and all related correspondence mentioned therein.

In consideration of the covenants and agreements to be kept and performed by the Contractor, and for the faithful performance of this contract, and the completion of the works embraced therein, according to the specifications, drawings and conditions herein contained and referred to, the Employer shall pay and the Contractor shall receive and accept as full compensation for everything furnished and done by the Contractor under this Agreement, the contract price at the time and in the manner prescribed by the contract.

1. The Contractor, at his own proper cost and expense, shall do all work and furnish all labour, equipment, materials, tools, machinery and supplies for the manufacture, assembly, construction, installation, completion, testing, commissioning, adjusting, balancing and maintenance of the said works as outlined and described in the specifications, schedules and drawings except such equipment and materials which are to be furnished by the Employer.
2. The maintenance of a rate of progress in the works, which will result in its completion within the specified time, is an essential feature of this contract, and the Contractor agrees to proceed with all due diligence and care at all times to take full precautions to ensure the time of completion as defined herein. The said works shall be started on the date shown in the Memorandum of the tender and the Contractor shall have the works called for under the contract fully completed within the times stated in the Memorandum of the tender except for maintenance which shall be completed in the period named in the said Memorandum after issuance of Certificate of Substantial Completion.
3. The term the "Consultant" in this Agreement and conditions of contract shall mean the said N.Z ENGINEERING , or in the event of their dissolution or in any way ceasing to be the Consultant for the purpose of this contract, such other person(s) as may be nominated or appointed for this purpose by the Employer and notified in writing to the Contractor.

IN WITNESS whereof the parties hereto or herein have hereinto set their respective hands and seals on the day the month and the year first above-mentioned.

Contractor: _____
CNIC: _____
Heritage Sukkur
Address: _____

Client: For and on behalf of
Aror University of Art, Architecture, Design &

Note: Comprehensive agreement document having detailed terms and conditions will accompany this contract form.

2. SPECIMEN OF TENDER EARNEST MONEY GUARANTEE

KNOW ALL MEN BY THESE PRESENTS that ----- (name and address) ----- (hereinafter called the "Tenderer" which expression shall include its successors and permitted assigns) and -----(name and address) (hereinafter called the "Guarantor" which expression shall include its successors and assigns) are jointly and severally held firmly bound in the sum of Rs. ----- (Rupees-----only) to ----- (name and address) (hereinafter called the "Employer" which expression shall include its successors, assigns and legal representatives).

WHEREAS the Tenderer has submitted the accompanying Tender dated ----- for - (hereinafter called the "works") to the said Employer, and

WHEREAS the Employer has required as a condition for considering the said tender that the Tenderer deposit with the Employer either by a Pay Order or Demand Draft of a scheduled Bank in favour of the Employer or by a confirmed and irrevocable Guarantee (Bond) for an amount of Rs.----- (Rupees----- only) conditioned that in the event of failure of the Tenderer to abide by his Tender for a period of ----- days from----- (date of opening of Tender) ----- and if the Tender is accepted to execute the Contract Agreement for the said works and furnish the required Performance Bond, the entire sum becomes payable immediately to the Employer as liquidated damages and not as penalty for the Tenderer's failure to perform.

NOW THE CONDITIONS OF THE above written Bond are such that:

If the Tenderer fails to abide by his Tender for the period mentioned and if the Tender is accepted by the Employer then the Tenderer fails to sign the Contract Agreement and provide a Performance Bond within days of being requested to do so in accordance with the conditions of tendering, the Guarantor hereby unconditionally and irrevocably undertakes to pay forthwith the sum of Rs.----- (Rupees only) to the Employer within three days after a demand is made by the Employer without any question and without any reference of any nature whatsoever to the Tenderer and irrespective of any dispute existing between the Tenderer and the Employer in respect of the acceptance or rejection of the Tender and irrespective of the pendency of any dispute before any Arbitrator or in any Court of Law.

In the event of the Tenderer fulfilling the aforesaid obligations as certified by the Engineer who will be the sole and exclusive judge in this respect, this Guarantee will come to an end as the purpose would have been served.

The certificate of the Engineer that the Tenderer has failed to comply with the conditions or any of them herein mentioned shall be final, conclusive and binding on all the parties and the Employer will be entitled to demand forthwith from the Guarantor the aforesaid sum on the issuance of the said certificate.

That the liability of the Guarantor shall not be discharged until such time that a release has been

granted to the Guarantor in writing under the signature of the Engineer.

That the liability of the Guarantor shall not be affected at any time by any forbearance or indulgence being given to the Tenderer or by his death or insolvency.

That the payment under this Bond shall be made by the Guarantor in the name of the Employer and a receipt issued by the Employer shall discharge the Guarantor from his liability to the Employer under this Bond.

That any notice or demand under this Bond may be made by the Employer and may be left at the Guarantor's address mentioned herein or at any changed address as may be communicated by the Guarantor to the Employer in writing against receipt of the Employer, or the said notice of demand may be sent by registered post to the Guarantor addressed as aforesaid and shall be deemed to have been given at the time when it should have been delivered in due course of post and a certificate signed by the Employer that the envelope containing the notice was posted shall be conclusive.

This Bond shall remain in force upto ----- for the amount of Rs ----- (Rupees -
- only).

IN WITNESS WHEREOF the Guarantor and the Tenderer have signed and sealed this Bond on
this --- day of .-----

Contractor: _____

CNIC: _____

Address: _____

3. FORM OF PERFORMANCE BOND

THIS BOND is executed at ----- on this -----day of ----- by ----- (name)-----having its registered Office at ----- (full address) (hereinafter called the "Surety" which expression shall include its successors and assigns) and -----(name)----- whose registered Office is at ----- --(full address)----- hereinafter called the "Contractor" which expression shall include its successors and permitted assigns) in favour of ----- (name and address) (hereinafter called the "Employer" which expression shall include its successors and assigns).

WHEREAS the Contractor by an Agreement which shall be signed between the Employer of the one part and the Contractor of the other part (hereinafter called the "contract") has agreed for the manufacture, supply, construction, assembly, installation, completion, testing, commissioning, adjusting, balancing and maintenance of certain works as therein mentioned viz.----- (hereinafter called the "works") in conformity with the provisions of the said contract.

AND WHEREAS one of the conditions of entering into Contract Agreement is that the Contractor shall provide to the Employer a Performance Bond in the sum of Rs.----- (Rupees----- only) for due fulfilment of the contract.

AND WHEREAS, the Surety has agreed to give to the Employer this Performance Bond on the terms and conditions mentioned hereinafter.

NOW THEREFORE, THIS BOND WITNESSETH:

- i. That the Contractor shall duly perform and observe all the terms, provisions, conditions, stipulations and his obligations contained in the contract according to the true purport, intent and meaning thereof or as may be determined by the Employer who shall be the Sole Judge in the matter.
- ii. In the event of default being committed by the Contractor of which the Engineer shall be the sole exclusive judge, the Surety shall satisfy and discharge within three days after demand of all the damages sustained by the Employer on account of the default of the Contractor, as may be solely and exclusively determined by the Engineer, without any reference of any nature whatsoever to the Contractor and without any question whatsoever and whether or not the Contractor disputes his liability in respect thereof and whether or not any arbitration or Court case is pending in respect of the dispute.
- iii. That the liability of the Surety under this Performance Bond shall be upto the amount of Rs.----- (Rupees only) and this Bond shall become null and void if the Contractor has carried out the works and also performed his obligations strictly in accordance with the contract to the full satisfaction of the Engineer, who will be the sole and exclusive

judge to determine whether or not the Contractor has carried out the works and fulfilled his obligations in accordance with the contract.

- iv. The Engineer can complete that portion of the works, which the Contractor has not commenced or not satisfactorily executed, upto the amount of the Performance Bond, at the expense of the Surety.
- v. That the liability of the Surety shall not be discharged until such time that a release has been granted to the Surety in writing under the signature of the Engineer.
- vi. No alteration in the terms of the said contract made by agreement between the Employer and the Contractor or in the extent or nature of the works to be executed thereunder and no allowance of time by the Employer or the Engineer under the said contract nor any forbearance or forgiveness in or in respect of any matter or thing concerning the said contract on the part of the Employer or the Engineer shall in any way release the Surety from any liability under this Bond.
- vii. That the payment under this Bond shall be made by the Surety in the name of the Employer and a receipt issued by the Employer shall discharge the Surety from his liability to the Employer under this Bond.
- viii. That any notice or demand under this Bond may be made by the Employer and may be left at the Surety's address mentioned herein or at any changed address as may be communicated by the Surety to the Employer in writing against receipt of the Employer, or the said notice of demand may be sent by registered post to the Surety addressed as aforesaid and shall be deemed to have been given at the time when it should have been delivered in due course of post and a certificate signed by the Employer that the envelope containing the notice was posted shall be conclusive.
- ix. This Bond shall remain in force upto ----- for the amount of Rs.-----
(Rupees -----)

IN WITNESS WHEREOF the Surety and the Contractor have signed and sealed this Bond on the day the month and the year mentioned above.

Note: The Surety may be a scheduled Bank or an approved Insurance Company

4. SPECIMEN OF MOBILIZATION ADVANCE GUARANTEE

To

----- ,
----- ,
----- ,
----- .

Dear Sirs,

WHEREAS you have entered into a contract with -----(name and address) ----- (hereinafter called the "Contractor" which expression shall include its successors and permitted assigns) for (hereinafter called the "works").

AND WHEREAS at our request and at the request of the Contractor you have agreed to advance to the Contractor a sum of Rs.----- (Rupees only) to be used by the Contractor for the procurement and transport of Plants, Equipment and materials for the said works (inclusive of any temporary works).

NOW THEREFORE we do hereby agree, undertake and guarantee:

- a. That the Contractor shall use the advance amount of Rs.----- (Rupees----- only) for the purposes of procurement and transport of Plants, Equipment and materials for the works inclusive of any temporary works as defined in the Contract Agreement dated ----- entered into between you and the Contractor.
 - b. That the Contractor shall repay the above said advance amount to you either by getting the same deducted from his running bills as per the General Conditions of Contract or from his own resources.
 - c. In the event of the Contractor failing to utilize the advance for the purpose for which it has been given by you and/or the Contractor failing to make the payment of the same to you as per the General Conditions of Contract, we hereby guarantee the payment of the amount of Rs.----- (Rupees-----only) or such other amount as may be outstanding against the Contractor within three days after demand made by you on us without any question or without any reference of any nature whatsoever to the Contractor and irrespective of existence of any dispute between you and the Contractor and irrespective of pendency of any dispute with the Contractor before any Arbitrator or any Court of Law.
1. That a demand certifying that the Contractor has failed to utilize the advance for the purpose for which it has been given and/or has failed to repay the same and signed by the Engineer will be conclusive against the Contractor and against us which certified demand shall not be

questioned by us for any reason whatsoever and it would be sufficient authority for us to make the payment to you that our liability under this Guarantee shall stand reduced automatically to the extent of the adjustment made from the running bills of the Contractor and a certificate signed by the Engineer to this effect shall be conclusive and binding on us.

2. That the payment hereunder shall be made by us under this Guarantee in your name and a receipt issued by you shall be sufficient that the payment has been made to you hereunder.
3. That our liability under this Guarantee shall not be discharged until such time that a release has been granted to us in writing under the signature of the Engineer.
4. That no alteration in the terms of the said contract made by agreement between you and the Contractor or in the extent or nature of the works to be executed thereunder and no allowance of time by you or the Engineer under the said contract nor any forbearance or forgiveness in or in respect of any matter or thing concerning the said contract on your part or on part of the Engineer shall in any way release us from any liability under this Guarantee.
5. That any notice or demand under this Guarantee may be left at our address mentioned hereinafter or at any changed address as may be communicated by us to you in writing against your receipt, or the said notice of demand may be sent by registered post to us addressed as aforesaid and shall be deemed to have been given at the time when it should have been delivered in due course of post and your certificate that the envelope containing the notice was posted shall be conclusive.
6. That you shall have collective and/or several right to recover the full amount under this Guarantee from us which shall be paid by us to you as per Clause 6 hereof.
7. That this Guarantee shall remain binding on us and we shall be liable to you and/or your successors-in-interest or assigns.
8. This Guarantee shall remain in force upto ----- for the amount of Rs (Rupees --only).

