

# REQUEST FOR PROPOSAL

## TESTING, ADJUSTING, AND BALANCING OF HVAC SYSTEMS

INDEFINITE DELIVERY INDEFINITE QUANTITY (IDIQ) FOR

EXISTING BUILDINGS  
UNIVERSITY OF ARKANSAS  
FAYETTEVILLE, ARKANSAS



UNIVERSITY OF  
ARKANSAS®

March 24, 2021



*Established 1949*

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# 00100 – NOTICE FOR PROPOSALS

1. The University of Arkansas is requesting proposals from qualified equipment Vendors to furnish Testing, Adjusting, and Balancing services of existing HVAC systems and complete fume hood testing in accordance with the latest version of the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) Method of Testing Performance of Laboratory Fume Hood (110) for new installs and existing fume hoods for campus construction and renovation projects at the University of Arkansas in Fayetteville. The intent of the University of Arkansas is to award one contract for Indefinite Delivery and Indefinite Quantity (IDIQ) of equipment specified in the Request for Proposals (RFP.)
2. Quantities and specific sizes and/or types of equipment described in the Request for Proposal are estimates only for the purposes of evaluation of proposals, and the University of Arkansas reserves the right to purchase more or less equipment at any time during the term of the contract. The initial contract term will be one year, but the University of Arkansas may renew the contract annually up to six (6) additional years.
3. A virtual Pre-proposal Conference will be held on April 6, 2021 at 11:00 a.m. local time. Interested vendors should request an invitation to the virtual Pre-Proposal Conference from Terry Jacks, P.E. ([tjacks@pettitinc.com](mailto:tjacks@pettitinc.com)) with Pettit & Pettit Consulting Engineers, Inc.
4. The sealed Proposal will be due in the Office of Facilities Management, The University of Arkansas, 521 S. Razorback Road, Fayetteville, Arkansas 72701, not later than 1:00 p.m. on April 20, 2021, at which time the sealed RFP will be opened. Eight (8) fully recyclable printed sets and one (1) electronic set of the complete proposal will be required.
5. Proposals will be received and acknowledged by Purchasing Services in a public opening. Proposals will be privately evaluated by the selection team. Vendors submitting Proposals will be notified of selection within sixty (60) calendar days after designated closing time for the receipt of Proposals. Upon request Vendors may be required to present an overview of the proposals to the UAF evaluation and selection team.
6. The full Request for Proposals (RFP) is available for download at <http://planning.uark.edu/rfq>. Copies of the RFP may also be obtained from the office of Pettit & Pettit Consulting Engineers, Inc., 201 East Markham, Suite 400, Little Rock, AR, 72201; phone (501) 374-3731.

END OF SECTION

## 00200 – INSTRUCTIONS FOR PROPOSERS

1. Project Scope Overview: The scope of services provided by the Vendor under this RFP shall be the supply of Testing, Adjusting, and Balancing Services for existing HVAC systems and ASHRAE 110 Fume Hood Testing Services for new installs and existing fume hoods located on the Fayetteville campus of the University of Arkansas, including delivery, installation, necessary training for University's personnel, and warranty.
2. It is the intent of the University of Arkansas (UA) to contract for the supply of Testing, Adjusting, and Balancing Services for existing HVAC systems and ASHRAE 110 Fume Hood Testing Services for a period of one (1) year, beginning on the date of issue of the written University of Arkansas Purchase Order or Contract, with annual options to renew the contract for additional one (1) year periods up to six (6) renewals at the sole discretion of the UA. The prices provided in the Proposal by the selected Vendor will be incorporated into the first-year contract or purchase order.
3. The purchase order or contract will be utilized by UA Facilities Management for procurement for existing buildings. However, the University may assign the Testing, Adjusting, and Balancing Services and ASHRAE 110 Fume Hood Testing Services to contractors working on University projects, and the successful Vendor shall extend the same pricing to those authorized contractors of the University as if directly purchased by the University under the same terms and conditions of this agreement. The University reserves the right to place orders against this contract in either large or small lots, whichever is in the best interest of the University.
4. The form of the contract shall be a University of Arkansas Purchase Order or Contract, containing reference to these requirements and the successful Vendor(s) proposal or assignment to a Contractor under contract to the University.
5. This agreement with the Vendor in no way prohibits the University from procuring Testing, Adjusting, and Balancing Services for existing HVAC systems by other means if it is deemed to be in the best interest of the University.
6. Cost increases at contract renewal will be negotiated with certain limitations and will require justification on behalf of Vendor's manufacturer. If in the sole opinion of the University, the pricing does not remain competitive, or if service or product quality becomes unsatisfactory, the University reserves the right to terminate the contract with thirty (30) days written notice.
7. Proposals not fully compliant with all sections of the Request for Proposal may be deemed nonresponsive and may not be evaluated. However, the University reserves the right to waive any formality or irregularity in any Proposal if deemed to be in the best

interest of the University. In addition, the University reserves the right to reject any or all Proposals.

8. If language in this RFP differs from other language in the University of Arkansas' Standard Terms and Conditions or other standard forms, the language in this RFP shall govern.
9. Unless dictated by other specific project contract documents which may take precedence, all new equipment shall have a parts and labor warranty for a minimum period ending two (2) years from start-up and acceptance by the University. To minimize downtime, all Warranty work shall be performed by a local agent who is available for same-day onsite equipment replacement or temporary workaround. Technical support shall have a same-day call-back during normal, non-holiday, business hours between 7:00 am and 5:00 pm.
10. All prices in the Proposal shall include mileage and travel expenses. Mileage and travel expenses for all installation, support, maintenance, or any other on-site service performed under IDIQ contracts resulting from this RFP will not be reimbursed by the University.
11. Proposals shall be delivered by the time and to the place stipulated in Section 00100, Notice to Proposers, in this Request for Proposal. It is the sole responsibility of the Vendor to see that Proposals are received on, or prior to, the designated closing time for receipt of Proposals. Proposals received after the designated closing time will not be considered.
12. Clarifications: All questions regarding the Proposal shall be submitted to the consulting engineering firm of Pettit & Pettit Consulting Engineers, Inc. in writing (email to [tjacks@pettitinc.com](mailto:tjacks@pettitinc.com)). Questions must be submitted no later than seven (7) calendar days prior to the schedule closing time for the receipt of Proposals. Clarifications to questions will be in the form of a written addendum to the RFP. Last day for contractor questions will be April 13, 2021.
13. Any addenda issued during the time of submission of Proposals shall be addressed in the Proposal and shall be made a part of the Contract. Receipt of the addenda shall be acknowledged on the Proposal Price Form in the location provided. No addenda will be issued later than three (3) working days prior to the designated closing time for receipt of Proposals, except as an addendum withdrawing the Request for Proposal, or one that includes a postponement of the designated closing time for receipt of Proposals. Vendors shall ascertain, prior to submitting a Proposal, that the Vendor has received all issued addenda.
14. During the term of the Purchase Order or Contract for the successful Vendor, the University intends to utilize the services of its own staff and various engineers and architects for design services. Successful Vendors shall provide all required application, engineering/design, and technical assistance services to these parties for the execution of University-related work at no additional cost. Field technical services for

commissioning, instrument configuration, and start-up shall be included in the purchase cost.

15. Any Vendor may withdraw their Proposal, either personally or by written request, at any time prior to the scheduled closing time for receipt of Proposals.
16. Failure to Receive a Purchase Order: In the event that the selected Vendor fails to receive a Notice of Intent to Award within 60 days as defined in Section 00300 Standard Terms and Conditions, the selected Vendor and the University shall be unconditionally released of all obligations, and the University shall not be responsible for any associated costs to the Vendor. The selected Vendor and the University, however, may decide to proceed with the purchase based upon revised terms and conditions that are agreeable to both parties.
17. Shop Drawings, Submittal Documents, Maintenance Manuals, and University's CMMS Information: It should be noted that the selected Vendor shall furnish to the University one (1) printed copy and one (1) electronic copy (on a CD) of the Vendor's standard product and performance data if awarded a purchase order or contract. Standard product and performance data shall be updated and delivered on an annual basis. In addition, the selected Vendor shall provide up to ten (10) copies of project specific information for each project as required by the University, the project design team, or construction documents, including but not limited to shop drawings, submittal documents, operation & maintenance manuals, and completed equipment information data sheets for entry into the University's Computerized Maintenance Management System. Upon the request of the University, Vendor shall also provide three references where similar installations and systems have been provided. Prices shown in Section 00500 Proposal Form shall include preparation and delivery of all information described above.
18. Proprietary Information: Proprietary information, if any, submitted in response to this RFP will be processed in accordance with the applicable University of Arkansas Procurement procedures. All material submitted in response to this RFP becomes the public property of the State of Arkansas and will be a matter of public record and open to public inspection subsequent to proposal opening as defined by the Arkansas Freedom of Information Act. The respondent is hereby cautioned that any part of its proposal that is considered confidential, proprietary, or a trade secret, must be labeled as such and submitted in a separate envelope along with the proposal, and can only be protected to the extent permitted by Arkansas Law. Comingling of proprietary/confidential and other proposal information is NOT acceptable. Neither a proposal, in its entirety, nor proposal pricing will be considered proprietary/confidential information after a proposal opening has been accomplished and awarded. Any information that will be included in any resulting contract cannot be considered proprietary/confidential.
19. Ethical Standards: "It shall be a breach of ethical standards for a person to be retained, or to retain a person, to solicit or secure a state contract upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, except for retention of bona fide employees or bona fide established commercial selling agencies maintained by the contractor for the purpose of securing business."

20. **FORM OF THE PROPOSAL:** The form of the proposal shall consist of the items noted below.
- A. Submit eight (8) fully-recyclable printed sets and one (1) electronic set of the following in a sealed opaque envelope bearing the title of the RFP and the name of the Vendor: the Proposal Forms in Section 00500 (Including printed copies of the completed spreadsheets provided), the Contract and Grant Disclosure Form, The Equal Opportunity Policy Disclaimer, and the Illegal Immigrant Certification Form. All documents shall be signed by the person or persons legally authorized to bind the Vendor to an Agreement. In addition, submit eight (8) printed and one (1) electronic copies of descriptive and technical literature described in Item 24 below.
  - B. The Company Confidential Information Request List in Section 00700, and any additional information required for a complete response relating to financial competitiveness, market share, or information that can be construed to be privileged, shall be submitted in a sealed opaque envelope bearing the NAME and SIGNATURE of the official agent for the Vendor, the title of the RFP and the name of the Vendor, and clearly marked "Company Confidential". Each page of information contained in this envelope shall be individually marked with the name of the Vendor and clearly marked "Company Confidential". Vendors are encouraged to consult the Arkansas FOI Act to determine what type of information can be deemed Company Confidential.
21. All cost proposals shall be made on the Proposal Price Form or attachments described in Section 00500. If additional space is needed beyond what is provided on the form, blank sheets of paper may be referenced on the Proposal Price Form and attached.
22. Vendors shall provide descriptive and technical literature and complete specifications applicable to each item included in their proposal, including the list shown below. It is recommended that Vendors highlight features and capabilities that may exceed the minimum requirements in the specification, and provide documentation to justify such claims. Vendors shall provide the requested information organized and bound in three (3) ring "D" style binders containing the technical submittals, company information, and all other remaining information neatly tabbed and indexed. Vendors are encouraged to provide any information that will assist the University in comparing the Vendor's offering to the Evaluation Criteria.
- A. Provide a full written scope of work detailing each aspect of the Testing, Adjusting, and Balancing Services for existing HVAC systems required by the specifications, including services and quality standards.
  - B. Provide a list of all relevant locations where responding Vendor has performed similar work.
  - C. Describe fully how to identify any potential costs or charge out rates not included in the hourly rates shown in the proposal.

D. Provide proof that responding Vendor's full-time employee (available to the University) is either NEBB or AABC Certified.

23. PROPOSAL EVALUATION CRITERIA: Factors which will be considered in the evaluation process:

A. The University will utilize an evaluation team for the evaluation of this RFP. An award will be made to the vendor who receives the most points based upon the following evaluation criteria:

1. The point system for selection criteria is indicated in the following table:

Criteria	Total Available Points
1. The sum of total costs of unit pricing of services listed in the spreadsheet; Proposal with lowest grand total will receive 50 points. Remaining proposals shall receive points in accordance with the formula below: (a/b) c=d, where: a = the lowest cost bid b= the second (third, fourth, etc.) cost bid c = the maximum number of points allowed (50) d = number of points allocated (Rental Markup percentage is not included in the pricing formula for scoring purposes).	50
2. TAB Operation Expertise, Performance Record, References, and Experience: Points will be allocated by the selection committee on a qualitative basis based on information provided by the Vendor. Factors considered will include, but not be limited to: experience with comparable systems, number of similar projects, training, certification of technicians, and the information provided in the Confidential Request List.	20
3. ASHRAE 110 Fume Hood Testing Operation Expertise, Performance Record, References, and Experience: Points will be allocated by the selection committee on a qualitative basis based on information provided by the Vendor. Factors considered will include, but not be limited to: experience with comparable systems, number of similar projects, training, certification of technicians, and the information provided in the Confidential Request List.	20
4. Qualifications of local support staff: Points will be allocated by the selection committee on a qualitative basis based upon information provided by the Vendor, including capabilities, response time and local proximity.	10
Total	100

24. RFP EVALUATION PROCESS

- A. The RFP Proposals will be opened publicly at the time specified for the opening of proposals in this RFP. The name of the Vendor making the proposal will be read aloud at the time of opening. The full RFP proposals will be evaluated privately by the selection committee and will be made available to the public after award of the contract.
- B. The evaluation of Proposals shall be on a point basis based on the information provided on the Proposal Form, Section 00500, as well as the descriptive and technical literature described in Item 23 above. After preliminarily evaluating the proposals, the University may select two or more Vendors to provide demonstrations as described below.