SECTION-02
INSTRUCTIONS TO TENDERERS AND TERMS & CONDITIONS

The tenderers are required to furnish the following information in addition to that required in the tender notice & Evaluation Criteria with their tenders, failing which their tenders are liable to be rejected:

2. Organization structure of the “ Contracting Firm” (whether the firm is a partnership or Limited Company etc.
 3. Details of works of similar nature executed during the last five years with supported by documentary evidence(Photostat copies to be attached).
 4. Proof of financial stability.
 5. Programme of work to ensure that the work will be completed within the allotted time on the prescribed format.
 6. Undertaking to the effect that the firm has never been black listed by any Government / Semi Government / Private Organization.
 7. The Contractor /Bidders must be the sole distributor since four Years (4Years) of the offered brand/system.
 8. The Contractors / Bidders must be licensed by the Pakistan Engineering Council. (PEC,s Category C-3 & ME-01).
-
1. Set of tender documents, duly signed on each page and official seal stamped on each page including annexure, Addendum/Corrigendum, if any and supplementary information and Earnest Money @ 2% of the quoted rates in shape of Pay Order / Demand Draft / Bank Guarantee in favor of Aror University Of Art & Heritage Sukkur Sindh, valid for a minimum period of twenty eight (28) days beyond the bid validity date (i.e.120 days+28 days validity) from any Schedule Bank registered in Pakistan on prescribed format (refundable to unsuccessful bidder after award of Contract) must reach the office of the Director of Engineering on or before the time and date fixed in the Tender notice for receipt of the Tenders.
 2. Tender must be filled in English and all enclosed document should be in English.
 3. Tenders are to be irrevocable and valid for acceptance for a period of hundred & twenty (120) calendar days from the Tender opening date.
 4. Documents submitted by Tenderers in connection with the Tender for above named Works will be treated as confidential and will not be returned, except Financial Proposal of Non- responsive Bidders.
 5. Incomplete and Conditional Tenders shall be rejected at the sole discretion of the Employer.
 6. Tenderers will not be reimbursed for any expenses of any kind whatsoever incurred in connection with preparation and submission of their Tenders.
 7. Unit rates should be mentioned both in word and figures in Pak Rupees. If there is a discrepancy between the Unit Price & Total Price i.e. obtained by multiplying the Unit Price and quantity, the Unit price shall prevail and the total price shall be corrected. If there is a discrepancy between the words and figures, the amount in the words shall prevail. If there is a discrepancy between the total bid price enter in the Form of Bid and the total shown in the Schedule of Prices, the amount stated in the Form of Bid will be corrected by the Employer’s Engineer in accordance with the corrected Schedule of Price. If the Bidder does not accept the corrected amount of Bid,

- his Bid will be rejected and his Bid Security will be forfeited.
8. The entire work should be completed within 24 weeks from the date of issue of the work order.
 9. The rates should be inclusive of all taxes (including GST, custom & other duties, Govt. Levy as applicable at the time of Payment), insurance, overheads, transportation, labor charges for handling, commissioning and testing at the site etc.
 10. The supplier/contractor should be registered with General Sales Tax and Income tax Departments and shall submit GST invoice with the bill.
 11. The exemption in Income Tax will only be allowed against the Exemption Certificate issued by the Income Tax Department.
 12. The supplier /contractor will submit GST Registration Certificate, GST Invoice and paid copy of Professional Tax along with the bill. The bill will not be entertained without these documents.
 13. The supplier/Contractor may visit the site on any working day to form a clear understanding of the work, before quoting the rates.
 14. The contractor/supplier should provide complete information including Technical computerized selection, selection drawing, technical Submittal along with the dimensional drawings, sectional details, technical details, certificates mentioned in the specification/tender documents etc. for the quoted equipment with the Bid.
 15. In case of award of work, 8% (Eight percent) of the billed amount will be deducted from every bill as security deposit.
 16. The Earnest Money @ 2% of the quoted rates in shape of Pay Order / Demand Draft / Bank Guarantee in favor of Aror University Of Art & Heritage Sukkur Sindh, valid for a minimum period of twenty eight (28) days beyond the bid validity date (i.e. 120 days + 28 days validity). The Bank Guarantee should be from any Scheduled Bank registered in Pakistan on prescribed format.
 17. Conditional/incomplete tenders and tenders without earnest money will not be accepted.
 18. This tender is only an invitation to offer and the Aror University, Sukkur reserves the right to accept or reject any or all tenders.
 19. If the tender/bid does not meet the specifications and other requirement, the same will be rejected and their Financial Bid will be returned un-opened.
 20. In case of acceptance of tender, the supplier/contractor will submit a Retention money treated as Performance Bond amounting to 8% of tender cost in shape of Bank Guarantee within 28 days of issuance of Acceptance Letter. Performance Bond shall be issued by any Scheduled Bank registered in Pakistan on prescribed format. Performance Bond shall be valid for following period:
 21. 24 Weeks (for execution of works as prescribed in Schedule of Prices, Specifications etc.)
 22. For Maintenance / Warranty Period which shall be started after completing the entire scope of works as per Contract. The same shall be valid for the whole Currency of Works including Maintenance / Warranty Period
 23. If Contractor failed to provide Performance Bond, the Earnest Money will be forfeited and the client reserves the right to accept the 2nd lowest bidder and he will not be allowed to participate in future tenders with Aror University of Art & Heritage Sukkur Sindh.
 24. The successful tenderers shall have to execute the Agreement with the Aror University Of Art & Heritage Sukkur Sindh, within 14 days after issuance of the acceptance letter, in its standard

form. In case of default, the Earnest Money will be forfeited and the Bank reserves the right to accept the 2nd lowest bidder. After execution of the Agreement, the work order for commencement of the work shall be issued.

25. The contractor will submit 03 sets of operation & maintenance manuals, and spares manual As Built Drawings along with / before the Delivery of the Equipment.
26. The employer proposes to advance an amount equal to 10% of tendered cost as mobilization advance against a bank guarantee, to be obtained by the supplier/contractor at his own expenses from any Scheduled Bank registered in Pakistan as per Proforma of the agreement- cum-guarantee included in this tender document.
27. The total amount of mobilization advance will be recovered from the contractor's Running / interim bills.
28. The client reserves right to increase /decrease the quantity mentioned in BOQ up to any extent as per there requirements/budget.

29. TERMS OF PAYMENTS

- a. For Terms and payments refer, refer Section-03
- b. PENALTIES
- c. For Penalties, refer Section 03

d. WARRANTY

The Equipment shall be covered under the Standard Warranty Period of 18 Months from the date of Shipment / 12 Months from the date of commissioning whichever occurs earlier. However extended Warranty Period may be offered by any Supplier.

The consultant/ client shall disqualify a supplier or contractor if it finds, at any time, that the information submitted by contractor /supplier concerning his qualification as supplier or contractor was false and materially inaccurate or incomplete.

The tender shall be proceeds "SINGLE STAGE – TWO ENVELOPE PROCEDURE."

SECTION – 03
TERMS OF PAYMENT

A. TERMS OF PAYMENT

1. All Advance Payments Shall Be Made Against Furnishing the Insurance Guarantee in Favor of Aror University of Art & Heritage Sukkur Sindh In Required Format From Any Scheduled Bank Registered In Pakistan.

(a) Amount of Mobilization Advance Payable against furnishing of a bank Guarantee	Up to 10% of the total cost of materials and installation may be provided as an advance, subject to approval by the competent authority. The advance must be secured through a Bank Guarantee Up to 10% of the total cost
---	---

(b) Payment for VRF imported items

i After Placing Order/Confirmation to Factory for VRF imported items	10%
ii Against Bill of lading of imported items	10%
iii After equipment delivery at site	30%
iv After Installation/testing/commissioning	
Payment for local installation works through running bills	40%

4. Retention Money shall be released as follows: 8% of Each Payment.

(a) One Month after issuance of the Completion Certificate	50%
(b) After satisfactory completion of the Maintenance / Warranty Period	50%

B. PENALTIES

1. In case of delay in work the Client shall have the right to impose the Liquidated Damages as compensation @ 0.1% of the total cost of the tender per day. (Up to maximum 10% of total cost of works) after which client reserves the right at its Sole Discretion to rescind the Contract and take the action as per Contract Agreement. Performance Bond & Earnest Money shall be forfeited without reference to the Contractor. The Contractor may not be allowed to participate in future tenders with client.

2. If the delivered Material / Equipment does not comply with the specifications or have any missing item or received in damaged / defective condition, Contractor shall rectify / make the System in good condition at his own expenses whatsoever without voiding the Manufacturer's Warranty (if any) within a period of 1 Week (Period shall be accorded by client in consultation with the Consultant) after which CLIENT reserves the right in its Sole Discretion to terminate the Contract and confiscate the Supplied Equipment along with forfeiture of Performance Bond without reference to the Contractor

SECTION - 04

TENDERER'S QUALIFICATION / EVALUATION CRITERIA

I. **MANDATORY REQUIREMENTS BEFORE EVALUATION OF TENDER**

- i. Bidder must be registered with Pakistan engineering council (PEC'S Category C-3 Registered in Mechanical Engineering ME-01).
- ii. Bidder should have completed minimum eight (8) similar nature of work(s) of same / above capacity in the last 5 Years (complete detail with completion latter required)
- iii. The Contractor /Bidders must be the sole distributor of the VRF equipment since last Four Years (4Years) of the offered brand/system.
- iv. The Interested bidders should have presence / support / branch offices in Karachi.
- v. Bank Statement for Last 3 Years, Minimum turnover of Rs. 400 Million for at least any one year
- vi. The Firms / Bidders / Suppliers blacklisted by any Government / Semi Government Organizations shall not be eligible to bid. Affidavit to be submitted.
- vii. The Firms / Bidders / Suppliers in litigation with any Government / Semi Government Organizations shall not be eligible to bid. Affidavit to be submitted.
- viii. The Firms / Bidders / Suppliers who have failed to perform as per Contract with the Government / Semi Government Organization will not be eligible to bid. Affidavit to be submitted.
- ix. Organization structure of the "Contracting Firm" (whether the firm is a partnership or Limited Company etc.
- x. Programmer of work to ensure that the work will be completed within the stipulated time on the prescribed format.

NOTE. The evaluation of any these bidders shall be carried out who will comply with the above parameters.

II. **TECHNICAL EVALUATION OF TENDER**

- a. It will be examined in detail whether the goods offered by the bidder comply with the technical provisions of the technical bidding documents. For this purpose, the bidder's data submitted with the bid will be compared with the specific work data prescribed by the Employer and technical, feature / criteria of the Goods detailed in the technical provisions. Other technical information submitted by the bidder regarding the scope of work will also be reviewed. In addition to this following Technical Details / Requirement must be provided / complied with the Tender Documents (Technical Bid).
- b. Tender shall be rejected if it is Non-submission of verifiable proofs against the mandatory as well as general documentary, qualification and eligibility related requirements.

c. Technical Evaluation:

The firm cleared from initial screening will be evaluated as per following criteria:

The total marks shall be 100. Minimum score for competing in the next stage is 75 %. The Financial Proposal of only the Audit Firm will be opened which secures 75 % or more in the Technical Evaluation.

S.NO	DETAILS	POINTS
1	Draft of Earnest Money	Mandatory
2	Bid /Quotation (As per pattern)	Mandatory
3	Certificate of Registration In Pakistan Engineering Council PEC'S Category C-3 Registered in Mechanical Engineering ME-01).	Mandatory
4	Income Tax Registration	Mandatory
5	General Sales Tax Registration	Mandatory
6	Proof of Non-Blacklisting: Affidavit on legal paper of appropriate value (duly attested from notary public)/letterhead that the Firms / Bidders / Suppliers blacklisted by any Government / Semi Government Organizations shall not be eligible to bid.	Mandatory
7	Proof of Non-Blacklisting: Affidavit on legal paper of appropriate value (duly attested from notary public)/letterhead that The Firms / Bidders / Suppliers in litigation with any Government / Semi Government Organizations shall not be eligible to bid. Affidavit to be submitted.	Mandatory
8	The Contractor /Bidders must be the sole distributor of the VRF equipment since last Four Years (4Years) of the offered brand/system.	Mandatory
9	Bidder should have completed minimum eight (8) similar nature of work(s) of same / above capacity in the last 5 Years (complete detail with completion latter required	Mandatory
10	Bank Statement for Last 3 Years, Minimum turnover of Rs. 400 Million for at least any one year	Mandatory
11	The Interested bidders should have presence / support / branch offices in Karachi.	Mandatory

12	Technical Compliance Sheet Provide Technical Compliance Sheet in Tabulated Form specifying the compliance of each and every quoted item with minimum Specification of required items mentioned in Bill of Quantity (BOQ) of this document.	Mandatory
13	Annual turnover (Max Points 10) a. 200 to 300 Millions (6 Points) b. 350 to 500 Millions (8 Points) c. Above 500 Millions (10 Points)	
14	Sole distribution of the VRF Equipment in Years (Max Points 10) a. 4 Year (6 Points) b. 5 to 6 Year (8 Points) c. 7 to 10 Year (10 Points)	

S.NO	DETAILS	POINTS
15	No of similar nature of same or above capacity project in 5 Years. (Max Points 10) a. 8 Project (5 Points) b. 9 to 11 Year (7 Points) c. 12 to 15 Year (10 Points)	
16	Total No of employees (Max Points 10) a. 40 Employees (6 Points) b. 50 to 60 Year (8 Points) c. 70 to 100 Year (10 Points)	
17	Warranty/Guarantee Terms. (Max Points 30) a. 2 Years' service & Repair Warranty (20 Points) b. 3 Years' service & Repair Warranty (25 Points) c. 4 Years' service& Repair t Warranty (30 Points)	
18	No of similar nature of project in 10 Years with Government & Public sector. (Max Points 20) a. 5 Project (10 Points) b. 6 to 7 Project (15 Points) c. 8 to 10 Project (20 Points)	
19	Bidder already work with Aror University Of Art & Heritage Sukkur Sindh (10Points)	

- a. Bids will be evaluated in fair, transparent and non-discriminatory manner. For the purpose of determining the Most Advantageous bid, following above mandatory

scales of evaluation shall be taken into consideration for technical and financial bids.

- b. Failing to fulfill ANY of the Mandatory Requirement will disqualify the bidder from the process.
- c. After evaluation/marketing of bidders in technical evaluation process, financial bids of technically qualified bidders only will be opened later on prior notice.
- d. For final grading of bidders towards contract award, Most Advantageous bid prices will be calculated to ascertain lowest bid for placement of procurement contract.

S.No.	Items	Approved Make
1	VRF/ Split System	1. Samsung 2. Midea 3. LG 4. Gree 5. Daikin Approved Equal
2	Refrigerant pipes	1. Mueller (USA) Approved Equal
3	Pipe/Duct Insulation	1. Aeroflex (Thailand) 2. Aerofoam-UAE Approved Equal
4	UPVC Pipe	1. Dadex 2. AGM 3. Steelex Approved Equal
5	Electric Cables & Wires	1. Pakistan Cables Approved Equal
6	Ventilation/Air Curtains Fan	1. GreenHeck 2. S&P Fans Approved Equal
7	G.I Sheet	1. Pakistan Steel 2. Imported Approved Equal
8	Air Devices	1. Steel Craft 2. Mehran 3. Thermec Approved Equal

9	Concrete Fasteners & anchors	1. Hilti (UK/Germany) 2. Fischers (Germany) Approved Equal
10	Paints	1. ICI (Pakistan) 2. Berger (Pakistan) Approved Equal
11	Motors	1- Siemens 2- ABB Approved equal
S.No.	Items	Approved Make
12	M.C.C & CABLE TRAY	1- Libra 2- Sunbeam 3- Husain & co. Approved equal
13	Refrigerant Isolation Valve	1- Danfoss 2- Mueller 3- Emersion Approved equal
14	Control wire	1- Belden Approved equal
15	Aluminum Tape	1-Abro industries (USA) Approved Equal
16	Heat Recovery Ventilator	1- S&P 2- AAF 3- BVN Approved Equal
17	Vapor Barrier Coating	1. Foster (USA) Approved Equal

NOTE:

Equipment & material shall be supplied only from the authorized distributor. The contractor shall submit complete technical details of the equipment, material and obtain consultants approval prior to delivery on site. In case of “approved equivalent”, it shall be at the discretion of the consultant to accept the alternate proposal submitted by the contractor.