25. FINAL VENDOR SELECTION: After preliminarily evaluating the proposals, the University may request one or more Vendors to perform the following.

- A. The selection committee, consulting engineer, and designated University staff may request an in-person or teleconference interview prior to final selection.
- B. If requested, provide a demonstration of the services requested to the selection committee, consulting engineer, and designated University staff.
- C. The University may evaluate the demonstration using a selection committee composed of University staff and/or other individuals identified by the University as having significant knowledge and experience with operation and maintenance of similar equipment.

26. GENERAL TERMS

- A. For the purposes of this RFP, the words "Owner" and "University" both refer to the University of Arkansas at Fayetteville. The words "Proposer", "Vendor", and "Contractor" all refer to qualified companies responding to this RFP who may, if chosen by the selection committee, be awarded a purchase order or contract. However, no warranties or guarantees for contracts or purchase orders are made by describing respondents as "Vendor" or "Contractor".
- B. It is the intent of the University to award a contract or purchase order with the selected Vendor. In the Proposal Form in Section 00500, Proposers are asked to provide proposed total costs of selected Testing, Adjusting, and Balancing Services, including hourly costs, subcontractor fees, rental fees, and sales tax itemized separately. However, the University may also negotiate with the selected Vendor to include similar prices in the contract or purchase order for other Testing, Adjusting, and Balancing Services. During these negotiations, the University may expect costs, including discounts or multipliers for additional items to be numerically similar to the discounts listed in the Proposal.

END OF SECTION

# 00300 – STANDARD TERMS AND CONDITIONS

## 1. GENERAL

- A. All proposals submitted shall be in compliance with the standard terms and conditions set forth herein. The proposal procedures followed by the University of Arkansas will be in accordance with these conditions. Therefore, all vendors are urged to read and understand these conditions prior to submitting a response to this request for proposal.

## 2. PREPARATION OF PROPOSALS

- A. Failure to examine any drawings, specifications, and instructions will be at proposer's risk.
- B. All prices and notations must be printed in ink or typewritten. No erasures are permitted. Errors may be crossed out and corrections printed in ink or typewritten adjacent, and must be initialed in ink by person signing the proposal.
- C. Brand Name References: Unless specified "No Substitute", any catalog brand name or manufacturers' reference used in the proposal invitation is descriptive only, not restrictive, and used to indicate the type and quality desired. If proposing other than referenced specifications, the proposal must show the manufacturer, Brand or trade name, and other descriptions, and should include the manufacturer's illustrations and complete descriptions of the product offered. The University reserves the right to determine whether a substitute offered is equivalent to and meets the standards of the item specified, and the University may require the proposer to supply additional descriptive material, samples, or demonstrators. The proposer guarantees that the product offered will meet or exceed the referenced product and/or specifications identified in this proposal invitation. If the proposer takes no exception to the specifications, the proposer will be required to furnish the product exactly as specified in the invitation.
- D. Samples: Samples or demonstrators, when requested, must be furnished free of expense to the University. All demonstrators will be returned after reasonable examination. Each sample should be marked with the proposer's name, address, proposal number, and item number.

## 3. SUBMISSION OF PROPOSALS

- A. Proposals, modifications or corrections thereof, received after the closing time specified, will not be considered.

4. ACCEPTANCE OF PROPOSALS

- A. The University reserves the right to accept or reject all or any part of a proposal or any and all proposals, to waive any informality, and to award the proposal to best serve the interest of the University.
- B. The University has sixty (60) days from the time of the opening of proposals to consider the offerings and issue a notice of intent to award.

5. ERROR IN THE PROPOSAL

- A. In case of error in the extension of prices in the proposal, the unit price will govern. No proposal shall be altered or amended after the specified time designated for the opening of the proposals.

6. AWARD

- A. Contracts and purchases will be made or entered into with the Vendor selected by the selection committee using the criteria and process described in Section 00200 Instructions for Proposers.
- B. When more than one item is specified in the Request for Proposals (RFP), the University reserves the right to select the Vendor either on the basis of the individual items or on the basis of all items included in the RFP, or as expressly stated in the RFP.
- C. A written purchase order or contract award mailed, or otherwise furnished, to the successful Vendor within the time of acceptance specified in the RFP results in a binding contract without further action by either party. The contract shall not be assignable by the Vendor in whole or in part without the written consent of the University.

7. DELIVERY

- A. The RFP may show the number of days to place a commodity in the University designated location under normal conditions. If the Vendor cannot meet the stated delivery, alternate delivery schedules may become a factor in award. The University has the right to extend delivery if reasons appear valid. Time of delivery is a significant factor in the University's criteria for award or renewal of a purchase order or contract, and delivery times that exceed maximum delivery times stipulated by the University may be grounds for termination of the contract.
- B. Delivery shall be made during University work hours only, 8:00 a.m. to 4:30 p.m., unless prior approval for other shipment has been obtained.

C. Packing memoranda shall be enclosed with each shipment.

8. TAXES AND TRADE DISCOUNTS

A. Include applicable state or local sales taxes in proposal price. Sales tax cost shall be itemized separately.

B. Trade discounts should be deducted from the unit price and net price should be shown in the proposal.

9. WAIVER

A. The University reserves the right to waive any General Condition, Special Condition, or minor specification deviation when considered to be in the best interest of the University, so long as such waiver is not given so as to deliberately favor any single vendor and that would have the same effect on all vendors.

10. CANCELLATION

A. Any contract or item award may be canceled for cause by either party by giving thirty (30) days written notice of intent to cancel. Cause for the University to cancel shall include, but not limited to, the cost exceeding current market prices for comparable purchases; request for increase in prices during the period of the contract; or failure to perform to contract conditions. The contractor will be required to honor all purchase orders that were prepared and dated prior to the date of expiration or cancellation if received by the contractor within a period of thirty (30) days following the date of expiration or cancellation. Cancellation by the University does not relieve the Contractor of any liability arising out of a default or nonperformance. Cause for the vendor to cancel shall include, but not limited to, the item(s) being discontinued and unavailable from the manufacturer.

11. ADDENDA

A. Addenda modifying plans and/or specifications may be issued if time permits. No addendum will be issued within a period of three (3) working days prior to the time and date for when the proposals are due. Should it become necessary to issue an addendum within the three (3) day period prior to the due date, the proposal due date will be reset giving proposer ample time to answer the addendum.

B. Only written addenda are part of the official Request for Proposals packet and should be considered.

## 12. ALTERNATE PROPOSALS

- A. Vendors must respond to the RFP as stated in order to have their proposals considered. Unless specifically requested, alternate proposals will not be considered in lieu of what is stated. An alternate is considered to be an offering that does not comply with the minimum provisions of the specifications.
- B. Alternates or features that exceed the minimum provisions of the specifications can be noted for consideration in the overall evaluation, but Vendors are cautioned not to propose pricing representative of these alternates or features as compared to their competitors.

## 13. PROPOSAL OPENING

- A. Proposal opening will be conducted open to the public. However, the meeting will serve only to open and read aloud the Vendors making proposals. No discussion will be entered into with any Vendor as to the quality or provisions of the specifications and no award will be made either stated or implied at the proposal opening.

END OF SECTION

# 00400 – CONTRACT INFORMATION

## 1. GENERAL

- A. The following standard Contract Information is provided for information purposes. The contract procedures followed by the University of Arkansas in executing a purchase order or contract for the selected Vendor will be in accordance with conditions including, but not limited to, the following items. Therefore, all Vendors are urged to read and understand these conditions prior to submitting a response to this request for proposal.

## 2. As an agency of the State of Arkansas, the University of Arkansas may not contract with another party...

- A. For a period of time, which continues past the end of a fiscal year, unless the contract allows cancellation by the Agency Purchasing Official upon thirty (30) days written notice whenever there are no funded appropriations for the contract.
- B. To pay any penalties or charges for late payment, or any penalties or charges, which in fact, are penalties for any reason.
- C. To indemnify, defend, or hold harmless any party for any liability and damages.
- D. Upon default to pay all sums to become due under a contract.
- E. To pay damages, legal expenses, or other costs and expenses of any party.
- F. To continue a contract once the equipment has been repossessed.
- G. To conduct litigation in a place other than Washington County, Arkansas.
- H. To agree to any provision of a contract which violate the laws or constitution of the State of Arkansas.

## 3. A party wishing to contract with the University of Arkansas should:

- A. Remove any language from its contract which grants to it any remedies other than...

- B. The right to possession.
  - C. The right to accrued payments.
  - D. The right to expenses of de-installation.
  - E. The right to expenses of repair, to return the equipment to normal working order, normal wear and tear excluded.
  - F. The right to recover only amounts due at the time of repossession and any unamortized nonrecurring costs as allowed by Arkansas law.
  - G. Include in its contract that the laws of the State of Arkansas govern the contract.
  - H. Acknowledge in its contract that contracts become effective when awarded by the Agency Purchasing Official.
4. The University of Arkansas may contract with another party...
- A. To accept the risk of loss of the equipment and pay for any destruction, loss or damage of the equipment while the University has such risk, when the extent of liability for such risk is based upon the purchase price of the equipment at the time of any loss and the contract required the University to carry insurance for such risk.
  - B. To lease any equipment for a period of time which continues past the end of a fiscal year provided that, in the event funds are not appropriated for the equipment described in the agreement, the Agency Purchasing Official may, upon thirty (30) days written notice to the vendor/lessor, cancel the agreement regarding that equipment for which no appropriations are made. In the event that there are no funded appropriations from which payment can be made for the equipment described in the agreement, the Agency Purchasing Official may upon thirty (30) days written notice to the vendor/lessor, cancel this agreement as to that equipment for which there are no funded appropriations from which payment can be made for the equipment.
5. NON-WAIVER OF DEFAULTS
- A. Any failure of the University at any time, to enforce or require the strict keeping and performance of any of the terms and conditions of this agreement shall not constitute a waiver of such terms, conditions, or rights, and shall not affect or impair same, or the right of the University at any time to avail itself of same.

## 6. LACK OF FUNDS

- A. The University may cancel this contract to the extent funds are no longer legally available for expenditures under this contract. Any delivered but unpaid goods will be returned in normal condition to the contractor by the University. If the University is unable to return the commodities and there are no funds legally available to pay for the goods, the contractor may file a claim with the Arkansas Claims Commission. If the contractor has provided services and there are no longer funds legally available to pay for the service, the contractor may file a claim.

## 7. GOVERNING LAW

- A. This agreement shall be construed and governed by the laws of the State of Arkansas.

## 8. INSURANCE REQUIREMENTS

- A. The contractor shall maintain liability insurance and shall file certificates of insurance with the owner prior to commencement of work. Insurance policies shall be written by a company or companies authorized to do business in the State of Arkansas. The limits of liability of such insurance shall be written for not less than the following limits.
  - 1. Workers Compensation as required by the State of Arkansas.
  - 2. Commercial General Liability, with no less than \$1,000,000 each occurrence/\$2,000,000 aggregate for bodily injury, property damage, products liability, personal injury and contractual liability.
  - 3. Automobile Liability, with no less than \$1,000,000 combined and single limit coverage for bodily injury and property damage.
  - 4. Umbrella Liability, with no less than \$2,000,000 limit of liability per occurrence.

NOTE: Failure to file certificates, or acceptance by the University of Certificates of Insurance, which do not indicate the specified coverage, shall in no way relieve the Contractor of his responsibility for maintaining adequate insurance.

9. INDEMNIFICATION

- A. Contractor agrees to indemnify and hold harmless the University and its officers and employees from any claim, damage, liability, injury, expense, or loss, including defense cost and attorney's fees arising out of contractor's performance under this Agreement, or as a consequence of the existence of this agreement.

10. PERMITS AND LICENSES

- A. Contractor shall, at their sole expense, procure and keep in effect all necessary permits and licenses required for its performance under this agreement, and shall post or display in a prominent place such permits and/or notices as required by law.

11. WARRANTY

- A. Unless dictated by other contract documents, all new equipment shall have a parts and labor warranty for a minimum period ending two (2) years from start-up and acceptance by the University.

12. TIME OF PERFORMANCE

- A. Time is of the essence in the rendering of services hereunder. Contractor agrees to perform all obligations and rendering of services set forth in this RFP.

13. CONTRACTING AUTHORITY

- A. Contractor shall perform all services as an independent contractor and shall discharge all of its liabilities as such. No acts performed or representation made, whether written or oral, by contractor with respect to third parties shall be binding to the University.

14. DEFAULT OR TERMINATION

- A. In the event the contractor fails to carry out or comply with any of the Terms and Conditions of the contract with the University, the University may notify the contractor of such failure or default in writing and demand that the failure or default be remedied within ten (10) working days; and in the event the contractor fails to remedy such failure or default within the ten (10) day working period, the University shall have the right to cancel the contract upon thirty (30) days written notice.

- B. Any contract or item award may be canceled for cause by either party by giving thirty (30) days written notice of intent to cancel. Cause for the University to cancel shall include, but not limited to, the cost exceeding current market prices for comparable purchases; request for increase in prices during the period of the contract; or failure to perform to contract conditions. The contractor will be required to honor all purchase orders that were prepared and dated prior to the date of expiration or cancellation if received by the contractor within a period of thirty (30) days following the date of expiration or cancellation. The cancellation of the contract, under any circumstances whatsoever, shall not effect or relieve contractor from any obligation or liability that may have been incurred or will be incurred pursuant to the contract, and such cancellation by the University shall not limit any other right or remedy available to the University by law or in equity. Cause for the vendor to cancel shall include, but not limited to, the item(s) being discontinued and unavailable from the manufacturer.
- C. Backorders, default in promised delivery, or failure to meet specifications authorize the University to cancel this contract to the defaulting contractor. The contractor must give written notice to the University of the reason and the expected delivery date.
- D. Consistent failure to meet delivery without a valid reason is grounds for termination of the contract.