SECTION - 05

SPECIAL CONDITIONS OF CONTRACT

01. GENERAL CONDITIONS OF CONTRACT

2.1 The General Conditions of Contract shall be carefully studied by each tenderer before submitting his tender. Nothing stated herein shall waive any part of the General Conditions of Contract unless specifically stated herein. Where clauses of General Conditions of Contract are repeated in this section, it shall be only for calling special attention to them and/or as a further qualification, and it shall not mean as omitting any other clause or clauses of the General Conditions of Contract.

02. SCOPE OF WORK

2.2 The accompanying specifications and drawings are intended to provide complete Air conditioning systems and ancillary works for the Building referred in the specifications and drawings, and the contract on lump sum cost basis is intended to provide all materials and labour necessary for manufacture, supply, construction, assembly, installation, completion, testing, commissioning, balancing and adjusting and maintenance of the complete Airconditioning systems and ancillary works, making them ready for operation in all respects and training of the Employer's personnel.

2.3 (a) The general scope of work is detailed and shown in the specifications and drawings. Furthermore included are all interconnecting piping, valves and fittings and electric wiring between and for various items of plant, equipment, controls and accessories.

(b) Owner shall supply to the contractor, free of charge at site, certain equipment and materials as listed in the Schedule of Quantities. The contractor shall take delivery of these items, arrange careful storage and carry out assembly, installation of these items along with other items to be supplied by the Contractor so as to complete whole of the works in all respects as detailed in the specifications, drawings, schedules carefully study the specifications, manufacturers technical bulletins and drawings for the Employer supplied items so as to become fully familiar with the same for carrying out the works.

2.4 Within the general scope of work the following items are specifically included without limitation:

- a. VRF system
- b. Refrigerant & Air distribution system
- c. System automatic controls
- d. Water drain system for all equipment
- e. All cutting, chases and making of opening and subsequent repairs except beam and slab openings.

- f. Motor Control Centers and complete electric wiring and earthing for all the plants, equipment, automatic controls and safety devices from electric supply and earthing points provided by the Employer as shown in the drawings. The Contractor shall also supply starters etc. for all Owner supplied equipment.
- g. Painting of equipment and system components and all other incidentals to make the exhaust air systems and ancillary works installation complete and perfect and ready for operation in every respect.
- h. Commissioning, testing, balancing, adjusting, painting and all other incidentals to make the Air conditioning, Ventilation and other systems and all ancillary works installation complete and perfect and ready for operation in every respect.
- I Adjusting and balancing of the complete air and water systems and automatic controls. The Contractor shall arrange the services of approved Specialist(s) for final balancing of the air exhaust system. The Contractor shall be responsible to provide the services of Engineers, technicians and skilled helpers as required by the Specialist(s) for carrying out the work.
- J Test runs of the complete plant and systems after the completion of installation, commissioning, balancing and adjusting of equipment and systems.
- K Servicing and maintenance of the complete plants during the period of maintenance (12 operating months).

2.5 The Contractor shall give written guarantee that all the equipment and materials supplied under the contract shall be brand new, of robust construction and standard manufacture, and that the materials and workmanship will be of best class, will be installed in a practical and first class manner, that the plants and systems will be complete for satisfactory operation, nothing being omitted by way of labour and material required to make them so although not specifically shown or mentioned in the drawings or specifications, and that these will be delivered to the Employer in well working order, complete and perfect in every respect.

2.6 The Contractor shall furnish all the required equipment, plants, devices, controls, etc. required to complete the works under applicable local codes or regulations required to complete the works.

2.7 The specifications are to be read in conjunction with the latest relevant British/American Standard Specifications and British/American Standard Codes of Practice. It shall be inherent in the interpretation of the contract documents that wherever British Specifications or Codes are referred to, they shall be deemed to be the British or American Standard Specifications or Codes and vice versa. Where differences or contradictions appear to arise between the British and American Standard Specifications or Codes, these differences or contradictions shall be referred to the Engineer for a decision.

2.8 In case any item or material offered deviates from the above standards, the tenderer shall clearly draw attention to all such deviations and no such item or material shall be supplied by the Contractor without prior written approval of the Engineer.

2.9 The Contractor shall execute the works with materials in accordance with the specifications. All materials which in the opinion of the Engineer are not sound and/or do not meet with the above conditions, shall be immediately dismantled and/or removed from site by the Contractor at the request of the Engineer and replaced by appropriate approved materials without claim by or extra payment to the Contractor.

2.10 The tenderer shall carefully check the sizes of the plant rooms, the pipe and duct passages and trenches, the pipe and duct shafts as shown in the drawings and confirm that his equipment, piping, ducting, wiring, etc. can be installed within the respective spaces allocated for the same.

03. **RESPONSIBILITIES OF THE EMPLOYER AND CONTRACTOR**

3.1 The Employer shall not provide any equipment, stores, materials, etc. to the Contractor for the purpose of completing the works or temporary works except where otherwise specified in the contract.

The respective responsibilities of the Employer and the Contractor for the ancillary works shall be as detailed below.

3.2 Builders Work.

(a) The Employer shall arrange all slab, beam and structural openings.

(b) All wall openings, cutting, chases, patching and making good shall be done by the Contractor. Only finishing and painting shall be arranged by the Employer after the Contractor had completed his work.

(c) All foundations for equipment mounting, MS Channels etc. will be constructed arranged by the Contractor who will also provide vibration isolators for isolation from the Building structure as required (and/or specified).

(d) The Contractor will supply and fix all necessary foundation and anchor bolts, concrete inserts, sleeves, brackets, clips, supports, stays, hangers, and hardware required for the complete installation. The Contractor shall supply and fix foundation and anchor bolts, concrete inserts and pipe sleeves before concreting. The Contractor will also be responsible for plugging of

slab, wall and ceiling openings for all items and fittings where plugging has to be done by special plugs, screws or materials.

(e) The Contractor shall arrange for lifting of all equipment and materials (including Owner supplied equipment) to their respective plant rooms and locations. The Contractor will be responsible for any damage to the Building finishing. He shall ensure that no damage is caused to the structure.

3.3 Electrical Work.

(a) The Contractor will be provided electric supply points, 400 volts, 3 phase, 4 wire along with two earthing points, or 220 volts, 1 phase with one earthing point, in the plant room as shown in the drawing.

(b) The Contractor shall be responsible for supply and installation of the Motor Control Centres and complete electric wiring and earthing work for all system, equipment and automatic control. He shall also check and confirm that the specified ratings of the supply point meet the requirements of his plant and equipment.

(c) The responsibility of the Employer would be limited to provide the electric supply point and earthing points as detailed above and shown in the drawings.

3.4 Decorating Work.

The Contractor shall not be responsible for the decoration of the Building including false ceiling/boxing and any special decorative painting to the plant components visible in the occupied areas unless otherwise specified. The Contractor will be responsible otherwise for painting of all equipment, plants, components, piping and ducting as specified.

3.5 The Employer will arrange without charge to the Contractor, the supply of electricity, water and fuel during the commissioning, starting, testing and adjusting of the complete plant and during the Test Run. The Contractor shall be responsible for the supply of all other materials and labor required in this connection.

3.6 It will be the responsibility of the tenderer to clearly mention in detail any other particular work excluded by him in his tender but necessary to complete the works in all respects for satisfactory, efficient and trouble free operation.

04. **COORDINATION**

4.1 The Contractor shall acquaint himself fully with the requirements of the program of Building construction and the requirements of the Main Contractor, Electrical Contractor, Plumbing Contractor and any other Contractor carrying out the work in the Building. It would be necessary due to the nature of the air-conditioning works to arrange a proper sequence of installation with respect to the work of the other contractors. It shall be the responsibility of the Contractor to schedule his work so as to complete the air-conditioning installation work within the required time and without causing delay in the completion of the entire project.

05. **GUARANTEES**

5.1 The Contractor shall guarantee the performance (including specified capacities), fuel and electricity consumption of the plant and equipment offered by him. He shall state in his tender the natural gas/fuel oil consumption in cubic feet/litres per hour per horse power of the boilers, KW consumption of electric motor operated compressors/chillers/airconditioners and other equipment offered by him. The Contractor shall establish the performance, fuel and electricity consumption of the plant and equipment during the summer and winter test runs and will make all necessary adjustments to ensure that the performance and consumption is within the limits guaranteed by him.

5.2 The Contractor shall give to the Employer a written guarantee for the complete works against defective materials and faulty workmanship for the period of maintenance as specified in the Memorandum from the date of issue of Certificate of Substantial Completion by the Engineer. The guarantee shall also cover the maintenance of inside temperature and humidity conditions as specified. All defects of material or workmanship found in the work during the period of maintenance shall be removed and defective items replaced or repaired by the Contractor to the satisfaction of the Engineer without any additional cost to the Employer.

5.3 The Engineer shall inform the Contractor in writing in what respect any portion of the works, plant or equipment is defective. If any defect be not remedied within reasonable time by the Contractor, the Employer may proceed to do the defect rectification work at the Contractor's risk and expense but without prejudice to any other rights which the Employer may have against the Contractor in respect of such defects.

5.4 In case the replacements, repairs or renewals are of such a character as may affect the efficiency of the plant or equipment, the Engineer shall have the right to give to the Contractor within one month from such replacements, repairs or renewals notice in writing that a test be carried out to check the efficiency and performance of the plant or equipment and it shall be the duty of the Contractor to ensure that the efficiency and performance of the plant or equipment conform with the specified requirements.

5.5 In the event of any defect of material or workmanship occurring or being discovered during the period of maintenance, the period of maintenance shall continue until the cause of the defect has been discovered and remedied to the satisfaction of the Engineer.

06. **MANUFACTURERS/SUPPLIERS' GUARANTEES/WARRANTIES**

6.1 Manufacturer/Supplier's Guarantee/Warranty, specimen given below, for each equipment is an essential document to be supplied to the Employer before claiming payment for that equipment. The Guarantee/Warranty shall be duly sealed and signed by an authorized Executive of the Manufacturer/Supplier.

6.2 (a) The Contractor may obtain the Guarantee/Warranty from the Manufacturer/Supplier and submit the same to the Engineer/Consultant before claiming payment for the equipment in his bill, or

(b) The Manufacturer/Supplier shall furnish the Guarantee/Warranty as an essential part of the documents submitted to the Bank to claim payment against the letter of credit established by the Employer.

6.3 The form of Guarantee/Warranty shall be:

"We hereby guarantee that the stores supplied are produced new in accordance with the contract specifications and that the materials used whether or not of our manufacture are in accordance with the latest appropriate standard specifications, the contract specifications and of good workmanship throughout. We shall replace free of cost FOB Factory or repair any part of the equipment for either a period not exceeding 12 calendar months after it has been taken over on completion of installation as certified in the Completion Certificate issued by the Employer or a period of 24 calendar months from the date of dispatch from our Factory, whichever is shorter, which would be found defective due to material or faulty workmanship or in any way not in accordance with the contract specifications.

Our responsibility shall be limited to replace/ repair any part or parts of the stores found to be defective in workmanship or material provided the equipment is operated and maintained by the Employer in accordance with the generally approved practices and provided the Employer informs us in writing as soon as such defect becomes apparent.

Our obligation shall be to replace or repair any part or parts found defective FOB Factory and we shall not be responsible for any consequential damage or liability. We shall also not be responsible

for any work done, equipment or part(s) supplied or repaired by others or for any loss, damages or expenses arising from such work, equipment, part(s) or repairs.

Signature and Seal _____
Manufacturer/Supplier's Name and
Address _____
Date _____"

6.4 Wherever guarantees of operating capacity and efficiency, proper functioning, durability and the like are called for and/or wherever it is specified that the manufacturer shall furnish necessary technical manuals, drawings, performance data, test certificates, etc. and shall supervise the starting up of the equipment and adjustments after installation and starting up, and etc., and maintain it for the required period and perform similar other duties and services, the Contractor shall be held responsible for performance of the specified services for the actual conditions of the installation and he shall be held responsible for any default on the part of his suppliers/manufacturers/principals.

07. **DRAWINGS, TECHNICAL DATA AND MANUALS TO BE SUPPLIED**

7.1 The Contractor when preparing any detailed shop drawings shall carefully check for all clearances, field conditions, avoidance of any hindrance with architectural features and proper coordination with all other services of the Building. Each shop drawing submitted by the Contractor shall include a certificate by the Contractor that all related conditions on the site relevant to that particular installation have been checked and that no conflict exists. The Engineer/Consultant shall not approve any shop drawing submitted by the Contractor without such a certificate.

7.2 Manufacturers' performance data, performance and other test certificates and shop drawings for all main equipment giving complete information regarding dimensions, materials and other details confirming the adequacy of the equipment to be supplied shall be submitted to the Engineer/Consultant for approval.

7.3 All shop drawings etc. correct and conforming with the contract requirements, shall be submitted to the Engineer/Consultant sufficiently in advance of actual requirements to allow ample time for checking and approval and no claim for extension of the contract time will be considered by reasons of the Contractor's failure to submit the correct drawings etc. in time. The Contractor will submit eight copies of final corrected shop drawing for approval out of which 3 duly approved copies would be returned to him.

7.4 The Contractor shall clearly point out the differences, if any, between the details submitted

and the requirements of the contract in covering letters sent with the submitted documents and drawings. He should also give reasons for his request for substitution so that if substitution is approved by the Engineer, necessary action may be taken for price adjustment. The Contractor will not otherwise be relieved of his responsibility for executing the works in accordance with the contract.