15. SURVIVAL

- A. The terms, conditions, representations, and warranties contained in the agreement shall survive the termination of this contract.

16. SEVERABILITY

- A. If one or more provisions of the agreement, or the application of any provision to any party or circumstance is held invalid, unenforceable, or illegal in any respect, the remainder of the agreement and the application of the provision to other parties or circumstances shall remain valid and in full force and effect.

17. ACCESS TO RECORDS

- A. The University considers all information, documentation, and other requested materials to be submitted in response to this solicitation to be of a non-confidential and/or non-proprietary nature, and therefore shall be subject to public disclosure after an agreement is awarded, except as hereafter specifically stated.
- B. Financial data, trade secrets, test secrets, text data, and similar proprietary information will, to the extent permitted by law, remain confidential provided such material is clearly marked by the proposer when the proposal is submitted.

18. RIGHT TO AUDIT

- A. Contractor shall keep full and accurate records in connection with the services provided under this Agreement. All such records shall be retained by Contractor for a minimum period of four (4) years, after final payment under this Agreement.
- B. At any time during the term of the agreement and for a period of four (4) years thereafter, the University or its duly authorized representative at its expense during regular working hours, reserves the right to incrementally audit the contractor's records and manufacturer's pricing provided under the agreement. In the event such an audit reveals any error/overpayments, the contractor shall refund the University the full amount of such overpayments within thirty (30) days of such audit findings; or the University, at its option, reserves the right to deduct such amounts plus interest from any payments due contractor.

19. ACCEPTANCE OF PRODUCTS AND SERVICES

- A. All products furnished and all services performed under this agreement shall be to the satisfaction of the University and in accordance with the specifications, terms, and conditions of the agreement. The University reserves the right to inspect the products furnished or the services performed, and to determine the quality, acceptability, and fitness of such products and services.

20. PERFORMANCE AND PAYMENT BOND

- A. Performance and Payment Bonds are not required for bids \$20,000.00 or under. For work exceeding \$20,000.00, the bidder shall furnish a Performance and Payment Bond in the amount equal to 100% of contract price, on a form identical to the Arkansas Statutory Performance and Payment Bond Form, included with the Contract Documents, as security for faithful performance of the Contract and payment of all obligations arising thereunder within ten days after receipt of the Intent to Award. The bond shall be written by a surety company qualified and authorized to do business in the State of Arkansas. The bond shall be executed by a resident agent or a non-resident agent and shall be licensed by the Insurance Commissioner to represent the surety company executing the bond and filing with the bond the agent's Power of Attorney as his authority. The bond shall be written in favor of the Owner. Contractor shall file the bond with the Circuit Clerk in the county where the work is to be performed. Failure to deliver said bonds, as specified, shall be considered as having abandoned the Contract and the bid security will be retained as liquidated damages. The bidder shall include in the bid the Performance and Payment bond amount so that the bid represents the total cost to the Owner of all work included in the contract.

21. TECHNOLOGY ACCESS

- A. The Vendor expressly acknowledges that state funds may not be expended in connection with the purchase of information technology unless that system meets

certain statutory requirements, in accordance with State of Arkansas technology policy standards relating to accessibility by persons with visual impairments.

- B. Accordingly, the Vendor represents and warrants to the University of Arkansas, Fayetteville, Arkansas, that the technology provided to the University of Arkansas for purchase is capable, either by virtue of features included within the technology or because it is readily adaptable by use with other technology, of (1) providing equivalent access for effective use by both visual and nonvisual means (2) presenting information, including prompts used for interactive communications, in formats intended for nonvisual use, and (3) being integrated into networks for obtaining, retrieving, and disseminating information used by individuals who are not blind or visually impaired.
- C. For purpose of this paragraph, the phrase “equivalent access” means a substantially similar ability to communicate with or make use of the technology, either directly by features incorporated within the technology or by other reasonable means, such as assisting devices or services, which would constitute reasonable accommodations under the American with Disabilities Act, or similar state or federal laws. Examples of methods by which equivalent access may be provided include, but are not limited to, keyboard alternatives to mouse commands and other means of navigating graphical displays, and customized display appearance.
- D. If requested, the Vendor must provide a detailed plan for making this purchase accessible and/or a validation of concept demonstration.

## 22. OWNERSHIP AND RESPONSIBILITY:

- A. The Vendor shall be responsible for all arrangements and costs associated with equipment including freight, insurance, and taxes until delivery to the project site. Place of delivery shall be the University of Arkansas, Fayetteville, AR. Equipment title shall pass to the Owner at Project Acceptance. Vendor shall notify the General Contractor/Owner forty-eight (48) hours prior to delivery if applicable.

## 24. DEBRIS REMOVAL

- A. All debris must be removed from the University after installation of said equipment.

## 25. ACCEPTANCE AND REJECTION

- A. Final inspection, acceptance, or rejection may be made at delivery destination, but all materials and workmanship shall be subject to inspection and test at all times and places, when practicable. During manufacture, the right is reserved to reject articles that contain defective material and workmanship. Rejected material shall be removed by and at the expense of the contractor promptly after

notification of rejection. Final inspection and acceptance or rejection of the materials or supplies shall be made as promptly as practicable, but failure to inspect, accept, or reject materials or supplies shall not impose liability on the University thereof for such Materials or supplies not in accordance with the specification.

END OF SECTION

# 00500 – PROPOSAL FORM

Proposal of \_\_\_\_\_  
(Hereinafter called "Vendor") corporation, organized and existing under the laws of the state of \_\_\_\_\_, partnership, or individual doing business as \_\_\_\_\_.

To: Mr. James Ezell  
University of Arkansas at Fayetteville  
Office of Business Affairs, Room 321  
Administration Building  
Fayetteville, AR 72701

Gentlemen:

The Vendor, in compliance with your Request for Proposals to provide services for the University of Arkansas, having examined the Proposal Documents and being familiar with all conditions of these documents, hereby proposes to furnish equipment in accordance with the Proposal Documents, within the time set forth therein, and at the prices stated below.

Vendor acknowledges receipt of the following Addenda:

Addenda Number: _____	Date Received: _____	Initials: _____
Addenda Number: _____	Date Received: _____	Initials: _____
Addenda Number: _____	Date Received: _____	Initials: _____
Addenda Number: _____	Date Received: _____	Initials: _____

Standard of Quality: Vendor understands and agrees that minimum certification requirements are listed as "Standards of Quality" approved for the University, although substitutions that are approved by the University are allowed. Vendor shall include alternate certifications that the Vendor proposes to provide.

1. Testing, Adjusting and Balancing of Existing HVAC Systems.

Vendor agrees to perform on-site testing, adjusting, and balancing services of existing HVAC systems per the attached specification. Vendor has fifteen (15) working days to generate a report.

Vendor shall provide a lump sum price for the specified services for the 2 example projects included as Appendix 5 – Example Project 1 and Appendix 6 – Example Project 2.

Vendor shall provide a line item for their basic hourly fee, excluding per diem, travel expenses, rentals, etc. A separate line item shall be provided for markup on rental materials.

The Vendor must submit a completed bid in the format provided below. The sum of costs of individual minimum components shall be reported below, and the selection committee will use these costs for consistent price comparisons between proposals.

		Total Man-Hours	Hourly Fee	Total Cost
A.	Appendix 5 – Example Project 1	_____	x _____	= \$ _____
B.	Appendix 6 – Example Project 2	_____	x _____	= \$ _____
C.	Rental Markup Percentage (report as 100% of rental cost + markup)			_____ %

## 2. Testing and reporting for laboratory fume hoods per ASHRAE 110.

Vendor agrees to perform on-site testing of laboratory fume hoods per ASHRAE Standard 110 and attached specification. Vendor has fifteen (15) working days to generate a report.

Vendor shall provide a line item price on a per-hood basis for each test. Drawings of the fume hood location including floorplan (provided by University) and the hood location within the room, along with digital photographs (5 min) taken during the actual testing shall be submitted with the report.

Vendor shall provide a line item for their basic hourly fee, excluding per diem, travel expenses, rentals, etc. A separate line item shall be provided for markup on rental materials.

The Vendor must submit a completed bid in the format provided below. The sum of costs of individual minimum components shall be reported below, and the selection committee will use these costs for consistent price comparisons between proposals.

For purpose of this RFP, the University intends to require testing and certification services for an average of 100-120 hoods per year over the course of the contract. Example quantities are listed below for RFP pricing purposes only.

		Qty	Total Man-Hours	Hourly Fee	Total Cost
A.	As-Used Constant Volume				
	Hood testing cost	<u>30</u>	_____	x _____	= \$ _____
C.	As-Used Variable Air Volume				
	Hood testing cost	<u>70</u>	_____	x _____	= \$ _____
D.	Rental Markup Percentage (report as 100% of rental cost + markup)				_____ %

Vendor understands that the Owner reserves the right to reject any or all Proposals and to waive any formalities in the Proposals.

Respectfully Submitted,

(Seal if by corporation)

\_\_\_\_\_

\_\_\_\_\_  
Manufacturer (Company Name)

\_\_\_\_\_  
Address

Date: \_\_\_\_\_, 2021

By: \_\_\_\_\_  
(Printed Name)

Title: \_\_\_\_\_

Signature: \_\_\_\_\_

# 00600 – TECHNICAL SPECIFICATIONS

## PART 1 GENERAL

### 1.1 SECTION INCLUDES

- A. Basic Requirements for Testing, Balancing and Adjusting Heating, Ventilating, and Air Conditioning Systems.

### 1.2 REFERENCES

- A. AABC - National Standards for Field Measurement and Instrumentation, Total System Balance.
- B. ASHRAE - 2019 Systems Handbook: Chapter 39, Testing, Adjusting and Balancing.
- C. NEBB - Procedural Standards for Testing, Balancing and Adjusting of Environmental Systems.
- D. ASHRAE Standard 110 – Method of Testing Performance of Laboratory Fume Hoods – latest edition.

### 1.3 SUBMITTALS

- A. Provide reports in hard back, letter size manuals, complete with index page and indexing tabs, with cover identification at front and side. Provide additional electronic copy in PDF form.
- B. Submit draft copies of report for review prior to final acceptance. Provide final copies to the University/Engineer and for inclusion in operating and maintenance manuals.

### 1.4 QUALITY ASSURANCE

- A. Air Balance contractor shall be a qualified Independent Balancing Contractor.
- B. In order to be considered to be qualified, Independent Air Balance Contractor shall submit evidence of qualifications as follows:
  - 1. NEBB or AABC Certification of the Air Balance Technicians(s) to be used on the project.
  - 2. Evidence of certification of calibration or equipment.

## **PART 2 PRODUCTS**

### **2.1 EQUIPMENT**

- A. All measurements during air balance operations shall be made by means of the "Velometer" or "Anemometer" method. Instruments used for check of air quantities shall have recent certification of calibration.
- B. The Air Balance Subcontractor shall furnish balance forms for all air systems. Forms shall list air distribution devices by location, system, size, pattern, CFM flow factor and required velocity.

## **PART 3 EXECUTION**

### **3.1 EXAMINATION**

- A. Before commencing work, verify that systems are complete and operable. Ensure the following:
  - 1. Equipment is operable and in a safe and normal condition.
  - 2. Temperature control systems are installed complete and operable.
  - 3. Proper thermal overload protection is in place for electrical equipment.
  - 4. Final filters are clean and in place. If required, install temporary media in addition to final filters.
  - 5. Duct systems are clean of debris.
  - 6. Correct fan rotation.
  - 7. Fire and volume dampers are in place and open.
  - 8. Coil fins have been cleaned and combed.
  - 9. Access doors are closed and duct end caps are in place.
  - 10. Air outlets are installed and connected.
  - 11. Duct system leakage has been minimized.
  - 12. Hydronic systems have been flushed, filled, and vented.
  - 13. Correct pump rotation.
  - 14. Proper strainer baskets are clean and in place.
  - 15. Service and balance valves are open.
- B. Report any defects or deficiencies noted during performance of services to University/Engineer.
- C. Promptly report abnormal conditions in mechanical systems or conditions which prevent system balance.

- D. If, for design reasons, system cannot be properly balanced, report as soon as observed.

### **3.2 PREPARATION**

- A. Provide instruments required for testing, adjusting, and balancing operations. Make instruments available to University/Engineer to facilitate spot checks during testing.
- B. Provide additional balancing devices as required.

### **3.3 INSTALLATION TOLERANCES**

- A. Adjust air handling systems to plus or minus 5 percent for supply systems and plus or minus 10 percent for return and exhaust systems from figures indicated.
- B. Adjust hydronic systems to plus or minus 10 percent of design conditions indicated.

### **3.4 ADJUSTING**

- A. Recorded data shall represent the actual measured or observed condition.
- B. Permanently mark settings of valves, dampers, and other adjustment devices allowing settings to be restored. Set and lock memory stops.
- C. After adjustment, take measurements to verify balance has not been disrupted or that such disruption has been rectified.
- D. Leave systems in proper working order, replacing belt guards, closing access doors, closing doors to electrical switch boxes, and restoring thermostats to specified settings.
- E. At final inspection, recheck random selections of data recorded in report. Recheck points or areas as selected and witnessed by the University/Engineer.