7.5 After completion of the installation work, the Contractor is to provide reproducible transparencies (quality to be approved by the Consultant) and 3 copies each of as-installed drawings showing runs and location of all the plant, equipment, controls, piping, ducting, electric wiring, burried work, etc. giving all necessary details of the works as actually installed.

7.6 Technical Manuals.

The Contractor shall supply seven sets of printed manufacturers' installation, commissioning, operation, servicing and maintenance manuals, technical catalogues and detail spare parts manuals in English language for all items for the guidance of the Employer's operators in operation, servicing and maintenance of the plants and equipment.

One set shall be supplied to the Consultant for scrutiny and approval well before shipment of the items by the manufacturers/suppliers.

Each set shall be hard bound in volumes as directed by the Consultant.

After approval by the Consultant, balance six hard bound sets shall be supplied to the Engineer simultaneously with or before the arrival of the items at site.

7.7 In case of any question regarding the Contractor's responsibility for preparation and supply of any detail shop drawings, data, as-installed drawings, technical manuals, etc., the Engineer's decision shall be final and binding as to the requirements of the shop drawings, data, as-installed drawings, technical manuals, etc. for the works.

7.8 The approval by the Engineer/Consultant of any submitted data, shop drawings, performance curves, test certificates for any item, arrangement and or layout shall not relieve the Contractor from

any responsibility regarding the performance of the contract. Such approval shall not also relieve the Contractor from responsibility of error of any sort in the submitted data and shop drawin

CLIENT.



Aror University
of Art, Architecture,
Design & Heritage
Sindh

DRAWINGS STATUS.

DESIGN DRAWINGS

DATE.

FEBRUARY - 2024

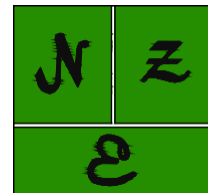
PROJECT

HVAC SYSTEM FOR
AROR UNIVERSITY OF ART, SUKKUR, SINDH.

PROJECT NO.

AR-2024-04

M&P CONSULTANT.



N.Z ENGINEERING

PLOT No. 70c, M-01 JAM
COMMERCIAL, STREET 9

PHASE-VII, D.H.A KARACHI.

Tel: +92 213 5314095

Email: info@nzengineers.net

ARCHITECT.

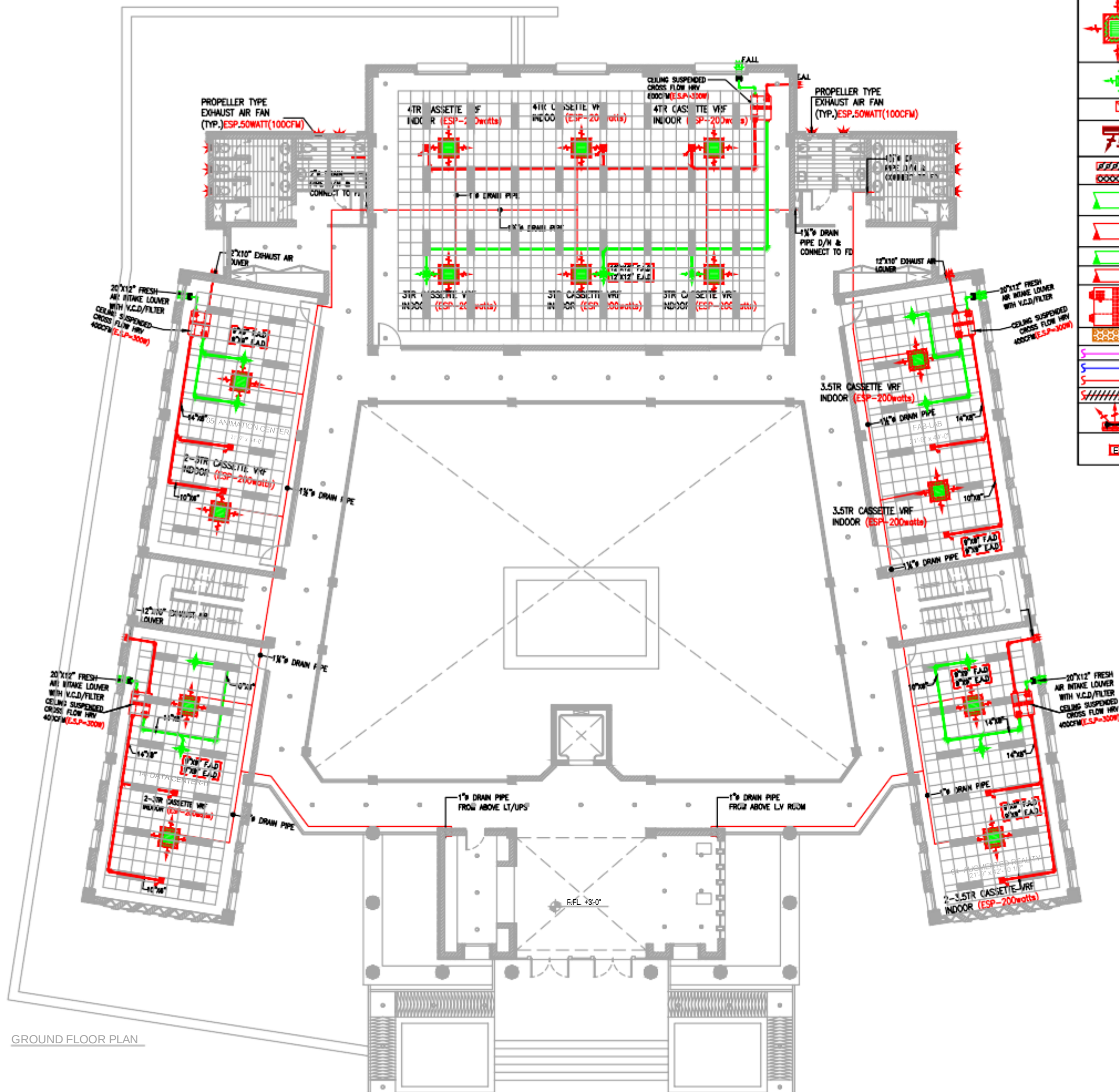
Habib Fida Ali

4 CH. KHALIQUZZAMAN ROAD, KARACHI 75530

TEL: 5661683, 5661684, FAX: 92-21-5686891

LIST OF DRAWINGS				
S. NO	DRAWING NOs	DESCRIPTION	SCALE	DATE
01	H-01	LAYOUT OF PROPOSED A/C INDOOR PLACEMENT , DRAIN PIPING & DUCTING SYSTEM AT LOWER GROUND	AS SHOWN	FEBURAY-2024
02	H-02	LAYOUT OF PROPOSED A/C INDOOR PLACEMENT , DRAIN PIPING & DUCTING SYSTEM AT GROUND FLOOR	AS SHOWN	FEBURAY-2024
03	H-03	LAYOUT OF PROPOSED A/C INDOOR PLACEMENT , DRAIN PIPING & DUCTING SYSTEM AT FIRST FLOOR	AS SHOWN	FEBURAY-2024
04	H-04	LAYOUT OF PROPOSED A/C INDOOR PLACEMENT , DRAIN PIPING & DUCTING SYSTEM AT SECOND FLOOR	AS SHOWN	FEBURAY-2024
05	H-05	LAYOUT OF PROPOSED A/C INDOOR VRF PIPING SYSTEM AT LOWER GROUND	AS SHOWN	FEBURAY-2024
06	H-06	LAYOUT OF PROPOSED A/C INDOOR VRF PIPING SYSTEM AT GROUND FLOOR	AS SHOWN	FEBURAY-2024
07	H-07	LAYOUT OF PROPOSED A/C INDOOR VRF PIPING SYSTEM AT FIRST FLOOR	AS SHOWN	FEBURAY-2024
08	H-08	LAYOUT OF PROPOSED A/C INDOOR VRF PIPING SYSTEM AT SECOND FLOOR	AS SHOWN	FEBURAY-2024
09	H-09	LAYOUT OF PROPOSED VRF A/C OUTDOOR UNIT PLACE AT ROOF	AS SHOWN	FEBURAY-2024
10	H-10	HVAC GENERAL DETAILS	AS SHOWN	FEBURAY-2024
11	H-11	HVAC GENERAL NOTES	AS SHOWN	FEBURAY-2024
12	H-12	HVAC SCHEDULE	AS SHOWN	FEBURAY-2024
13	H-13	HVAC M.C.C DETAILS	AS SHOWN	FEBURAY-2024

REVISION	SUBJECT	DATE	DRAWN	DESIGN
NORTH				
				
NOTES: 1. ALL DIMENSION ARE IN INCHES, UNLESS OTHERWISE SPECIFIED. 2. DO NOT SCALE DRAWING, ONLY FIGURED DIMENSIONS TO BE FOLLOWED. 3. FOR ANY DISCREPANCIES IN THE DRAWING REFER TO CONSULTANT. 4. PLS COORDINATE WITH SERVICES DRAWING BY OTHERS 5. FOR DETAILED AND EXACT SPECIFICATIONS REFER TO SPECIFICATION DOCUMENTS. IMPORTANT: 1. ANY DISCREPANCIES BETWEEN DRAWINGS AND SPECIFICATION COORDINATE WITH CONSULTANT 2. NO CHANGES NOR ALTERATION TO SPECIFICATION AND DRAWINGS SHALL BE CONSIDER WITHOUT PRIOR APPROVAL OF THE OWNER AND CONSULTANT,ANY SUCH CHANGES SHALL BE CHARGE ACCORDINGLY TO ANY CONTRACTOR.				
THIS DRAWING FOR: ☐ INFORMATION ONLY ☐ TENDER ONLY ☐ CLIENT APPROVAL ☐ CONSTRUCTION ☐ AUTHORITY APPROVAL ☒ COORDINATE				
STRUCTURE CONSULTANT :  Loya associates Consulting Engineers & Project Pakistan				
M&P CONSULTANT:  N.Z ENGINEERING PLOT NO. 79C , W-01 ANM COMMERCIAL STREET 8 PHASE-VII, D.J.I.A. KARACHI Tel: +92 213 6314095 Email: info@nzengineers.net				
ELECTRICAL CONSULTANT:  Eleken Associates HEAD OFFICE: 513, R.S.M Square, 1st Floor, 1st Floor, Karachi Pakistan Tel: +9221-34551602, 34552097 email: eleken@eleken.com, elekenassociates@gmail.com REGIONAL OFFICE: 110, FIRST FLOOR, New Garden Town, Lahore Tel: +9221-34551602, 3980822 email: eleken@eleken.com, elekenassociates@gmail.com				
ARCHITECTURE CONSULTANT Habib Fida Ali 4 CH. KHALIQUZZAMAN ROAD, KARACHI 75530 TEL: 5661683,5661684, FAX:92-21-5686891				
ISSUED FOR DESIGN DRAWING				
PROJECT TITLE  AROR UNIVERSITY OF ART SUKKUR, SINDH				
DRAWING TITLE LIST OF DRAWIGS				
CHECKED		DRAWING NO.		
APPROVED		H-00		
ZD				
AB				
DRAWN				
MIF				
SCALE		DATE		
N.T.S		FEB 2024		



GROUND FLOOR PLAN

SYMBOLS	DESCRIPTION
	CASSETTE INDOOR A/C UNIT
	FRESH AIR DIFFUSER
	EXHAUST AIR DIFFUSER
	WALL MOUNTED INDOOR A/C UNIT
	VOLUME CONTROL DAMPER & FILTER
	FRESH AIR INTAKE LOUVER
	EXHAUST AIR LOUVER
	FRESH AIR DUCT
	EXHAUST AIR DUCT
	CEILING SUSPENDED (HRV) HEAT RECOVERY VENTILATOR
	REFRIGERANT CABLE TRAY
	VRF REFRIGERANT UNIT
	A/C DRAIN PIPE
	BURIED A/C DRAIN PIPE
	PROPELLER EXHAUST AIR FAN
	ELECTRIC SUPPLY POINT WITH ISOLATION BREAKER PROVIDED BY ELECTRICAL CONTRACTOR.

REVISION	SUBJECT	DATE	DRAWN	DESIGN

NORTH	
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NOTES:

1. ALL DIMENSION ARE IN INCHES, UNLESS OTHERWISE SPECIFIED.
2. DO NOT SCALE DRAWING, ONLY FIGURED DIMENSIONS TO BE FOLLOWED.
3. FOR ANY DISCREPANCIES IN THE DRAWING REFER TO CONSULTANT.
4. PLS COORDINATE WITH SERVICES DRAWING BY OTHERS.
5. FOR DETAILED AND EXACT SPECIFICATIONS REFER TO SPECIFICATION DOCUMENTS.

IMPORTANT:

1. ANY DISCREPANCIES BETWEEN DRAWINGS AND SPECIFICATION COORDINATE WITH CONSULTANT
2. NO CHANGES NOR ALTERATION TO SPECIFICATION AND DRAWINGS SHALL BE CONSIDER WITHOUT PRIOR APPROVAL OF THE OWNER AND CONSULTANT. ANY SUCH CHANGES SHALL BE CHARGE ACCORDINGLY TO ANY CONTRACTOR.