### **3.5 AIR BALANCE PROCEDURE**

- A. All air quantities shall, after completion of the job, be adjusted to provide air quantities shown on plans. After complete adjustment, additional re-adjustment shall be performed if necessary to satisfy desired temperature.
- B. The balance procedure shall include the checking of each supply, return and exhaust fan. As a minimum, CFM, RPM and ampere readings shall be taken. Pulley adjustments, etc., shall be performed to obtain the required CFM readings.
- C. Air Balance Subcontractor shall also furnish all balancing instruments required. Air Balance Subcontractor shall provide one experienced technician to team with Contractor's technician to balance system. The Air Balance Subcontractor's Technician and the Contractor's Technician shall perform as a team during the entire field balancing operation.
- D. After all adjustments and corrections have been performed to balance system as designed and required, the Air Balance Subcontractor shall prepare and submit three (3) copies of completed balance form to Architect/Engineer for approval.

- E. At the time of balancing, the Air Balance Contractor's Technician shall verify that each device is the size and pattern submitted and includes accessories such as volume controls and deflectrols, where specified.
- F. Where project includes controlled Air Terminal Units, the Terminal Unit Manufacturer's Supplier shall be responsible for testing the automatic control devices on the Terminal.

### **3.6 WATER BALANCE PROCEDURE**

- A. With all manual valves in full open position and all control valves full flow to coil, adjust pump discharge valves to design flow on pumping systems. This is to include the existing air handling systems as well as the new systems, refer to Section 3.1 this specification and plan notes.
- B. Automatic flow control valves will balance flow to coils.
- C. Balance flow through pumps at chillers, towers and boilers.

### **3.7 FUME HOOD TESTING PROCEDURE**

- A. The testing and reporting of indoor fume hoods as directed by ASHRAE 110 – Methods of Testing Performance of Laboratory Fume Hoods. The vendor shall provide all test instruments and follow all protocols as outlined within.
- B. For each fume hood, the University will choose which type of test, whether the AI or AU protocol, should be followed. The University shall also provide the following information, if applicable, on a per hood basis:
  - 1. Sash Type
  - 2. Average face velocity
  - 3. Acceptable range of face velocities
  - 4. Average face velocity for sash at full open height and operating height.
  - 5. Performance Rating
  - 6. Sash movement effect performance rating
  - 7. VAV speed of response time (VAV hoods only)
  - 8. VAV time to steady state (VAV hoods only)
  - 9. Percentage of auxiliary air supply (auxiliary air hoods only)
- C. The following minimum information / data shall be recorded /collected for each hood tested:
  - 1. General
    - a. Test site, owner, reason for testing
    - b. Investigator, date, project number or identifier

2. Hood information
  - a. Hood type, including sash type
  - b. Hood manufacturer, model, and serial number
  - c. Hood dimensions
  - d. Location (room number) and identification (hood number)
  - e. Hazard Level
  - f. FAMIS Asset #
3. System information
  - a. Exhaust system description
  - b. Supply air description
4. Laboratory configuration
  - a. Hood location
  - b. Supply and exhaust systems
  - c. Room activity
  - d. Room sketch or reference to drawings
5. Test equipment
  - a. Velocity probes
  - b. Smoke visualization methods (local and large-volume smoke generation)
  - c. Tracer gas detector
  - d. Mannequin
6. Calibration (methods, frequency, and results)
  - a. Detector
  - b. Ejector
  - c. Velocity instruments
7. Test conditions
  - a. Sash opening heights depths
  - b. Clutter in hood
  - c. Baffle position (slot size)
  - d. Background (zero) testing
8. Hood monitor
  - a. Type
  - b. Reading
9. Test results
  - a. Face velocity readings

- i. Grid description
      - ii. Average face velocity
      - iii. High and low grid readings
      - iv. Face velocity control tests (for VAV systems)
      - v. VAV response tests
        - 1. VAV speed of response
        - 2. VAV time to steady state
    - b. Smoke observation
      - i. Description of methods
      - ii. Observation
        - 1. Local visualization challenge
        - 2. Large-volume visualization challenge
    - c. Tracer gas results
    - d. Sash movement effects
    - e. Peripheral scan
  - 10. Factors affecting hood performance (if an explanation of results is indicated)
    - a. Cross-drafts
    - b. Activities in the room
    - c. Thermal effects
  - 11. Conclusions
    - a. Comparison to design criteria
    - b. Recommendations
    - c. Future testing
- D. For hoods with combination sashes, the Vendor shall test the horizontal sash and the vertical sash. If the horizontal sash has been permanently fixed in place, the condition shall be noted on the final report.
- E. Hoods located in heavily foot-trafficked areas of laboratories, corners of rooms, side-by-side installations, etc., shall be tested in a means consistent with the normal usage of the hood. Conditions for testing shall be accurately recorded and test protocols shall be discussed in advance with the Vendor, University, and Consulting Engineer.
- F. Additional special circumstances encountered by the Vendor shall be addressed on a per hood basis, with test protocols discussed in advance by the Vendor, University, and Consulting Engineer.
- G. If hoods do not pass upon initial testing, additional testing may be required. Vendor shall not proceed with additional testing prior to discussion of initial test results with the University. Additional testing may be, but not limited to, the following:
- 1. Crossdraft testing
  - 2. Walk-by Testing
- H. Once a hood has been tested and it has passed, a performance sticker shall be placed on the side of the hood (placed over the existing sticker) that contains the date tested, the measured face velocity (fpm), and the measured flow (cfm).

- I. The selected Vendor shall provide close coordination and scheduling with the Office of Environmental Health and Safety (EHS), 479-575-5448, as well as the fume hood operator to ensure the hood will not be in use during scheduled testing. Hoods will be tested in the "As-Used" state, but if the "as-used" conditions do not allow for proper testing, or if it is believed that testing will present a hazard, the contractor shall alert EHS before proceeding with any testing. Every effort will be made to ensure the hood is cleared of hazards, but it is expected the vendor will have the ability to identify hazards associated with fume hoods in research laboratories and take the appropriate precautions.
- J. The Vendor may be held accountable for any damage to any lab equipment, hoods, hood equipment, or building facilities as enforced by the University.
- K. The Vendor shall be responsible for providing all materials and labor for the complete testing and reporting of the system covered by the RFP, including necessary system setup and take-down of equipment, as well as starting/stopping fume hood equipment. In addition, pricing in the Proposal shall include a line item for re-testing an existing fume hood that did not pass the initial test.
- L. Mechanical and Electrical work which may be required to get the fume hood operational or repaired in order to pass the test is excluded from the scope of work of this RFP.

END OF SECTION

## 00700 – COMPANY CONFIDENTIAL INFORMATION REQUEST LIST

The proposer shall provide the following information in the sealed opaque envelope for Company Confidential Information.

1. Describe the ownership of the Vendor.
2. Three (3) year average gross income of the local Vendor or Office.
3. Local Vendor's Dunn and Bradstreet rating and number.
4. Has the company bought out or merged with some other business in the last five (5) years, if so who?
5. Has the company been bought by or merged with some other businesses in the last five (5) years, if so who?
6. Provide a copy of Parent company annual report.
7. Provide bonding company name and phone number.
8. Provide verifiable documentation of total bonding capacity, current bonded amount, and bond rates.
9. Provide a list of all outstanding bond claims.
10. Provide a list of bond claims in the last five (5) years.
11. Provide a list of standing service contracts currently in place for local customers for full service. Indicate if they may be contacted, and supply contact information.
12. Provide the value of last five (5) construction contracts, name and location of project, and name of general contractor.

END OF SECTION

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# APPENDIX 1 – CONTRACT AND GRANT DISCLOSURE FORM



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CONTRACT AND GRANT DISCLOSURE AND CERTIFICATION FORM

Failure to complete all of the following information may result in a delay in obtaining a contract, lease, purchase agreement, or grant award with any Arkansas State Agency.

SUBCONTRACTOR: SUBCONTRACTOR NAME:

☐ Yes☐ No

IS THIS FOR:

☐ Goods?☐ Services?☐ Both?

TAXPAYER ID NAME:

YOUR LAST NAME: M.I.:

ADDRESS:

CITY: STATE: ZIP CODE: COUNTRY:

AS A CONDITION OF OBTAINING, EXTENDING, AMENDING, OR RENEWING A CONTRACT, LEASE, PURCHASE AGREEMENT, OR GRANT AWARD WITH ANY ARKANSAS STATE AGENCY, THE FOLLOWING INFORMATION MUST BE DISCLOSED:

FOR INDIVIDUALS

Indicate below if: you, your spouse or the brother, sister, parent, or child of you or your spouse is a current or former: member of the General Assembly, Constitutional Officer, State Board or Commission Member, or State Employee:

Position Held	Mark (✓)		Name of Position of Job Held [senator, representative, name of board/ commission, data entry, etc.]	For How Long?		What is the person(s) name and how are they related to you? [i.e., Jane Q. Public, spouse, John Q. Public, Jr., child, etc.]	
	Current	Former		From MM/YY	To MM/YY	Person's Name(s)	Relation
General Assembly	<input type="checkbox"/>	<input type="checkbox"/>					
Constitutional Officer	<input type="checkbox"/>	<input type="checkbox"/>					
State Board or Commission Member	<input type="checkbox"/>	<input type="checkbox"/>					
State Employee	<input type="checkbox"/>	<input type="checkbox"/>					

☐ None of the above applies

FOR AN ENTITY (BUSINESS)

Indicate below if any of the following persons, current or former, hold any position of control or hold any ownership interest of 10% or greater in the entity: member of the General Assembly, Constitutional Officer, State Board or Commission Member, State Employee, or the spouse, brother, sister, parent, or child of a member of the General Assembly, Constitutional Officer, State Board or Commission Member, or State Employee. Position of control means the power to direct the purchasing policies or influence the management of the entity.

Position Held	Mark (✓)		Name of Position of Job Held [senator, representative, name of board/ commission, data entry, etc.]	For How Long?		What is the person(s) name and what is his/her % of ownership interest and/or what is his/her position of control?	
	Current	Former		From MM/YY	To MM/YY	Person's Name(s)	Ownership Interest (%) Position of Control
General Assembly	<input type="checkbox"/>	<input type="checkbox"/>					
Constitutional Officer	<input type="checkbox"/>	<input type="checkbox"/>					
State Board or Commission Member	<input type="checkbox"/>	<input type="checkbox"/>					
State Employee	<input type="checkbox"/>	<input type="checkbox"/>					

☐ None of the above applies

## Contract and Grant Disclosure and Certification Form

*Failure to make any disclosure required by Governor's Executive Order 98-04, or any violation of any rule, regulation, or policy adopted pursuant to that Order, shall be a material breach of the terms of this contract. Any contractor, whether an individual or entity, who fails to make the required disclosure or who violates any rule, regulation, or policy shall be subject to all legal remedies available to the agency.*

**As an additional condition of obtaining, extending, amending, or renewing a contract with a state agency I agree as follows:**

1. Prior to entering into any agreement with any subcontractor, prior or subsequent to the contract date, I will require the subcontractor to complete a **CONTRACT AND GRANT DISCLOSURE AND CERTIFICATION FORM**. Subcontractor shall mean any person or entity with whom I enter an agreement whereby I assign or otherwise delegate to the person or entity, for consideration, all, or any part, of the performance required of me under the terms of my contract with the state agency.

2. I will include the following language as a part of any agreement with a subcontractor:

*Failure to make any disclosure required by Governor's Executive Order 98-04, or any violation of any rule, regulation, or policy adopted pursuant to that Order, shall be a material breach of the terms of this subcontract. The party who fails to make the required disclosure or who violates any rule, regulation, or policy shall be subject to all legal remedies available to the contractor.*

3. No later than ten (10) days after entering into any agreement with a subcontractor, whether prior or subsequent to the contract date, I will mail a copy of the **CONTRACT AND GRANT DISCLOSURE AND CERTIFICATION FORM** completed by the subcontractor and a statement containing the dollar amount of the subcontract to the state agency.

**I certify under penalty of perjury, to the best of my knowledge and belief, all of the above information is true and correct and that I agree to the subcontractor disclosure conditions stated herein.**

Signature \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_

Vendor Contact Person \_\_\_\_\_ Title \_\_\_\_\_ Phone No. \_\_\_\_\_

Agency use only

Agency \_\_\_\_\_  
Number \_\_\_\_\_ Name \_\_\_\_\_

Agency  
Contact Person \_\_\_\_\_

Contact  
Phone No. \_\_\_\_\_

Contract  
or Grant No. \_\_\_\_\_

## APPENDIX 2 – EQUAL OPPORTUNITY POLICY DISCLAIMER





### EQUAL OPPORTUNITY POLICY DISCLAIMER

Pursuant to Arkansas Code Annotated § 19-11-104, any prospective contractor who is responding to a formal bid request, request for qualifications, or negotiating a contract with the state for professional, technical, or general services, must submit their most current equal opportunity policy (EO Policy). This applies to any contractor responding to a formal bid request, or entering a service contract, which the total dollar value of the contract is \$25,000 or greater.

Although contractors are encouraged to have a viable EO policy, a response stating the contractor does not have such an EO Policy will be considered that contractor's response and will be acceptable in complying with the requirement. This is a mandatory response requirement when submitting a formal proposal or entering a service contract as outlined above. Submit this completed and signed form, and associated attachments, with your proposal or contract.

**Instructions:**

Please check the appropriate statement below:

**Current EO Policy Attached.**

**EO Policy Not Available.**

Contractor Name	
Mailing Address	
City, State & Zip	
Contractor Signature	
Name & Title	
Date	

The University of Arkansas, Fayetteville Procurement Department (UA), will maintain a database of policies or written responses received from all contractors in response to solicitations issued by UA. For questions, please contact the Procurement Department by calling (479) 575-2551.

## APPENDIX 3 – ILLEGAL IMMIGRANT CERTIFICATION FORM



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ILLEGAL IMMIGRANT CERTIFICATION

Pursuant to Arkansas Code Annotated § 19-11-105, state agencies are not allowed to enter into contracts for the procurement of public, professional, technical or general services, or any category of construction with any contractor who employs or contracts with illegal immigrants. This applies to any contractor responding to a formal bid request, or entering a service contract, which the total dollar value of the contract is \$25,000 or greater.

Contractor(s) must certify with the state, prior to the award of the contract, that they do not employ or contract with any illegal immigrants. This certification process is a mandatory requirement. Submit this completed and signed form, and your online screenshot of certification, with your proposal or contract. Failure to certify may result in rejection of your proposal, and no contract award will be made to a contractor who has not so certified.

Instructions:

- Contractor(s) are to certify online: <https://www.ark.org/dfa/immigrant/index.php/disclosure/submit/new>
- Print screenshot of your online certification and submit with proposal or contract.
- Please check the appropriate statement below and include response:

We have certified online that we do not employ or contract with any illegal immigrants, and screenshot of certification is attached.  
Date online certification completed:

We have NOT certified online at this time, and we understand that no contract can be awarded to our business until we have done so.  
Reason for non-certification:

Contractor Name	
Mailing Address	
City, State & Zip	
Contractor Signature	
Name & Title	
Date	

- For purposes of this requirement, “*Illegal immigrant*” means any person not a citizen of the United States who has:
- a. Entered the United States in violation of the Federal Immigration and Naturalization Act or regulations issued the act;
  - b. Legally entered but without the right to be employed in the United States; or
  - c. Legally entered subject to a time limit but has remained illegally after expiration of the time limit.

For questions, please contact the Procurement Department by calling (479) 575-2551.

## APPENDIX 4 – RESTRICTION OF BOYCOTT OF ISRAEL CERTIFICATION



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## Appendix 4 – Restriction of Boycott of Israel Certification



### RESTRICTION OF BOYCOTT OF ISRAEL CERTIFICATION

Pursuant to Arkansas Code Annotated § 25-1-503, a Public Entity **shall not** enter into a contract valued at \$1,000 or greater with a contractor unless the contract includes a written certification that the contractor is not currently engaged in, and agrees for the duration of the contract not to engage in, a boycott of Israel.

By signing below, the Contractor agrees and certifies that they do not boycott Israel and will not boycott Israel during any time in which they are entering into, or while in contract with, any Public Entity as defined in § 25-1-503\*. If at any time after signing this certification the contractor decides to engage in a boycott of Israel, the contractor must notify the contracting Public Entity in writing.

If a company does boycott Israel, see Arkansas Code Annotated § 25-1-503.

Contractor Name	
Mailing Address	
City, State & Zip	
Contractor Signature	
Name & Title	
Date	

\* “Public Entity” means the State of Arkansas, or a political subdivision of the state, including all boards, commissions, agencies, institutions, authorities, and bodies politic and corporate of the state, created by or in accordance with state law or regulations, and does include colleges, universities, a statewide public employee retirement system, and institutions in Arkansas as well as units of local and municipal government.

For questions, please contact the Procurement Department by calling (479) 575-2551.

## APPENDIX 5 – EXAMPLE PROJECT 1

SEE ATTACHED SHEETS:

M1.01

M3.01



UNIVERSITY OF  
ARKANSAS®



1. ALL LIGHTER SOLID LINES REPRESENT PIPING, DUCTWORK, EQUIPMENT, ETC. TO REMAIN.
2. ALL DARKER DASHED LINES REPRESENT PIPING, DUCTWORK, EQUIPMENT, ETC. TO BE REMOVED.
3. FIELD VERIFY EXACT SIZE AND LOCATION OF ALL EXISTING ITEMS SHOWN ON THIS PLAN THAT ARE TO BE CONNECTED TO.
4. SEE ARCHITECTURAL PLANS FOR REMOVAL AND REPLACEMENT OF CEILINGS.

- 1 EXISTING CEILING-MOUNTED EXHAUST FAN, CONTROLS, AND ASSOCIATED DUCTWORK TO BE DEMOLISHED TO EXISTING EXTERIOR WALL LOUVER LOCATION. PREPARE EXISTING EXTERIOR WALL LOUVER DUCTWORK TO BE CAPPED AND SEALED.
- 2 EXISTING AIR DEVICES AND ASSOCIATED DUCTWORK TO BE DEMOLISHED TO POINT INDICATED ON PLAN. PREPARE EXISTING SUPPLY AIR DUCTWORK TO BE CAPPED AND SEALED.
- 3 EXISTING UN-USED STEAM RISER PIPING AND ASSOCIATED ACCESSORIES AND INSULATION ROUTED FROM ABOVE CEILING TO BELOW FLOOR AT THIS LOCATION TO BE DEMOLISHED COMPLETELY AS SHOWN. EXISTING UN-USED STEAM PIPING ABOVE CEILING AND BELOW FLOOR TO BE ABANDONED IN PLACE AS SHOWN.
- 4 EXISTING STEAM PIPING IN BELOW FLOOR / GRADE CHASE TO REMAIN.

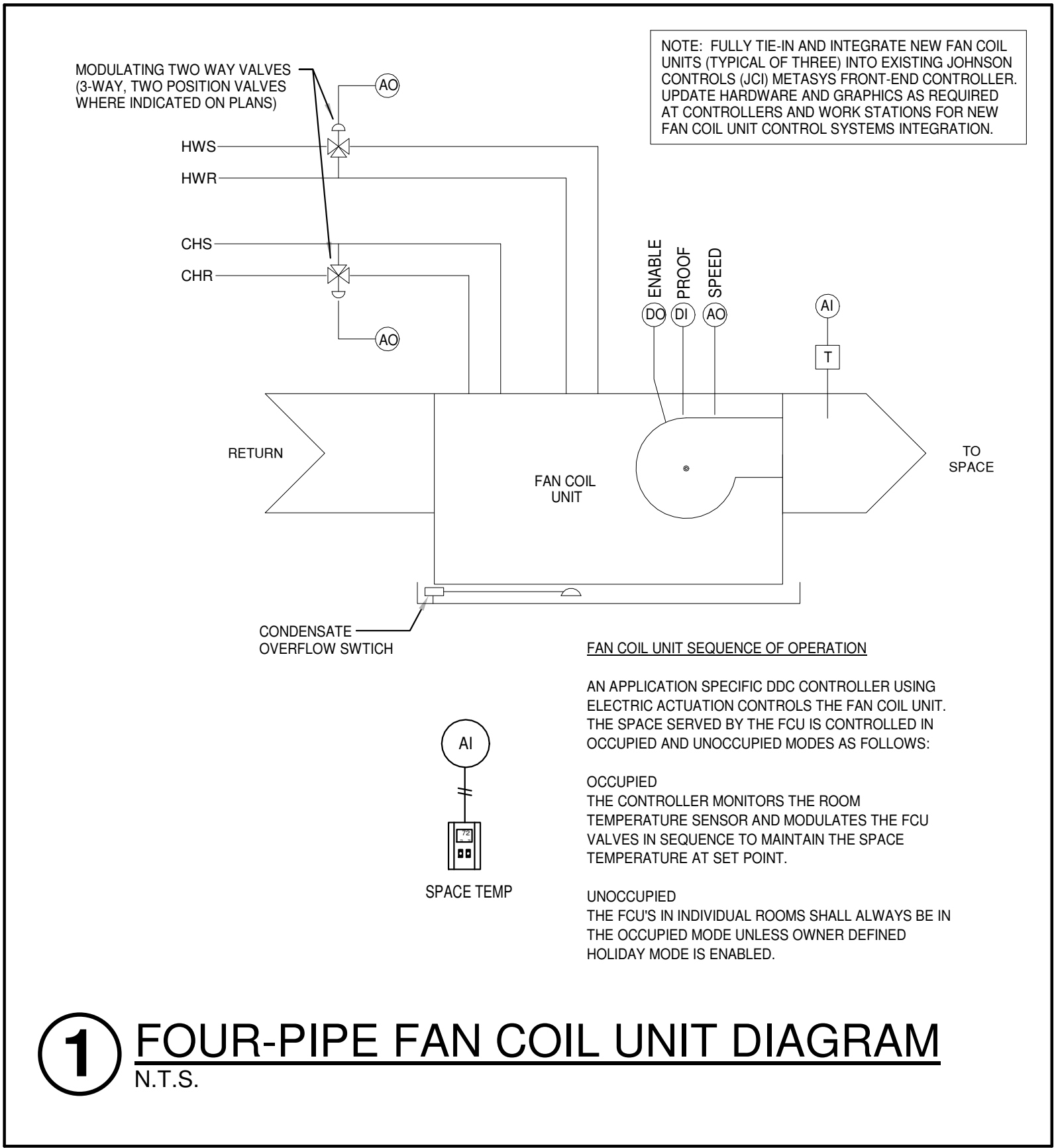
1. ALL LIGHTER SOLID LINES REPRESENT PIPING, DUCTWORK, EQUIPMENT, ETC. TO REMAIN.
2. ALL DARKER SOLID LINES REPRESENT NEW PIPING, DUCTWORK, EQUIPMENT, ETC.
3. FIELD VERIFY EXACT SIZE AND LOCATION OF ALL EXISTING ITEMS SHOWN ON THIS PLAN THAT ARE TO BE CONNECTED TO.

- 1 MATCH FAN COIL UNIT DUCTWORK CONNECTION SIZE, TYPICAL ALL.
- 2 INSTALL FAN COIL UNITS BETWEEN THE STRUCTURE AS REQUIRED TO MAINTAIN PROPER GRAVITY CONDENSATE DRAIN SLOPE TO POINT OF TERMINATION. OFFSET THE DUCTWORK BELOW THE STRUCTURE AT CROSSING LOCATIONS.
- 3 TURN DOWN NEW CONDENSATE DRAIN PIPING AT LOCATION OF NEW AIR GAP FITTING PROVIDED BY PLUMBER, REFER TO PLUMBING PLAN FOR EXACT LOCATION. FIELD COORDINATE WITH PLUMBER FOR INSTALLATION HEIGHT TO ENSURE MINIMUM GRAVITY CONDENSATE DRAINAGE PIPING SLOPE OF 1/4" PER FOOT TO AIR GAP FITTING.
- 4 EQUIPMENT SIDE ACCESS / SERVICE SPACE, TYPICAL BOTH SIDES.
- 5 CORE DRILL WALL AS REQUIRED TO ROUTE PIPING. SEAL ALL VOIDS AROUND PIPING WITH FIRE CAULK.



FAN COIL UNIT SCHEDULE																								
DESIG.	MFR/MDL	AREA SERVED	TYPE	OSA	FAN DATA		CHILLED WATER COIL								HEATING WATER COIL						MOTOR DATA		REMARKS (NOTES)	
				CFM	CFM	ESP	EAT	LAT	MBH TOTAL	MBH SENS.	EWT	LWT	GPM	W.P.D.	ROW/FIN	EAT/LAT	EWT/LWT	GPM	W.P.D.	MBH	ROW/FIN	HP		VOLT/PH
FC-01	TRANE / FCCB02	OFFICE 101	HORIZONTAL CONCEALED	15	240	0.3"	77.0 °F d.b. 63.0 °F w.b.	53.2 °F d.b. 52.4 °F w.b.	7.1	5.9	44 °F	54 °F	1.5	4.2'	4 R / 12 FPI	68.0 °F / 92.6 °F	155 °F / 146.4 °F	1.5	0.5'	6.4	1 R / 12 FPI	84 W	120 / 1ø	PROVIDE WITH ECM FAN MOTOR AND DUCTED INLET / OUTLET CONNECTIONS.
FC-02	TRANE / FCCB02	OFFICE 102	HORIZONTAL CONCEALED	15	240	0.3"	77.0 °F d.b. 63.0 °F w.b.	53.2 °F d.b. 52.4 °F w.b.	7.1	5.9	44 °F	54 °F	1.5	4.2'	4 R / 12 FPI	68.0 °F / 92.6 °F	155 °F / 146.4 °F	1.5	0.5'	6.4	1 R / 12 FPI	84 W	120 / 1ø	PROVIDE WITH ECM FAN MOTOR AND DUCTED INLET / OUTLET CONNECTIONS.
FC-03	TRANE / FCCB02	OFFICE 103	HORIZONTAL CONCEALED	15	240	0.3"	77.0 °F d.b. 63.0 °F w.b.	53.2 °F d.b. 52.4 °F w.b.	7.1	5.9	44 °F	54 °F	1.5	4.2'	4 R / 12 FPI	68.0 °F / 92.6 °F	155 °F / 146.4 °F	1.5	0.5'	6.4	1 R / 12 FPI	84 W	120 / 1ø	PROVIDE WITH ECM FAN MOTOR AND DUCTED INLET / OUTLET CONNECTIONS. PROVIDE UNIT WITH 3-WAY HWS CONTROL VALVE.

AIR DEVICE SCHEDULE							
DESIG.	MFR/MDL	TYPE	FACE SIZE	FINISH	FREE AREA	ACCESS.	REMARKS
CD-1	TITUS TDC	LOUVER FACE CEILING SUPPLY	AS NOTED	WHITE	---	OPPOSED BLADE DAMPER	ROUND NECK
FG-1	TITUS 50FF	EGGCCRATE CEILING FILTER RETURN	AS NOTED	WHITE	---	OPPOSED BLADE DAMPER	1/2"x1/2"x1/2" CORE, 20"x20" RECTANGULAR NECK. PROVIDE SQUARE-TO-ROUND ADAPTER. PROVIDE WITH 20"x20"x1" MERV 8 FILTER.