THIS DRAWING FOR:	
☐ INFORMATION ONLY	☐ TENDER ONLY
☐ CLIENT APPROVAL	☐ CONSTRUCTION
☐ AUTHORITY APPROVAL	☐ COORDINATE

STRUCTURE CONSULTANT :

Loya associates
Consulting Engineers & Project Managers

M&P CONSULTANT:

N.Z ENGINEERING
PLOT NO. 70C - H-51 JAM
COMMERCIAL - STREET 9
PHASE-VII, D.I.K.A KARACHI.
Tel: +92 215 5314085
Email: info@nzengr.com

ELECTRICAL CONSULTANT:

lekEn Associates
REGIONAL OFFICE
513, K.S.M Square,
Sahawal-e-Munawwar,
Karachi Pakistan
Tel: +9221 34551602, 34552187
Email: lekEn@lekEn.com, lekEnassociates@gmail.com

ARCHITECTURE CONSULTANT

Habib Fida Ali
4 CH. KHALIQUZZAMAN ROAD, KARACHI
75530 TEL: 5661683, 5661684, FAX: 92-21-5686891

ISSUED FOR

DESIGN DRAWING

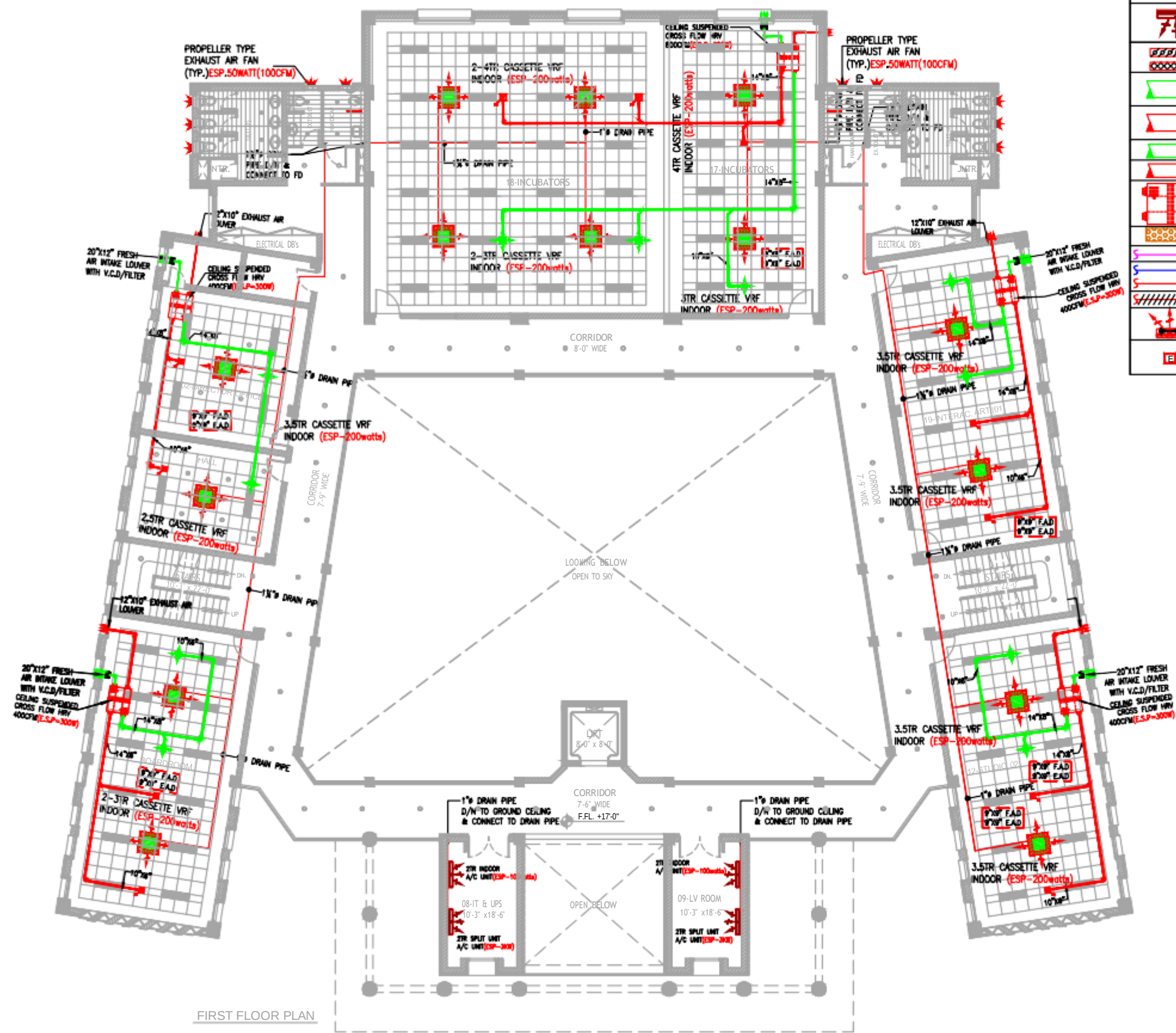
PROJECT TITLE

**AROR UNIVERSITY OF ART
SUKKUR, SINDH**

DRAWING TITLE

**PLAN OF PROPOSED A/C INDOOR
PLACEMENT, DRAIN PIPING & DUCTING
SYSTEM AT GROUND FLOOR**

CHECKED	DRAWING NO.
APPROVED	H-02
DRAWN	
SCALE 1/16"=1'-0"	DATE FEB 2024



FIRST FLOOR PLAN

SYMBOLS	DESCRIPTION
	CASSETTE INDOOR A/C UNIT
	FRESH AIR DIFFUSER
	EXHAUST AIR DIFFUSER
	WALL MOUNTED INDOOR A/C UNIT
	VOLUME CONTROL DAMPER & FILTER
	FRESH AIR INTAKE LOUVER
	EXHAUST AIR LOUVER
	FRESH AIR DUCT
	EXHAUST AIR DUCT
	CEILING SUSPENDED (HRV) HEAT RECOVERY VENTILATOR
	REFRIGERANT CABLE TRAY
	VRF REFRIGERANT UNIT
	VRF REFRIGERANT UNIT
	A/C DRAIN PIPE
	BURIED A/C DRAIN PIPE
	PROPELLER EXHAUST AIR FAN
	ELECTRIC SUPPLY POINT WITH ISOLATION BREAKER PROVIDED BY ELECTRICAL CONTRACTOR.

REVISION	SUBJECT	DATE	DRAWN	DESIGN

NORTH

NOTES:

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STRUCTURE CONSULTANT :

Loya associates
Consulting Engineers & Project Planners

M&P CONSULTANT:

N.Z ENGINEERING
PLOT NO. 700, W-01 JAM
COMMERCIAL, STREET 9
PHASE-VII, D.H.A. KARACHI.
Tel: +92 21 5514000
Email: info@nzengineering.net

ELECTRICAL CONSULTANT:

ElekEn Associates
HEAD OFFICE: 513, R.S.M Square, 3rd Floor, 1st Floor, Karachi Pakistan
Tel: +92 21 5514000, 34552077
Regional Office: 110, 1st Floor, New Garden Town, Lahore
Tel: +92 21 5514000, 35040822
Email: elek@elek.com, elek@elek.com

ARCHITECTURE CONSULTANT

Habib Fida Ali
4 CH. KHALIQUZZAMAN ROAD, KARACHI
75530 TEL: 5661683, 5661684, FAX: 92-21-5686891

ISSUED FOR

DESIGN DRAWING

PROJECT TITLE

AROR UNIVERSITY OF ART SUKKUR, SINDH

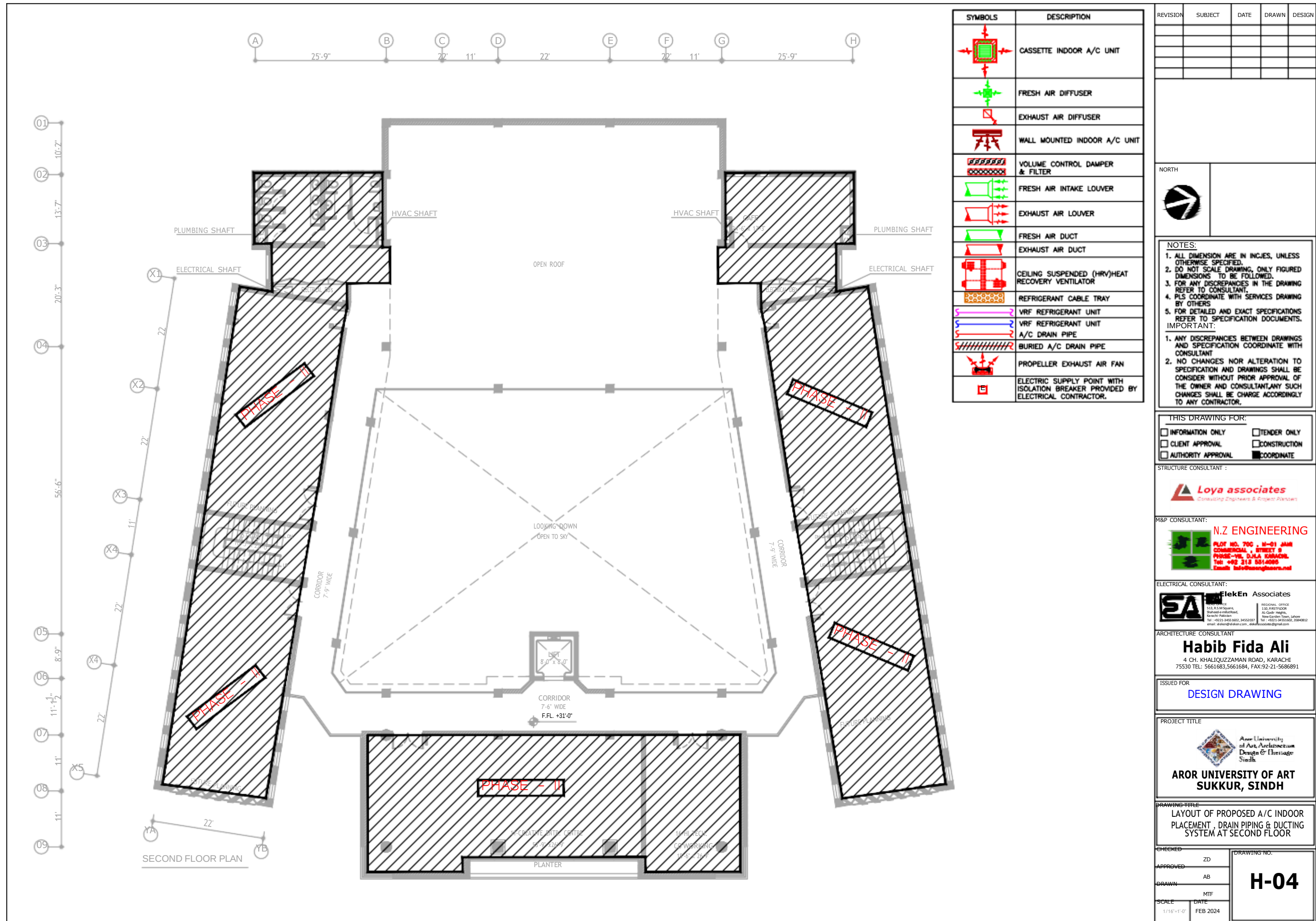
DRAWING TITLE

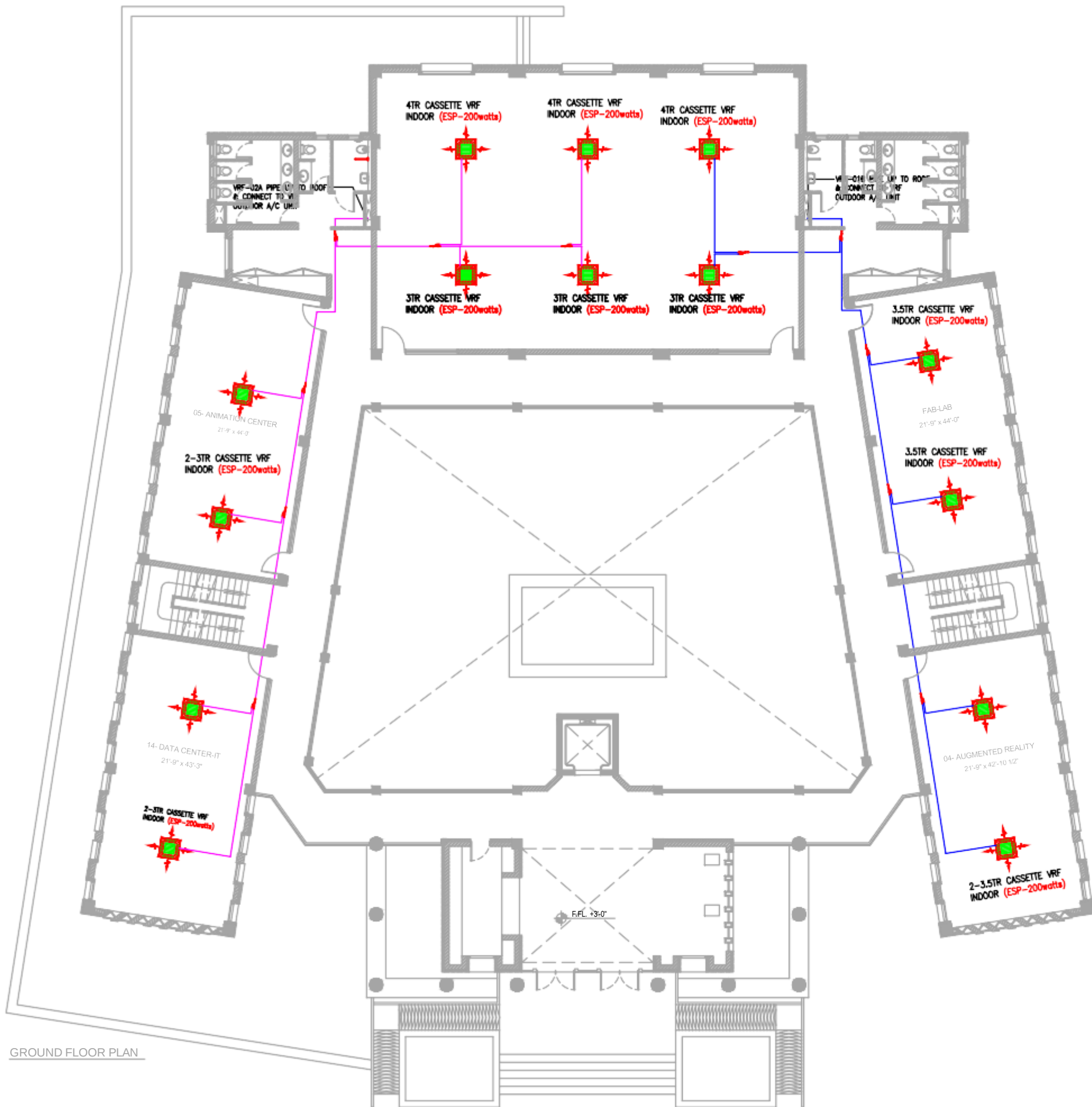
LAYOUT OF PROPOSED A/C INDOOR PLACEMENT, DRAIN PIPING & DUCTING SYSTEM AT FIRST FLOOR

CHECKED	2D
APPROVED	AB
DRAWN	MTF
SCALE	DATE
1/16"=1'-0"	FEB 2024

DRAWING NO.