LEGEND	
	CEILING DIFFUSER
	RETURN AIR GRILLE (RA)
	EXHAUST REGISTER (ER)
	624 CD-1 100 CFM FLEXIBLE DUCT CONNECTOR
	TURNING VANES
	SPLITTER DAMPER (TEE)
	INTERNALLY INSULATED DUCTWORK
	M.D. MANUAL DAMPER
	OPPOSED BLADE DAMPER
	Ø DIAMETER
	T <sub>5</sub> THERMOSTAT (WITH UNIT NUMBER)
	1 M-1 DETAIL TOP NUMBER REFERS TO THE DETAIL NUMBER, BOTTOM NUMBER REFERS TO THE SHEET WHERE DETAIL IS SHOWN
	2 M-2 SECTION
	DS DUCT SMOKE DETECTOR
	CONNECT TO EXISTING
	DEMOLITION TERMINATION
	AIR VENT (AUTO/HAND)
	BUTTERFLY VALVE
	AUTOMATIC CONTROL VALVE (3-WAY)
	AUTOMATIC CONTROL VALVE
	CHECK VALVE
	FLEXIBLE CONNECTOR (BRAIDED)
	GATE VALVE
	GLOBE VALVE (STRAIGHT)
	PLUG VALVE
	PRESSURE GAUGE (W/COCK)
	PRESSURE GAUGE
	PRESSURE RELIEF VALVE
	PRESSURE AND TEMPERATURE TAP
	REDUCER (CONCENTRIC)
	REDUCER (ECCENTRIC)
	STRAINER (WITH BLOW DOWN VALVE)
	THERMOMETER
	TO FLOOR DRAIN
	UNION (FLANGED, SCREWED)
	CHS CHILLED WATER SUPPLY
	CHR CHILLED WATER RETURN
	HWS HEATING WATER SUPPLY
	HWR HEATING WATER RETURN
	D DRAIN

GENERAL SPECIFICATION ITEMS	
1.	ALL SUPPLY AND RETURN DUCTWORK TO MEET CURRENT SMACNA STANDARDS AND WILL BE INSULATED WITH 2" THICK, 1 # DENSITY FIBERGLASS DUCTWRAP.
2.	PIPING AND EQUIPMENT SUPPORTS TO BE IN COMPLIANCE WITH INTERNATIONAL BUILDING CODE CATEGORY "D" REQUIREMENTS.
3.	CONTRACTOR SHALL BALANCE SUPPLY, RETURN, AND EXHAUST SYSTEMS.

GENERAL NOTES	
1.	DUE TO THE SMALL SCALE OF THIS DRAWING, IT IS NOT POSSIBLE TO INDICATE ALL OFFSETS, FITTINGS, AND ACCESSORIES WHICH MAY BE REQUIRED. THE CONTRACTOR SHALL INVESTIGATE THE STRUCTURAL AND FINISH CONDITIONS AFFECTING THE WORK AND SHALL COORDINATE AND ARRANGE HIS WORK ACCORDINGLY.
2.	ROUND BRANCH DUCT RUNOUTS SHALL BE SAME SIZE AS DIFFUSER THROAT UNLESS OTHERWISE NOTED.
3.	FLEXIBLE DUCT MAY BE USED FOR FINAL CONNECTIONS TO DIFFUSERS. A MAXIMUM LENGTH OF THREE FEET (3') SHALL BE USED. A HARD 90° ELBOW MUST BE USED WHERE DUCT TURNS DOWN ABOVE DIFFUSER.
4.	ALL CEILING-MOUNTED SUPPLY DIFFUSERS SHALL HAVE FOUR-WAY (4-WAY) PATTERN UNLESS OTHERWISE INDICATED.
5.	WHERE MANUAL DAMPERS ARE INSTALLED IN EXTERNALLY INSULATED DUCTWORK, PROVIDE STAND-OFF BRACKET TO PREVENT COMPRESSION OF INSULATION BY DAMPER OPERATOR HANDLE.
6.	PROVIDE TURNING VANES IN ALL 90-DEGREE MITERED ELBOWS.
7.	PROVIDE SLEEVES THROUGH WALLS AND FLOORS. SEAL EXCESS OPENING WITH WATER-PROOF SEALANT. COORDINATE LOCATIONS AND SIZES OF SLEEVES WITH GENERAL CONTRACTOR. SLEEVES SHALL PROVIDE A MAXIMUM OF 1" CLEARANCE BETWEEN DUCT OR PIPE AND SLEEVE. SEAL PENETRATION IN FIRE/SMOKE RATED WALLS AND FLOOR WITH AN APPROVED FIRE/SMOKE BLOCK SEALANT.
8.	EXTERNALLY INSULATE SUPPLY, RETURN, RELIEF, AND OUTSIDE AIR DUCTWORK UNLESS NOTED OTHERWISE.
9.	EXHAUST DUCTWORK SHALL BE UN-INSULATED, UNLESS NOTED OTHERWISE
10.	EXTERNALLY INSULATE LOW-VELOCITY ROUND RUNOUT DUCTWORK
11.	INSULATE THE TOP OF ALL SUPPLY AIR DIFFUSERS WITH A MINIMUM OF 1/2" THICK FIBERGLASS DUCT WRAP.
12.	RUN COOLING COIL CONDENSATE DRAINS FULL SIZE TO NEAREST FLOOR OR ROOF DRAIN.
13.	INSULATE ALL REFRIGERANT PIPING AND CONDENSATE DRAIN PIPING WITH 3/4" ELASTOMERIC INSULATION (ARMAFLEX). COAT ALL EXTERIOR PIPE INSULATION WITH UV PROTECTANT PAINT.
14.	REFER TO ARCHITECTURAL PLANS FOR LOCATIONS OF FIRE AND SMOKE RATED PARTITIONS.
15.	COORDINATE LOCATION OF DUCTS AND DIFFUSERS WITH STRUCTURAL FRAMING MEMBERS. OFFSET DUCTS AS REQUIRED TO CLEAR STRUCTURAL MEMBERS.
16.	COORDINATE LOCATIONS AND ELEVATION OF DUCT RUNS WITH PLUMBING, SPRINKLER, AND ELECTRICAL CONTRACTORS.
17.	COORDINATE MAKE-UP WATER AND GAS REQUIREMENTS WITH PLUMBING CONTRACTOR.
18.	PROVIDE ACCESS DOORS FOR ALL FIRE DAMPERS. PROVIDE CEILING ACCESS DOORS FOR DAMPERS ABOVE GYPSUM BOARD CEILINGS.
19.	PAINT DUCTWORK BLACK THAT MAY BE VISIBLE ABOVE PARTIAL CEILINGS. COORDINATE PAINTING OF DUCTWORK WITH ARCHITECT.
20.	COORDINATE CEILING DIFFUSER LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLANS.

IDIQ TAB REQUEST FOR PROPOSAL

EXAMPLE PROJECT #1

UNIVERSITY OF ARKANSAS - FAYETTEVILLE

JOB NO. 20-119

DESIGN TJJ

DATE 03/19/2021

SHEET NO.

M3.01

**Pettipettit**  
CONSULTING ENGINEERS, INC.

201 EAST MARKHAM STREET, SUITE 400 | LITTLE ROCK, AR 72201-1163 | 501.374.3731 | WWW.PETTIPETTIT.COM

HVAC SCHEDULES

## APPENDIX 6 – EXAMPLE PROJECT 2

SEE ATTACHED SHEETS:

M1.00

M1.01

M1.02

M1.03

M2.01

M2.02

M3.03

M3.04

M4.01

M4.02

M5.01

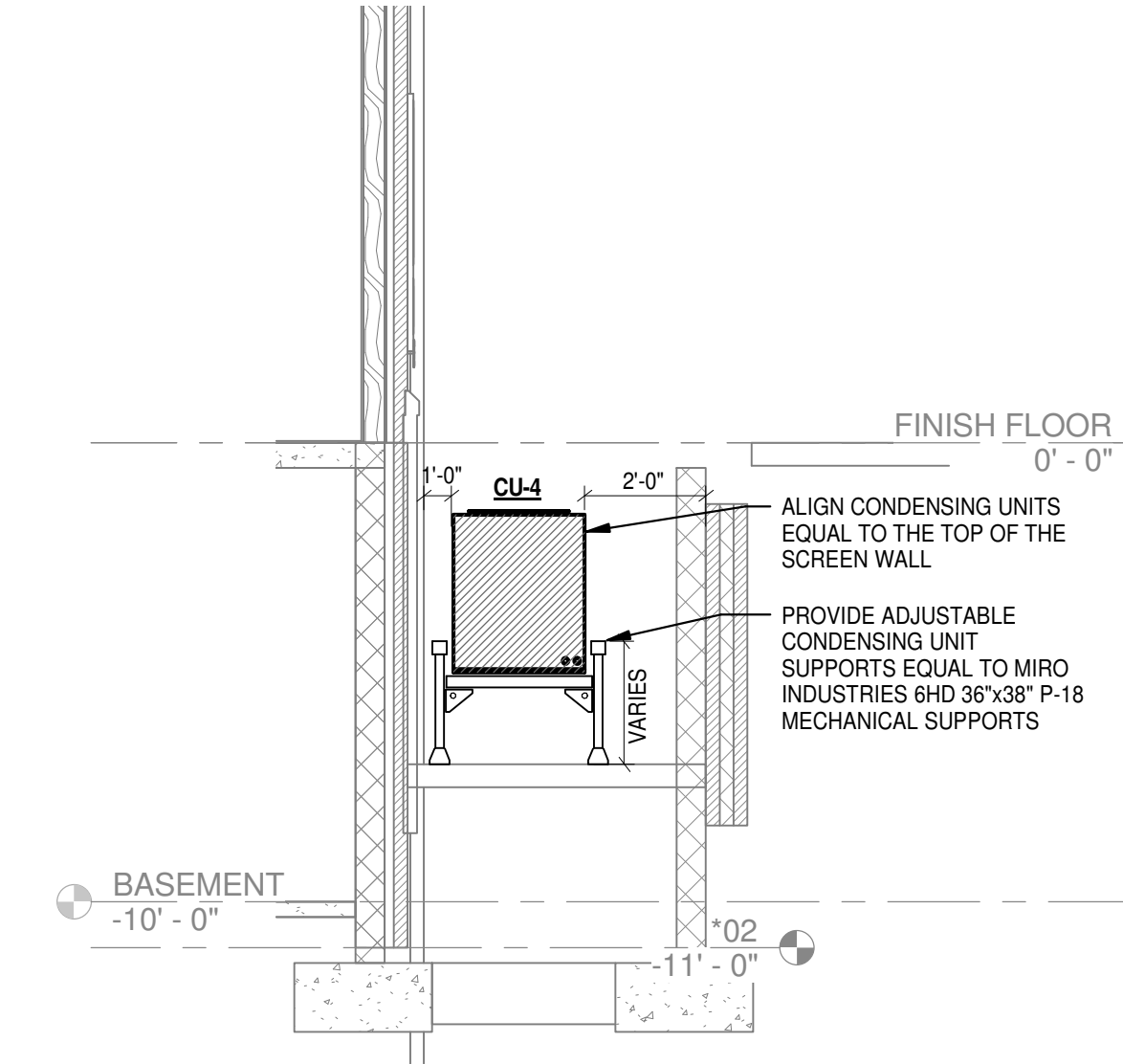


UNIVERSITY OF  
ARKANSAS®

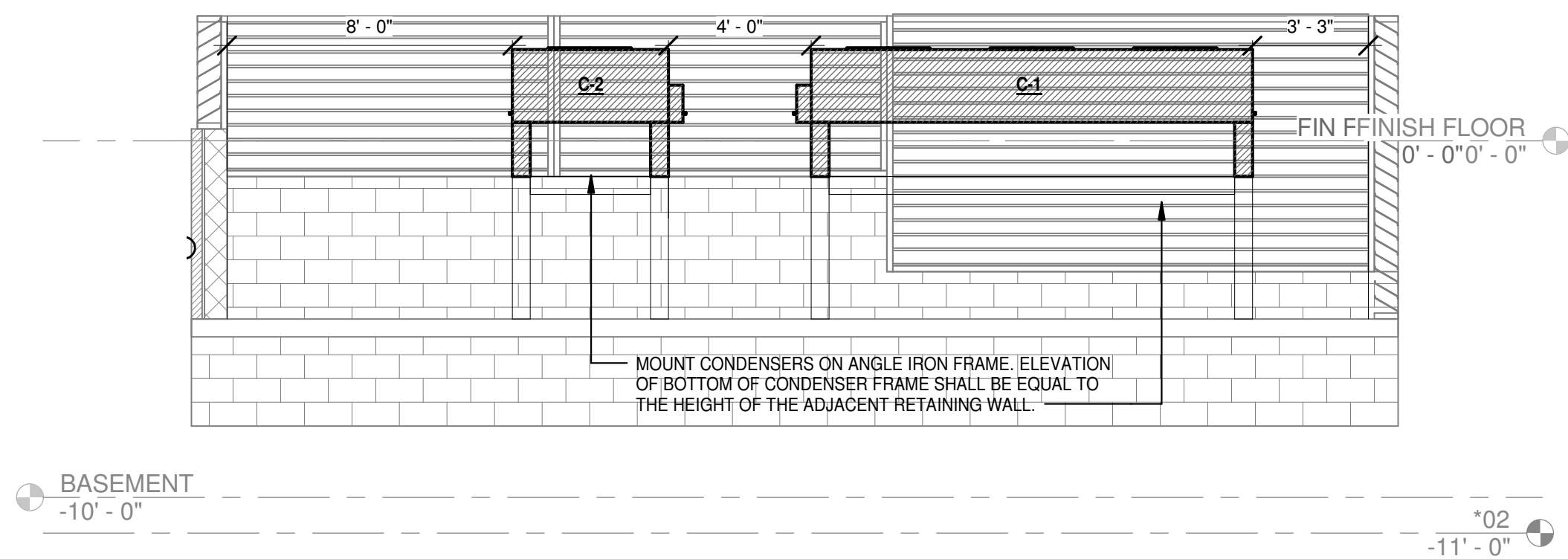


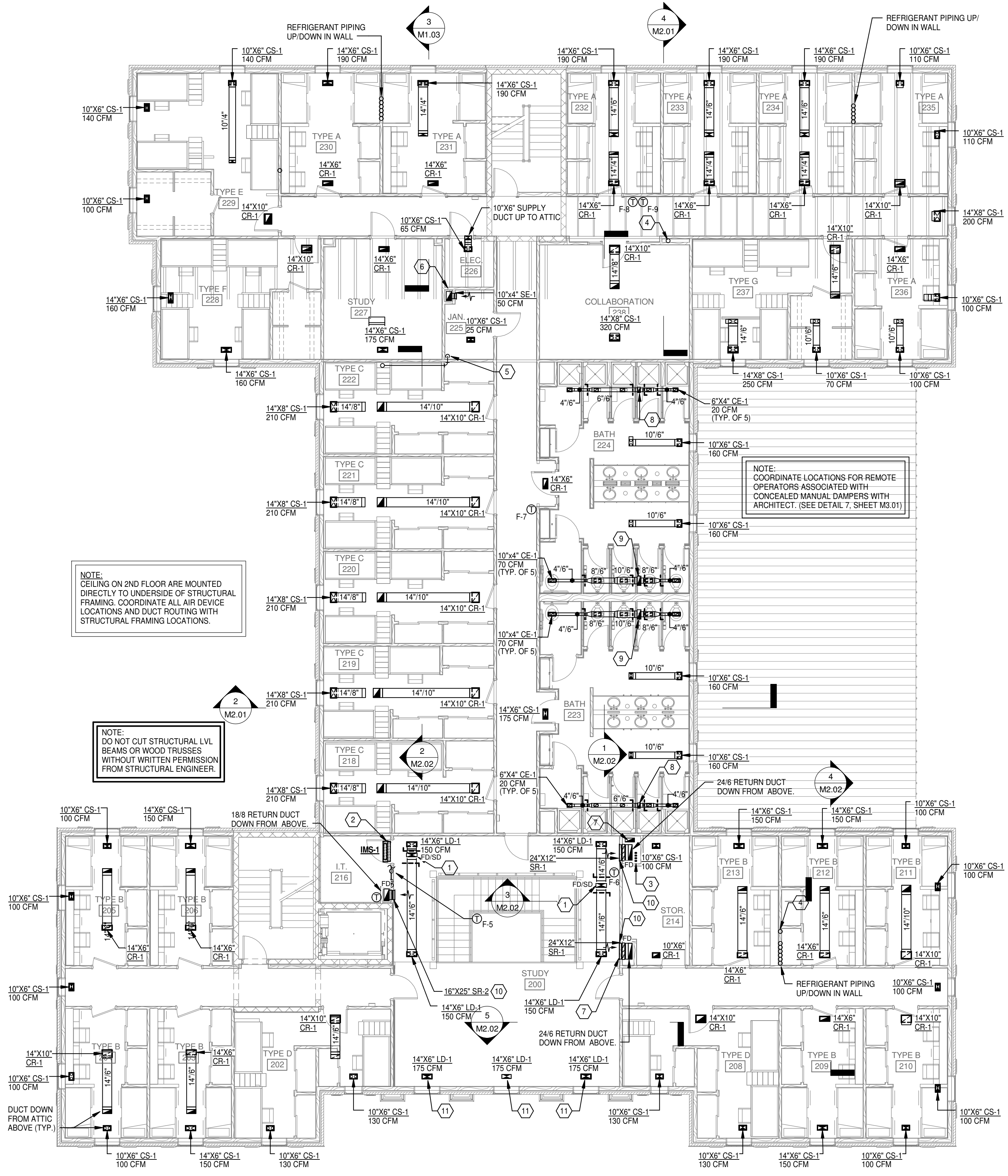
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CONSULTING ENGINEERS, INC

*Established 1949*



- 1 DUCTWORK UP TO FLOOR GRILLE ABOVE.
- 2 DUCTWORK UP TO WALL-MOUNTED RETURN GRILLE ABOVE.
- 3 DUCT FURNACE DF-1 SIDEWALL. CONCENTRIC VENT KIT.
- 4 REFRIGERANT PIPING ROUTED UP TO VAU-2 IN ATTIC. OFFSET PIPING BETWEEN 1ST & 2ND FLOOR AS REQUIRED TO REMAIN IN WALLS. CORE DRILL FLOOR INDIVIDUALLY FOR EACH PIPE. FIRE CAULK VOIDS.
- 5 REFRIGERANT PIPING AND CONDENSATE DRAIN PIPING UP IN WALL ABOVE IMS-1 LOCATED IN IT 216 ABOVE.
- 7 TWO (2) 3" FURNACE FLUES AND TWO (2) 3" COMBUSTION AIR INLETS UP IN CHASE ABOVE.
- 8 14/6 EXHAUST DUCT UP THROUGH FLOOR.
- 9 REFRIGERANT PIPING UP IN WALL ABOVE TO F-5, F-6, & F-10 IN ATTIC.
- 10 REFRIGERANT PIPING UP IN WALL ABOVE TO VAU-2 IN ATTIC.
- 11 20/16 SUPPLY DUCT AND 26/12 RETURN DUCT UP IN CHASE ABOVE.
- 12 16/12 SUPPLY DUCT AND 16/14 RETURN DUCT UP IN CHASE.
- 13 24/12 SUPPLY DUCT UP IN CHASE.
- 14 36/20 SUPPLY DUCT UP IN CHASE.
- 15 THREE (3) 4" WATER HEATER FLUES UP IN CHASE. TWO (2) 3" FURNACE FLUES, AND TWO (2) 3" COMBUSTION AIR INLETS UP IN CHASE.
- 16 SUPPORT REFRIGERANT PIPING VERTICALLY ALONG EXTERIOR WALL. (SEE DETAIL 10, SHEET M3.01).
- 17 MOUNT MINI-SPLIT HIGH IN ROOM.
- 18 KEEP CONDENSATE DRAIN PIPING AS HIGH AS POSSIBLE THROUGH ROOM WHILE STILL MAINTAINING PROPER SLOPE. ROUTE PIPING ABOVE DOOR FOR SPRINKLER 005 TO GET TO NEAREST FLOOR DRAIN.
- 19 COORDINATE REFRIGERANT PIPING ROUTING WITH ELECTRICAL PANELS NEARBY. DO NOT ENCRANCH ON NEC WORKING CLEARANCE FOR ELECTRICAL EQUIPMENT.
- 20 10" TROX VFL-RS PRESSURE INDEPENDENT FLOW LIMITER. INSTALL ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.





### HVAC GENERAL NOTES

1. ALL LIGHTER SOLID LINES REPRESENT PIPING, DUCTWORK, EQUIPMENT, ETC. TO REMAIN.
2. ALL DARKER SOLID LINES REPRESENT NEW PIPING, DUCTWORK, EQUIPMENT, ETC.
3. FIELD VERIFY EXACT SIZE AND LOCATION OF ALL EXISTING ITEMS SHOWN ON THIS PLAN THAT ARE TO BE CONNECTED TO.
4. COORDINATE ALL SUPPLY, RETURN, AND EXHAUST AIR DEVICES WITH ARCHITECTURAL FLOORPLANS, REFLECTED CEILING PLANS, AND ELEVATIONS.

### HVAC KEYED NOTES M1.02

1. 16/6 SUPPLY DUCT DOWN FROM ABOVE. ROUTE DUCT BETWEEN STRUCTURE TO SERVE TWO (2) 14"X6" LD-1 CEILING SUPPLY GRILLES. PROVIDE AND INSTALL FIRE DAMPER AT FLOOR PENETRATION. FIRE CAULK UPPER AND LOWER DUCT PENETRATION.
2. MOUNT IMS-1 HIGH ON WALL ABOVE DOOR. ROUTE REFRIGERANT PIPING AND CONDENSATE DRAIN DOWN IN WALL. CONDENSATE DRAIN SHALL BE HARD PIPED.
3. TWO (2) 3" FLUES AND TWO (2) 3" COMBUSTION AIR INLETS UP AND DOWN. COORDINATE EXACT ROUTING WITH EXHAUST FIRE DAMPER ACCESS DOOR.
4. 1" CONDENSATE DRAIN UP AND DOWN IN WALL.
5. 1" CONDENSATE DRAIN DOWN FROM ABOVE. ROUTE BETWEEN STRUCTURAL FRAMING AND DROP IN THE CORNER OF THE CLOSET. ONCE BELOW STRUCTURE, PENETRATE JAN 225 WALL AND ROUTE TO SERVICE SINK.
6. 14/8 EXHAUST DUCT UP AND DOWN. PROVIDE FIRE DAMPER AT FLOOR LEVEL.
7. 14/6 EXHAUST DUCT UP AND DOWN. PROVIDE FIRE DAMPER AT FLOOR LEVEL. COORDINATE PIPING, FLUES, AND COMBUSTION AIR INLETS WITH FIRE DAMPER ACCESS DOOR. PROVIDE ADEQUATE ACCESS TO RESET DAMPER.
8. 8/4 EXHAUST DUCT DOWN FROM ABOVE.
9. 14/6 EXHAUST DUCT DOWN FROM ABOVE.
10. SEE ARCHITECTURAL SHEETS FOR EXACT LOCATION OF RETURN GRILLES.
11. PROVIDE AND INSTALL FIRE DAMPERS AT FLOOR LEVEL ABOVE.