H-03





GROUND FLOOR PLAN

SYMBOLS	DESCRIPTION
	CASSETTE INDOOR A/C UNIT
	FRESH AIR DIFFUSER
	EXHAUST AIR DIFFUSER
	WALL MOUNTED INDOOR A/C UNIT
	VOLUME CONTROL DAMPER & FILTER
	FRESH AIR INTAKE LOUVER
	EXHAUST AIR LOUVER
	FRESH AIR DUCT
	EXHAUST AIR DUCT
	CEILING SUSPENDED (HRV) HEAT RECOVERY VENTILATOR
	REFRIGERANT CABLE TRAY
	VRF REFRIGERANT UNIT
	VRF REFRIGERANT UNIT
	A/C DRAIN PIPE
	BURIED A/C DRAIN PIPE
	PROPELLER EXHAUST AIR FAN
	ELECTRIC SUPPLY POINT WITH ISOLATION BREAKER PROVIDED BY ELECTRICAL CONTRACTOR.

REVISION	SUBJECT	DATE	DRAWN	DESIGN

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M&P CONSULTANT:



ELECTRICAL CONSULTANT:



ARCHITECTURE CONSULTANT

Habib Fida Ali

4 CH. KHALIQUZZAMAN ROAD, KARACHI
75530 TEL: 5661683, 5661684, FAX: 92-21-5686891

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**AROR UNIVERSITY OF ART
SUKKUR, SINDH**

DRAWING TITLE

LAYOUT OF PROPOSED A/C INDOOR VRF
PIPING SYSTEM AT GROUND FLOOR

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ZD

APPROVED

AB

DRAWN

MTF

SCALE

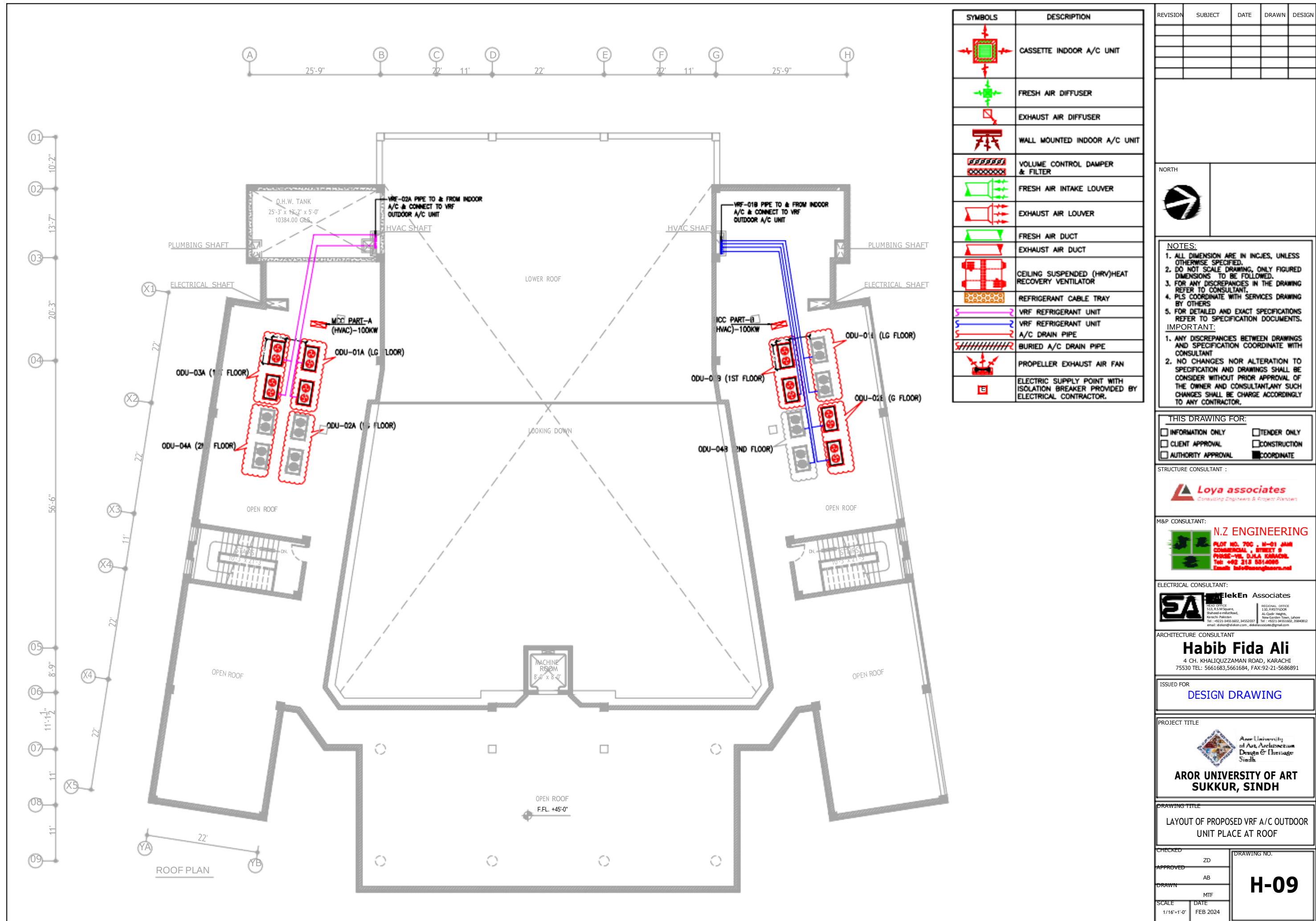
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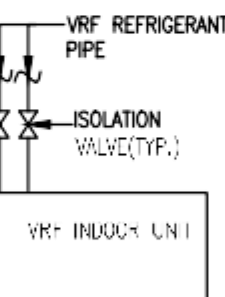
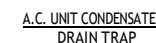
DATE

FEB 2024

DRAWING NO.

H-06





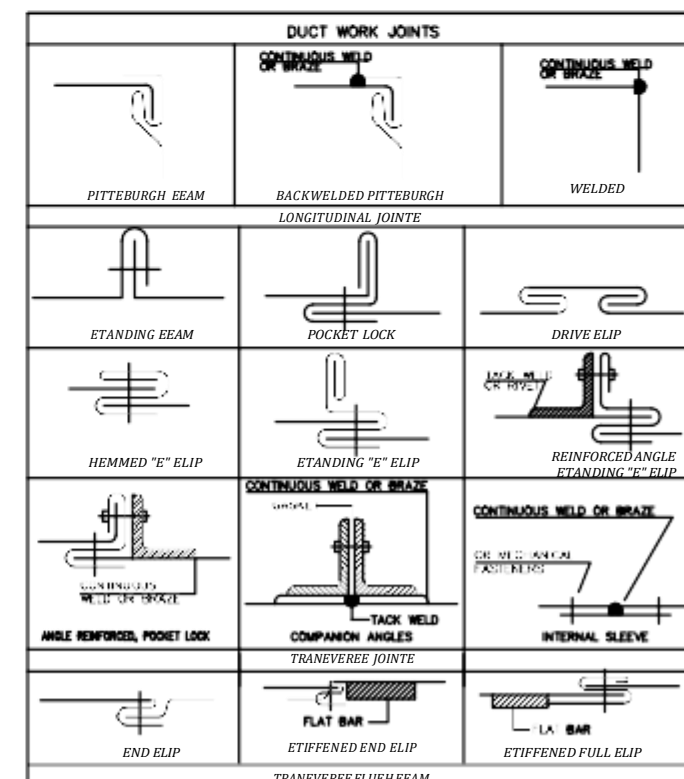
TYPICAL DETAIL FOR VRF INDOOR UNIT INSTALLATION



PIPE SIZE	HORIZONTAL DIST.	VERTICAL DIST.
1/2" & TO 3/4"	5 FT. 0/1	8 FT. 0/1
1" & TO 1 1/4"	8 FT. 0/1	10 FT. 0/1
1 1/2" TO 2 1/2"	10 FT. 0/1	10 FT. 0/1
3" & TO 4"	12 FT. 0/1	12 FT. 0/1
6" & LARGER	15 FT. 0/1	12 FT. 0/1

METAL GAGE	DUCT DIM. IN INCHES	TRANSVERSE JOINTS	TRANSVERSE BRACING		HANGERS					
GALVANIZED STEEL		CONSTRUCTION	SPACING FEET		ROD. DIA.	SHELF ANGLE	MAX. SPACING			
26	30" THRU 12"	1" POCKET LOCK HEMVED "S" SUP DRIVE SUP (VERTICAL ONLY)	8'	NONE		1/2"x3/4" 1/2" x1/8"				
24	18" THRU 30"	1" POCKET LOCK HEMVED "S" SUP 1" BAR SUP	4'	NONE	3/8"	OR 1" x1/8" SRAI	8'-0"			
			8'	1" x1/2" x/8" ANGLE CLINCHED BETWEEN JOINTS						
22	31" THRU 42"	1" POCKET LOCK STANDING "S" SUP 1" REINFORCED BAR SUP	4'	NONE	3/8"	1 1/2"x1-1/2" x1/8"	8'-0"			
	44" THRU 54"	1 1/2" POCKET LOCK 1-1/2" STANDING "S" SUP 1-1/2" REINFORCED BAR SUP	4'	NONE OR CROSS BREAK				1/2"	2 x2 x3/8" OR F2144 RHT CHANNEL	8'-0"
		8'	-1/2"x1-1/2"x1/8" ANGLE CENTERED BETWEEN JOINTS							
		55" THRU 60"	1 1/2" REINFORCED BAR SUP 1-1/2" STANDING "S" SUP	4'						
61" THRU 84"	1-1/2" ANGLE REINFORCED POCKET LOCK	8'	-1/2"x1-1/2"x1/8" ANGLES ON 2'-0" CENTERS BETWEEN JOINTS							
18	85" THRU 96"	1 1/2" REINFORCED BAR SUP 1-1/2" ANGLE REINFORCED POCKET LOCK 1-1/2" COMPANION ANGLES	4'	1-1/2"x1-1/2"x3/16" ANGLES CENTERED BETWEEN JOINTS	1/2"	3"x3"x1/4"	4'-0"			
			8'	-1/2"x1-1/2"x3/16" ANGLES ON 2'-0" CENTERS BETWEEN JOINTS						
	97" THRU 120"	2" ANGLE REINFORCED POCKET LOCK 2" COMPANION ANGLES	4'	2"x2"x1/4" ANGLES CENTERED BETWEEN JOINTS						
			8'	2"x2"x1/4" ANGLES ON 2'-0" CENTERS						

LOW PR. GALV. STEEL DUCT WORK SPECIF. TABLE



REVISION	SUBJECT	DATE	DRAWN	DESIGN

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ARCHITECTURE CONSULTANT

Habib Fida Ali

4 CH. KHALIQUZZAMAN ROAD, KARACHI
75530 TEL : 5661683-5661684. FAX:92-21-568689

ISSUED FOR

DESIGN DRAWING

PROJECT TITLE



**AROR UNIVERSITY OF ART
SUKKUR, SINDH**

DRAWING TITLE

HVAC DETAILS

CHECKED

APPROVE

DRAWN

SCALE	DATE
N.T.S	FEB 2024

DRAWING NO.

H-10

			REVISION	SUBJECT	DATE	DRAWN	DESIGN
GENERAL NOTES :							
1. THE MECHANICAL SYSTEM SHALL CONSIST OF ALL WORKS SHOWN ON THE DRAWINGS, INCLUDING PLANS, DIAGRAMS, DETAILS ETC., AND ALL WORKS AS IDENTIFIED IN THE SPECIFICATIONS. WORK INCLUDES FURNISHINGS, INSTALLING SYSTEM INTEGRATION, TESTING, TRAINING AND WARRANTY OF THE MECHANICAL SYSTEM AS SHOWN AND SPECIFIED. PROVIDE A COMPLETE AND WORKABLE MECHANICAL SYSTEM COMPLETE WITH ALL MECHANICAL AND ELECTRICAL WORKS AS REQUIRED FOR SYSTEM OPERATION.	10.2 PROVIDE ACCESS DOORS ON ALL FIRE / SMOKE DAMPERS.		28 SIZES AND TYPE OF RETURN DIFFUSERS SHALL BE THE SAME AS THEIR RESPECTIVE SUPPLY DIFFUSER IN THE SAME ROOM SERVED UNLESS OTHERWISE SHOWN ON THE DRAWING.				
2. CONTRACTOR SHALL VERIFY ALL SYSTEM AND PERFORMANCE SYSTEM OPERATION AS SPECIFIED.	11. ALL DUCT/PIPE SIZES MENTIONED ON PLANS ARE CLEAR SIZES, EXCLUDING THE THICKNESS OF INSULATION AND OTHER DUCT LINING.		29 DESIGN CONDITIONS:				
3. PROVIDE ALL REQUIRED ELECTRICAL POWER, MOTOR, STARTERS, LOCAL ON \ OFF CONTROL AND CONTROL INTERFACE AND CONNECTIONS AS REQUIRED FOR SYSTEM OPERATION COORDINATE REQUIREMENTS WITH ELECTRICAL.	12. DUCT INSULATION:		29.1 INDOOR CONDITIONS:				
4. PROVIDE ALL REQUIRED EQUIPMENT GUARDS AND STRUCTURAL SUPPORT AS RECOMMENDED BY EQUIPMENT MANUFACTURERS TO SUPPORT EQUIPMENT AND TO ASSURE SYSTEM PERFORMANCE AND SAFE OPERATION. COORDINATE PRIOR TO INSTALLATION.	12.10 ALL SUPPLY DUCTS BE INSULATED.		A. SUMMER - 23°C DB / 50%RH				
5. COORDINATE LOCATION WITH ARCHIT.OF ALL THERMOSTATS AND ALL WALL MOUNTED EQUIPMENT. LOCATIONS AS SHOWN ON THE DRAWINGS ARE FOR REFERENCE ONLY.	12.20 GENERALLY, ALL RETURN DUCTS SHALL NOT BE INSULATED EXCEPT THOSE EXPOSED TO WEATHER, LOCATED NEAR LIGHTING FIXTURES AND THOSE PASSING THROUGH NON-AIR CONDITIONED SPACES.		29.2 OUTDOOR CONDITIONS:				
6. REFERENCE THE REFLECTED CEILING PLANS FOR LOCATION OF GRILLES, REGISTERS, DIFFUSERS AND OTHER CEILING MOUNTED DEVICESUNITS. MOUNT EQUIPMENT IN CONFORMANCE WITH ARCHITECTURAL FEATURES, IN THE CENTER OF CEILING TILES, IN THE CENTER OF ROOMS OR CORRIDORS OR WHERE SHOWN ON ARCHITECTURAL DRAWINGS. WHERE EQUIPMENT IS NOT SHOWN ON ARCHITECTURAL DRAWINGS PROVIDE SHOP DRAWINGS SHOWING PROPOSED CEILING LOCATIONS.	12.30 FRESH AIR AND EXHAUST DUCTS PASSING THROUGH AIR CONDITIONED SPACES SHALL BE INSULATED.		A. SUMMER - 45°C DB				
7. LOCATION AND DETAILS OF EQUIPMENT CONNECTIONS ARE APPROXIMATE. COORDINATE THIS INFORMATION WITH THE CONTRACTOR FURNISHINGS THE EQUIPMENT AND ADJUST INSTALLATION DETAILS PRIOR TO ROUGH-IN.	13. PROVIDE 12mm SQUARE MESH SCREEN ON ALL BELLMOUTH OPENINGS IN CEILING SPACE.		30 THE CONTRACTOR SHALL VERIFY CEILING LAYOUT AND COORDINATE THE UNITS PLACEMENT DIFFUSER.				
8. ALL MECHANICAL DRAWINGS SHALL BE READ IN CONJUNCTION WITH GENERAL NOTES, SPECIFICATIONS AND MISCELLANEOUS DETAILS.	14. DUCTWORK, FITTINGS, HANGERS AND ACCESSORIES SHALL BE AS PER SMACNA RECOMMENDATIONS.		31 THE CONTRACTOR SHALL HAVE THE OPTION TO USE EXTENSIVELY CIRCULAR DUCTS WHENEVER POSSIBLE.				
9. UNLESS OTHERWISE SPECIFIED, ALL DUCT SIZES AND OTHER DIMENSIONS ARE IN INCHES.	15. INSTALL VOLUME DAMPERS ON ALL DUCT BRANCHES AND BRANCH TAKE-OFFS AND WHEREVER REQUIRED FOR PROPER BALANCING OF AIR.		32 PROVIDE FIRE RETARDANT FLEXIBLE JOINT WHERE DUCTS PASS THROUGH CONSTRUCTION JOINT.				
10. FIRE DAMPERS:(IF APPLICABLE)	16. ALL THE COPPER PIPES SHALL BE RUN THRU BEAM CORE. THE BEAM,WALL,ROOF OPENINGS SHALL BE 10mm LARGER ALL AROUND THAN DUCT SLEEVE PASSING THROUGH WALL OR SLAB AND THE VOID WILL BE FILLED WITH NON-COMBUSTIBLE MATERIAL.		33 THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DETAILED ARRANGEMENT OF ALL PIPING, VALVES, VIBRATION ISOLATORS, ETC. AT THE AHU CONNECTIONS GIVING DUE IMPORTANCE TO MAINTENANCE ACCESS TO FANS & MOTORS COOLING COILS INCLUDING ITS PULL-OUT AND FILTERS. PROVIDE U-TRAP WITH SUFFICIENT DEPTH AT ALL AHU CONDENSATE DRAINS. PIPE ALL DRAINS TO NEAREST FLOOR OR RAIN WATER DRAIN.				
	17. COORDINATE GRILLES, DIFFUSERS AND REGISTERS WITH REFLECTED CEILING PLANS AND LIGHTING PLANS.		34 CONTRACTOR SHALL PROVIDE WORKING SHOP DRAWING SHOWING ALL SUPPORTS OF DUCTWORKS & EQUIPMENT.				
	18. REFER TO ARCHITECTURAL DRAWINGS FOR DOOR GRILLES AND DOOR UNDERCUT SIZES AND DETAILS.		35 ALL EQUIPMENT EXPOSED TO WEATHER SHALL BE SUITABLE FOR OUTDOOR INSTALLATION.				
	19. FAN SYSTEM RESISTANCES STATED IN THE SCHEDULES ARE DESIGN APPROXIMATIONS ONLY AND SHALL BE CHECKED BY THE MECHANICAL SERVICES CONTRACTOR PRIOR TO THE FINAL ORDERING OF EQUIPMENT.		36 ALL AHU/FCU DRAINS SHALL BE PIPED TO THE NEAREST DRAIN PROVIDE BY THE PLUMBING CONTRACTOR.				
	20. ALL PIPES PIPES SHALL BE		37 CONTRACTOR SHALL PROVIDE WORKING / SHOP DRAWING SHOWING ALL SUPPORTS OF DUCTWORKS & EQUIPMENT.				
	21. PIPE ALL CONDENSATE DRAIN LINES OF AHU'S TO THE NEAREST DRAIN POINT PROVIDED UNDER PLUMBING WORKS UNLESS OTHERWISE SHOWN ON THE DRAWING.						
	22. PROVIDE SHUT OFF AND BALANCING VALVES IN THE CHILLED WATER PIPING AT ALL BRANCHES AND WHERE REQUIRED FOR PROPER BALANCING AND MAINTENANCE.						
	23. PROVIDE SLEEVES WHERE PIPES PENETRATE WALLS AND SLABS.						
	24. WHERE SHOW ON PLANS THE ROOM THERMOSTATS SHALL BE MOUNTED ON THE WALL @ 1.5 METER ABOVE FINISHED FLOOR LEVEL.						
	25. ROOF MOUNTED EQUIPMENT TO BE TROPICALIZED AND WATER PROOFED.						
	26. VIBRATING EQUIPMENT SHALL BE PROVIDED WITH ISOLATORS TO PREVENT VIBRATION TRANSMISSION.						
	27. INSTALL ALL EQUIPMENT AS PER MANUFACTURE'S RECOMMENDATIONS.						

NORTH

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N.Z ENGINEERING
PLOT NO. 70C , M-01 JAM
COMMERCIAL , STREET 9
PHASE-VII, D.H.A KARACHI.
Tel: +92 215 5314095
Email: info@nzengineers.net

ELECTRICAL CONSULTANT:

EA

HEAD OFFICE
S13, K5 M Square,
Sohrawardy Road,
Karachi - Pakistan
Tel: +92 21 3455 1602, 34552037
email: elek@eleken.com , elekensodab@gmail.com

REGIONAL OFFICE
110, FIRST FLOOR
46 Gaudet Road,
New Garden Town, Lahore
Tel: +92 21 34551602, 34552032

Eleken Associates

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Habib Fida Ali
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75530 TEL: 5661683,5661684, FAX:92-21-5686891

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of Art, Architecture
Design & Heritage
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**AROR UNIVERSITY OF ART
SUKKUR, SINDH**

DRAWING TITLE

HVAC NOTES

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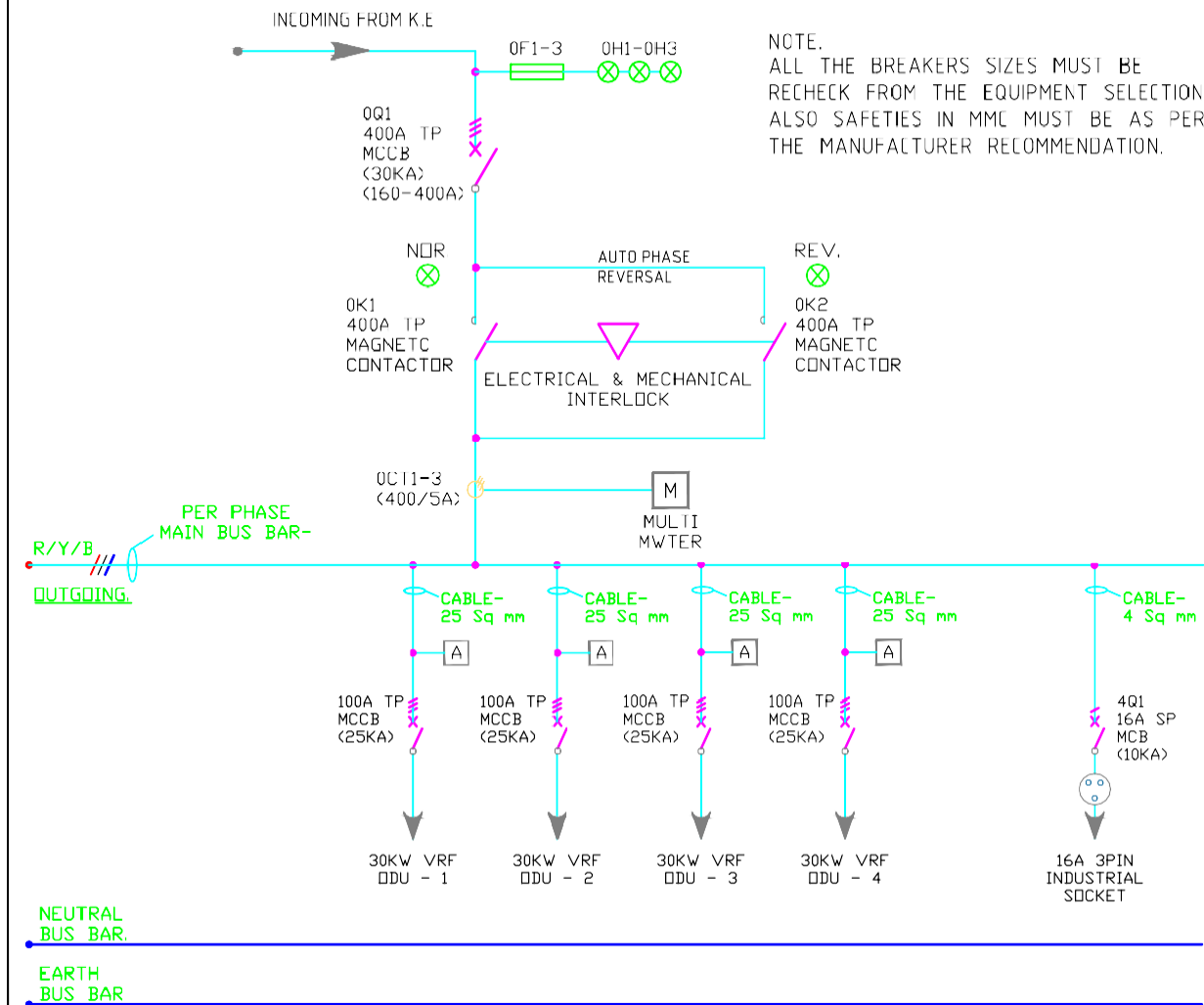
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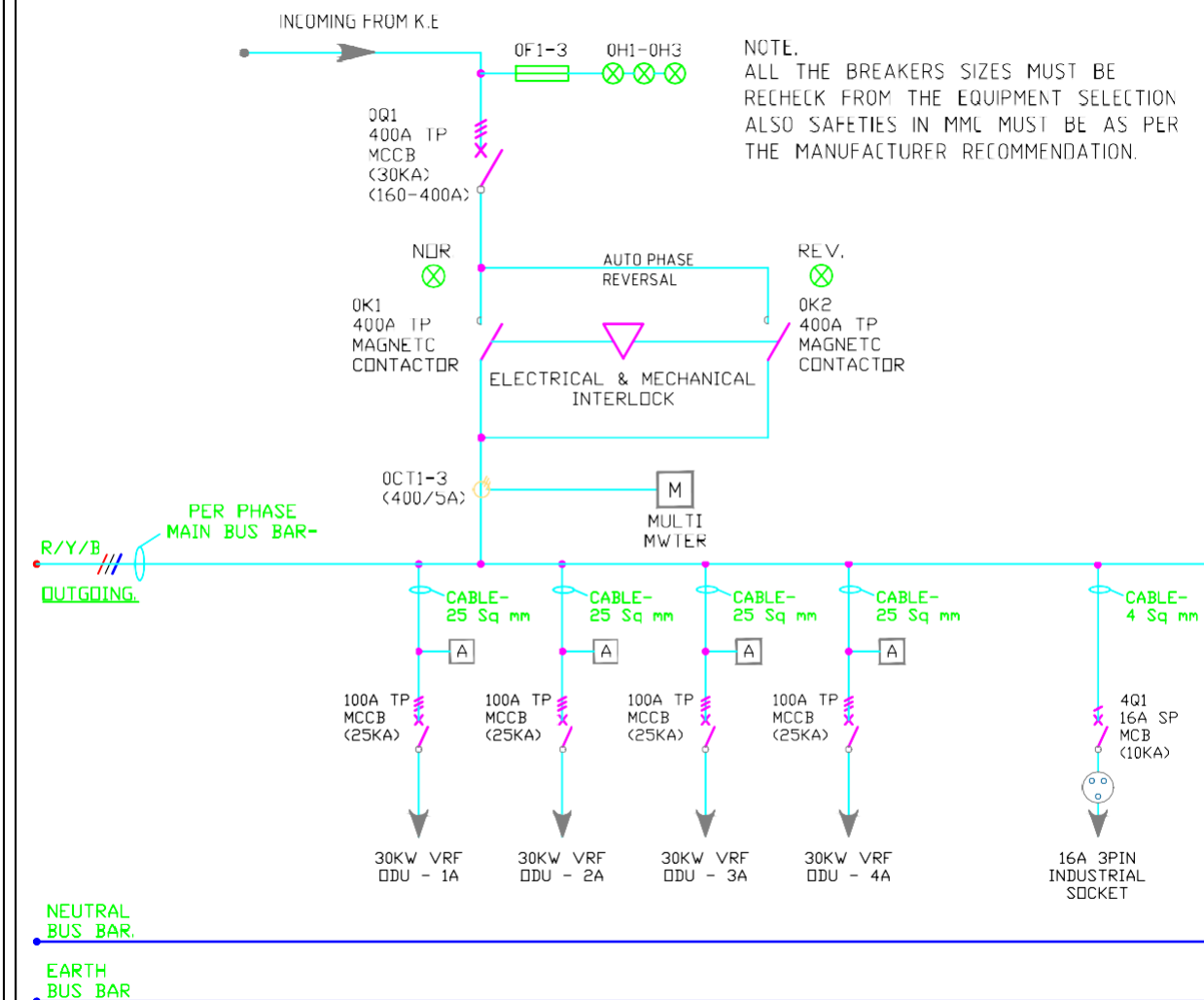
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MCC-01



MCC-02



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ELECTRICAL CONSULTANT:



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SUKKUR, SINDH

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DATE

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H-13

AROR UNIVERSITY OF ART & HERITAGE SUKKUR SINDH**REVISED B.O.Q OF HVAC SYSTEM FOR PHASE-1 AROR UNIVERSITY OF ART & HERITAGE SUKKUR SINDH**

S.No.	DESCRIPTION	QTY		UNIT RATE (RS)		AMOUNT(RS)		
				COST OF SUPPLY	COST OF INSTALLATION	COST OF SUPPLY	COST OF INSTALLATION	TOTAL COST
1	2	3		4	5	6	7	8
1	Supply, Installation, Testing & Commissioning of Air-cooled electric operated, Full D.C inverter, Reversible Type condensing outdoor units, high C.O.P efficiency (T-3 Ranges -7 to +52degree C) inverter base compressor with Black Fins condenser, vibration isolators, factory wired weatherproof cabi-net type control center, atmosphere friendly refrigerant etc. Complete with safety controls and accessories as per specification and drawings (Note: each unit shall have a minimum of three separate refrigerant circuits with isolation valve.) Selection ambient temp.45 degree C.							
i.	Outdoor Units 01A (Connected load-13.6TR)	1	No.					
ii.	Outdoor Units 02A (Connected load-26.0TR)	1	No.					
iii.	Outdoor Units 02B (Connected load-21.0TR)	1	No.					
iv	Outdoor Units 03A (Connected load-25.0TR)	1	No.					
v.	Outdoor Units 03B Connected load-26.0TR)	1	No.					
2	Supply, Installation, Testing & Commissioning of indoor units Complete with safety controls, thermostat wired and remote both type Controller and accessories as per specification and drawings.							
a.	4 Way Casstte Type.(Low Height Type)							
i	2 TR	6	Nos.					
ii	2.5 TR	1	Nos.					
iii.	3.0 TR	12	Nos.					
iv.	3.5 TR	9	Nos.					
v.	4.0 TR	6	Nos.					
b.	Wall-mounted Indoor Unit							

AROR UNIVERSITY OF ART & HERITAGE SUKKUR SINDH**REVISED B.O.Q OF HVAC SYSTEM FOR PHASE-1 AROR UNIVERSITY OF ART & HERITAGE SUKKUR SINDH**

S.No.	DESCRIPTION	QTY		UNIT RATE (RS)		AMOUNT(RS)		
				COST OF SUPPLY	COST OF INSTALLATION	COST OF SUPPLY	COST OF INSTALLATION	TOTAL COST
1	2	3		4	5	6	7	8
i.	0.8 TR	2	Nos.					
ii.	2.0 TR	2	Nos.					
3	Supply, installation, testing, and commissioning of a centralized Building Management System (BMS) for the HVAC system, including provision of an integrated centralized remote controller with licensed software for remote operation, complete control and communication wiring, energy meters/energy management system for all indoor and outdoor equipment, and integration of all HVAC parameters as per specifications, drawings, and project requirements.	1	Job					
4	Supply, Installation, Testing & Commissioning of Imported fitting and components Y-Branches complete with all respects.	45	Nos.					
5	Supply, installation, testing, and commissioning of Heat Recovery Ventilation (HRV) unit equipped with centrifugal plug fans and motor, including automatic control system and pre-filter, complete in all respects as per approved drawings, specifications, and site requirements.							
a	400 CFM	9	Nos.					
b	800 CFM.	2	Nos.					
6	Supply, installation, testing, and commissioning of complete copper piping (liquid and gas lines) conforming to ASTM B88 / B306 / B819 standards, including isolation valves, 3/4" thick closed-cell elastomeric foam insulation, aluminum cladding, core cutting, wall/chasing chiseling, pipe cutting, G.I. cable tray, hanger supports, wooden saddles, and all required accessories, complete in all respects as per specifications and approved drawings.	1	Job					
7	Supply & Installation of 18 Gauge Cable try with cover, hangers for External/shaft Piping & electrical wiring complete with all respects.							
i.	30"X3"	120	Rft.					
ii.	24"X3"	100	Rft.					

AROR UNIVERSITY OF ART & HERITAGE SUKKUR SINDH

REVISED B.O.Q OF HVAC SYSTEM FOR PHASE-1 AROR UNIVERSITY OF ART & HERITAGE SUKKUR SINDH

S.No.	DESCRIPTION	QTY		UNIT RATE (RS)		AMOUNT(RS)		
				COST OF SUPPLY	COST OF INSTALLATION	COST OF SUPPLY	COST OF INSTALLATION	TOTAL COST
1	2	3		4	5	6	7	8
iii.	8"X3"	30	Rft.					
8	Supply, Installation, Testing & Commissioning of Complete Isolation Valve complete with all respects as per specification.	70	Nos.					
9	Supply, Installation, Testing & Commissioning of UPVC Class-D Piping for equipment drain complete with Specialties, 3/4" thick closed cell foam Insulation, cladding, fitting, core cutting & hanger supports, wooden saddle, anitfungus & fire retardant paint etc. as per specification and drawings.							
i	1 1/2" dia	400	Rft.					
ii	1 1/4" dia	300	Rft.					
iii.	1" dia	380	Rft.					
iv.	¾" dia	80	Rft.					
10	Supply, Installation, Testing & Commissioning of Weatherproof MCC for hvac System with circuit Breakers, Disconnect switches, fuses, starters, automatic phase sequence, phase reversal etc. for all equipment as per specification & drawing. (Isolation breakers shall be finalized as per manufacturer specifications.)							
i.	MCC No- 1 (Block-A)	1	No.					
ii.	MCC No- 2 (Block-B)	1	No.					
11	Supply & Installation of Complete Electric power (from electric point to indoor units and from MCC to Units as shown in drawing)& control wiring complete with hanger supports, isolation breakers etc. for Equipment as per Specification and drawings.							
a	1x4C x 50Sqmm CU/PVC Cable with earth Cable.	200	RFT.					
b	1x4C x 25Sqmm CU/PVC Cable with earth Cable.	350	RFT.					
c	1x4C x 2.5Sqmm CU/PVC Cable with earth Cable.	250	RFT.					

AROR UNIVERSITY OF ART & HERITAGE SUKKUR SINDH

REVISED B.O.Q OF HVAC SYSTEM FOR PHASE-1 AROR UNIVERSITY OF ART & HERITAGE SUKKUR SINDH

S.No.	DESCRIPTION	QTY		UNIT RATE (RS)		AMOUNT(RS)		
				COST OF SUPPLY	COST OF INSTALLATION	COST OF SUPPLY	COST OF INSTALLATION	TOTAL COST
1	2	3		4	5	6	7	8
d	Control & communication Wiring with conduit.	2000	RFT.					
e	Electric supply point	110	Nos.					
12	Supply, Installation, Testing & Commissioning of Ventilation & Exhaust fan with fitting & supports etc. as per specification and drawings.							
i	Decorative type propeller fans complete with all respects. (100 cfm)	30	Nos.					
13	Supply, Installation, Testing & Commissioning of Low pressure G.I. Sheet Metal ducting (Machine Made) as per SMACNA & ASHRAE Standards for air ducting, plenums and other sheet fabrications including splitter dampers, take off, wire mesh on duct opening, core cutting, vanes elbows and other necessary fittings with galvanized hanger supports, wooden saddle as per specification and drawings.							
i	24 Gauge	3600	Sq.ft					
14	Supply & Installation of 3/4" Foam insulation Thermal Insulation(Fire rating V-O, Density 25Kg/M ³), with aluminum cladding of internal supply/return air ducts complete with all respect as per specification and drawings.	3600	Sq.ft					
15	Supply & Installation of Air Devices with damper (Tuttle & Bailey standards) Complete with all respect as per specification and drawings.							
a	Suply, Exhaust & Fresh Air Diffuser (with v.c.d)							
i	9" dia F.A.D	38	Nos.					
ii	12" dia F.A.D	10	Nos.					
b	Fresh Air Intake Louver (with V.C.D + 0.5" filter)							
i.	12"X10"	9	Nos.					
ii.	20"X12"	2	Nos.					

AROR UNIVERSITY OF ART & HERITAGE SUKKUR SINDH**REVISED B.O.Q OF HVAC SYSTEM FOR PHASE-1 AROR UNIVERSITY OF ART & HERITAGE SUKKUR SINDH**

S.No.	DESCRIPTION	QTY		UNIT RATE (RS)		AMOUNT(RS)		
				COST OF SUPPLY	COST OF INSTALLATION	COST OF SUPPLY	COST OF INSTALLATION	TOTAL COST
1	2	3		4	5	6	7	8
c	Exhaust Air Louver (with V.C.D)							
i.	12"X10"	9	Nos.					
ii.	20"X12"	2	Nos.					
16	Supply, Installation, Testing & Commissioning of Inverter base Wall mounted type mini split type A/C units (T-3 Series) complete with atmosphere friendly refrigerant complete with all respects as per specification							
i.	2.0 TR	2	Nos.					
17	Supply, Installation, Testing & Commissioning of refrigerant for split A/c Units with 3/4" thick closed cell foam insulation, cladding, core cutting and chiseling, cutting, hanger support & paint complete with all respects as per specification							
i.	2.0 TR	200	RFT.					
18	Supply, Installation, Testing & Commissioning of additional refrigerant charging in VRF system as per manufacturer recommendation complete with all respects.	1	Job					
19	Supply, Installation of 18"x18" Aluminum Powder coated access doors with complete with all respect.	20	Nos.					
20	All Equipment foundation, vibration isolator and equipment lifting, shifting charges from Ground floor to foundation pads as per specification and drawings.	1	Job					
21	Supply, Installation, Testing & Commissioning of Fire Stopping of Walls & Structure Openings as per specification and drawings.	1	Job					
22	Supply of the Spares parts & tools for air conditioning system as Recommended by the Manufacturer and as per the specification and mentioned in tender documents	1	Job					

AROR UNIVERSITY OF ART & HERITAGE SUKKUR SINDH**REVISED B.O.Q OF HVAC SYSTEM FOR PHASE-1 AROR UNIVERSITY OF ART & HERITAGE SUKKUR SINDH**

S.No.	DESCRIPTION	QTY		UNIT RATE (RS)		AMOUNT(RS)		
				COST OF SUPPLY	COST OF INSTALLATION	COST OF SUPPLY	COST OF INSTALLATION	TOTAL COST
1	2	3		4	5	6	7	8
23	Stencilling, Painting & Finishing as per specification.	1	Job					
24	M&P Services Shop drawings & As Built Drawings Color Copies. (Minimum scale 1-1/8") Hard Copy and Soft Copy in Autocad format.	7	Sets					
25	Cost of testing, Starting up, commissioning, balancing, adjusting and handling over of the complete Plant.	1	Job					
26	Cost of System operation & Maintenance for 12 operating months (2 Operators).	1	Job					
27	COST OF ANY OTHER ITEM WHICH IS MISSING AND NECESSARY TO COMPLETE THE JOB. (DETAIL MUST BE ATTACH)	---						
TOTAL COST OF HVAC SYSTEM (RS.)								

NOTES:

- 1 The Contractor shall be responsible for the supply, procurement and delivery of all the material and shifting of the equipment to their respective location, installation, testing, commissioning of the systems in all respects.
- 2 The quoted cost should include all overheads, profits, income tax and all other Taxes which are applicable, import duty (if any), insurance, packing, unpacking, transportation charges etc.
- 3 The work at site shall be executed in accordance with the approved shop drawings which will be prepared by the Contractor.
- 4 The work at site shall be executed in accordance with the approved shop drawings which will be prepared by the Contractor within 2 week after award of works and Manufacturers drawings, Contract Specifications etc.
- 5 The work shall be awarded on item Rate cost basis.
- 6 The bidder will provide all equipment software soft copy to the client.
- 7 The bidder will train client operator for equipment Operation and servicing etc.
- 8 The complete system replacement warranty should be 1years.
- 9 The contractor will provide Equipment Operation & Maintenance Manuals (2 sets Hard copy & Soft Copy.)
- 10 The contractor will provide Operation & Maintenance Instructions to Clients Representatives
- 11 The Owner reserves the right to delete any item before award of works. The cost of such items shall be reduced.
- 12 Abbreviation used in the BOQ are as follows:
a) Sq. Ft. Square Feet, (b) R. Feet. Running Feet, (c) Ton Ton weight, (d) TR Ton of refrigeration, (e) No. Number, (f) Lot.....Complete package/lump sum.
- 13 THE CONTRACTORS ARE RESPONSIBLE FOR VISITING THE SITE AND DETERMINING THE EXISTING CONDITION AND STATE FOR THEMSELVES BEFORE SUBMITTING THE TENDER.