**1 SECOND FLOOR PLAN - HVAC**  
SCALE: 1/8" = 1'-0"

IDIQ TAB REQUEST FOR QUALIFICATIONS

## EXAMPLE PROJECT #2

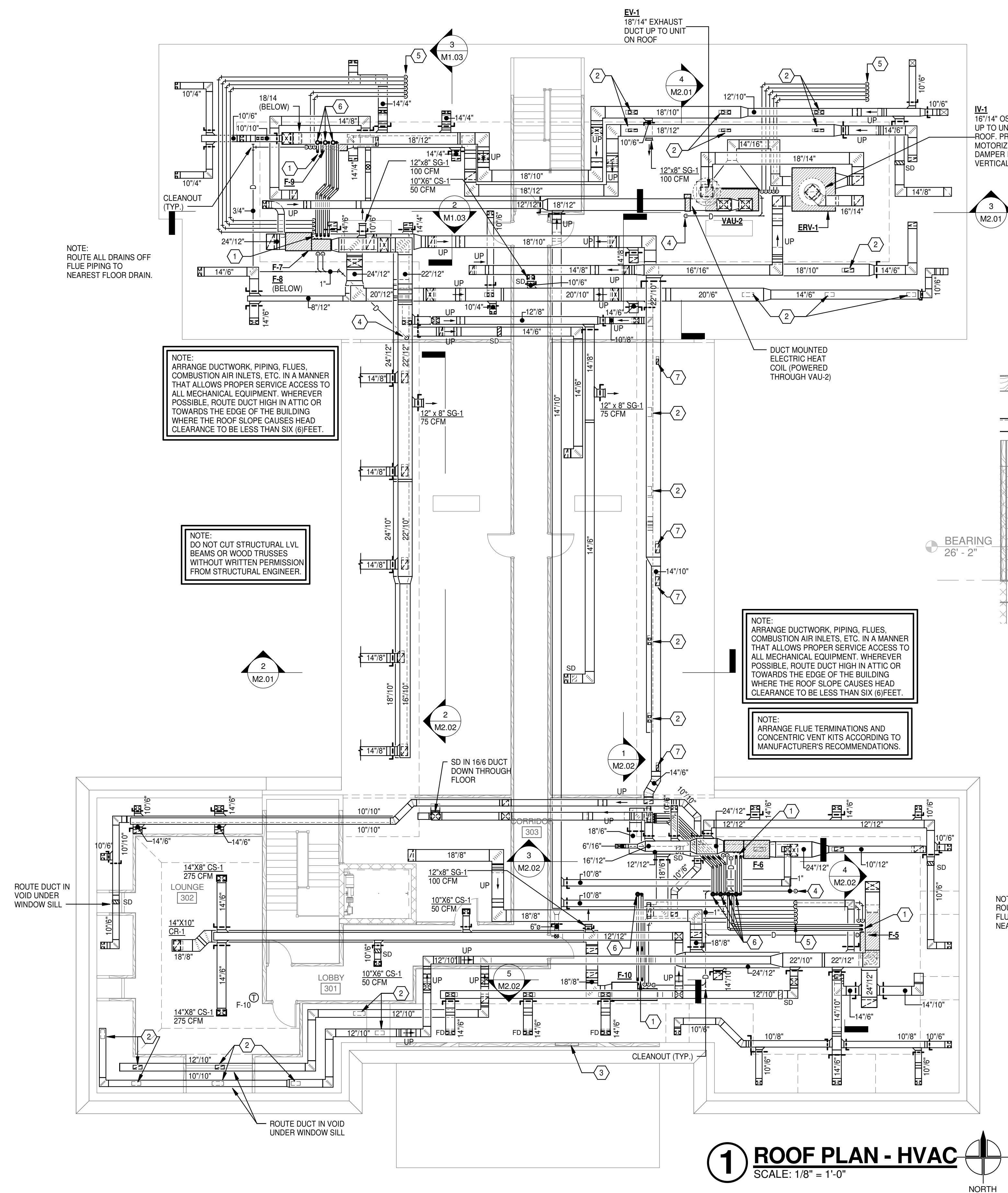
UNIVERSITY OF ARKANSAS - FAYETTEVILLE

JOB NO.	20-120
DESIGN	TJJ
DATE	03/19/2021
SHEET NO.	M1.02

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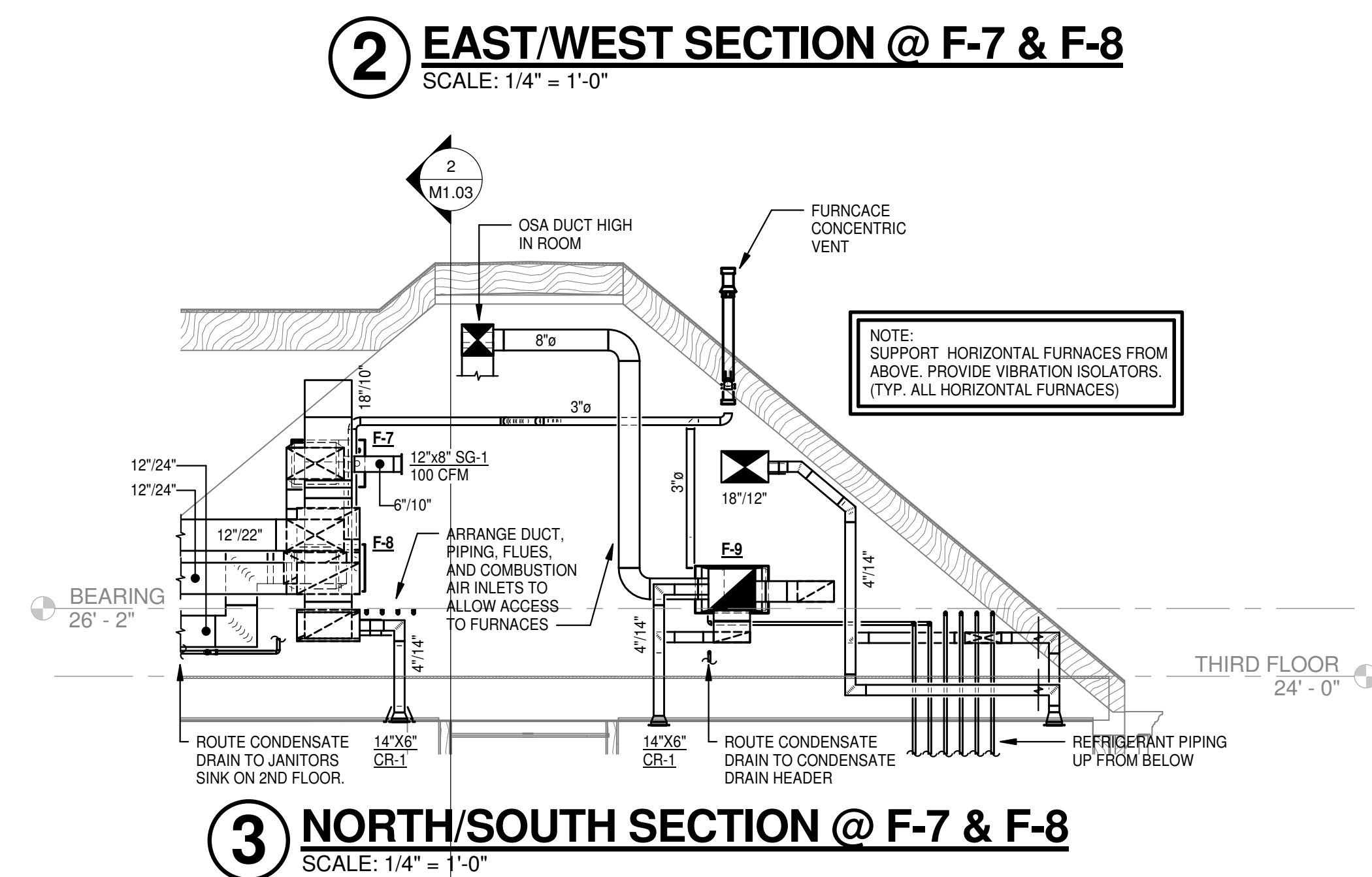
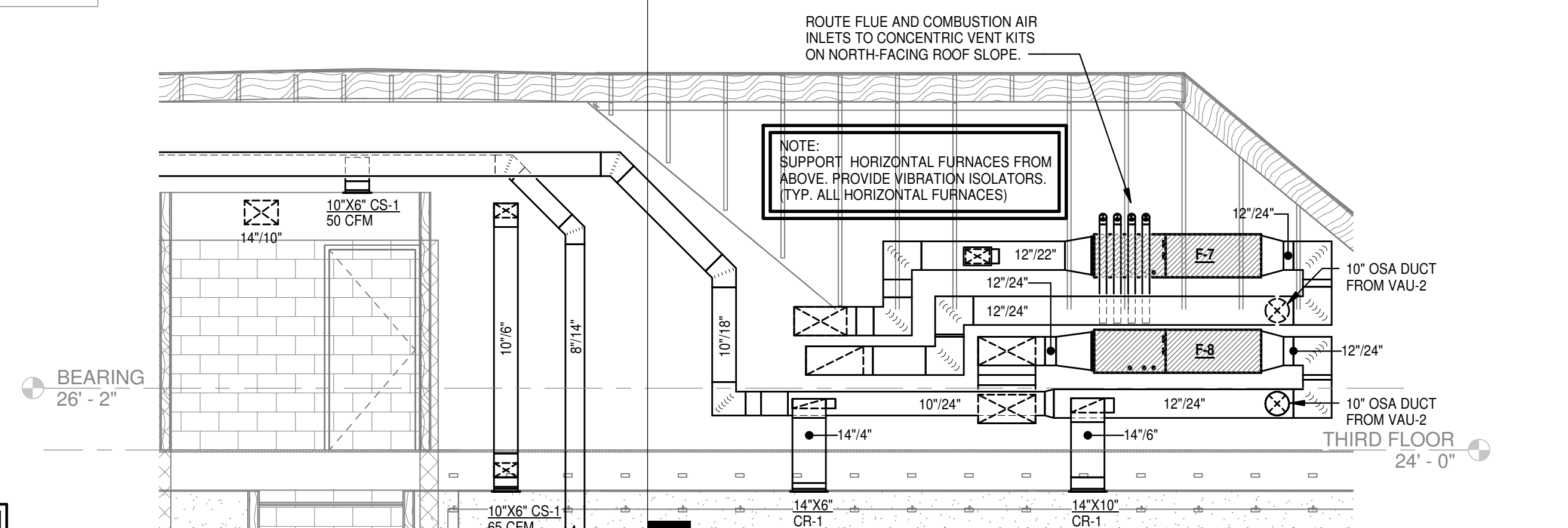
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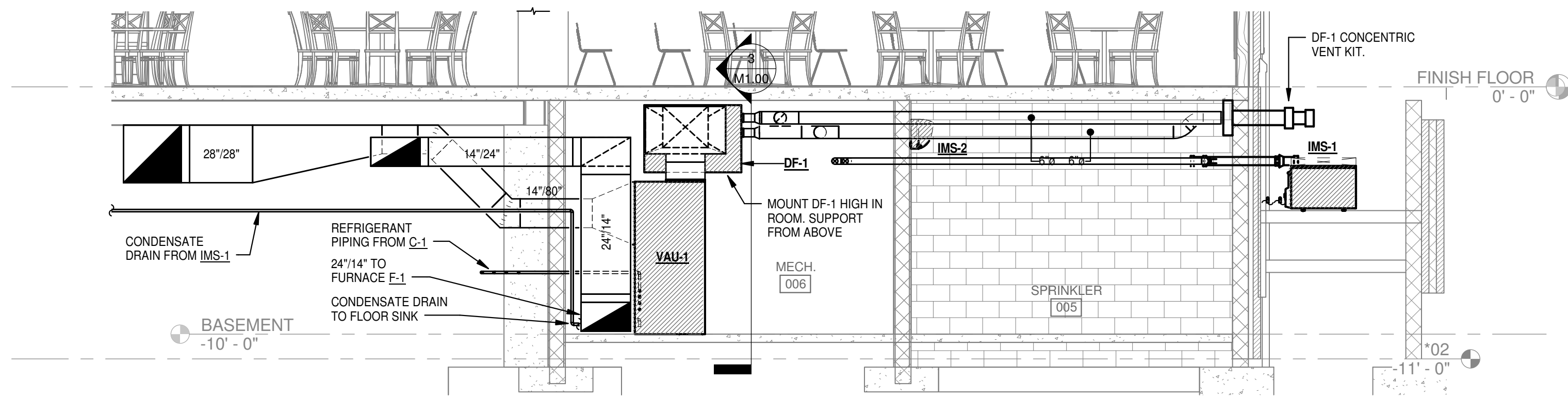
SECOND FLOOR PLAN - HVAC



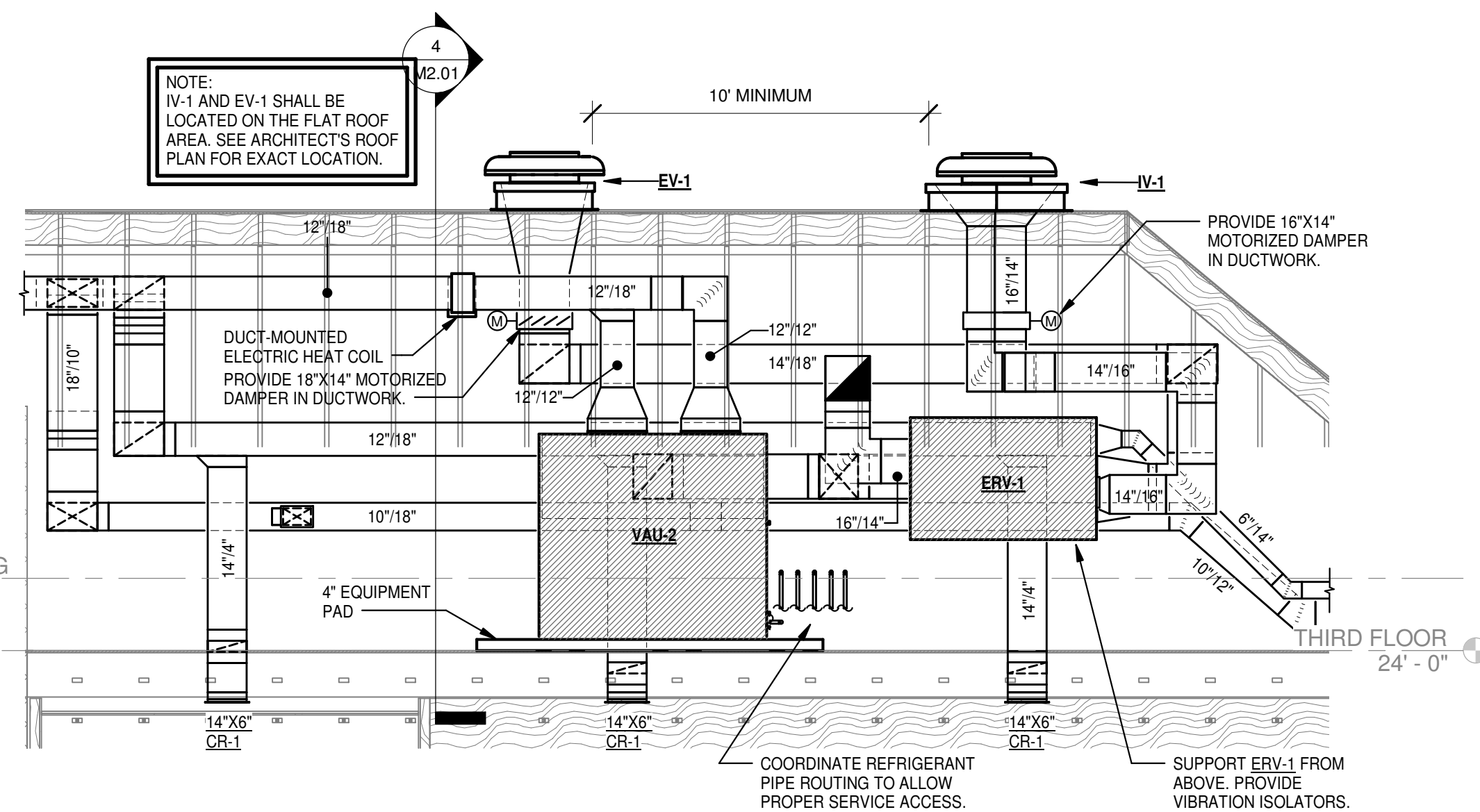
- ## HVAC GENERAL NOTES
1. ALL LIGHTER SOLID LINES REPRESENT PIPING, DUCTWORK, EQUIPMENT, ETC. TO REMAIN.
  2. ALL DARKER SOLID LINES REPRESENT NEW PIPING, DUCTWORK, EQUIPMENT, ETC.
  3. FIELD VERIFY EXACT SIZE AND LOCATION OF ALL EXISTING ITEMS SHOWN ON THIS PLAN THAT ARE TO BE CONNECTED TO.
  4. COORDINATE ALL SUPPLY, RETURN, AND EXHAUST AIR DEVICES WITH ARCHITECTURAL FLOORPLANS, REFLECTED CEILING PLANS, AND ELEVATIONS.

- # HVAC KEYED NOTES M1.03
- |   |   |
|---|---|
| 1 | ROUTE 3" PVC FLUE AND 3" COMBUSTION AIR INLET PIPING TO CONCENTRIC VENT KIT ON NORTH-FACING ROOF SLOPE. SEE ARCHITECT'S ROOF PLAN FOR EXACT LOCATION. |
| 2 | DUCT DOWN TO CEILING GRILLE BELOW.  |
| 3 | 3'X3' ACCESS PANEL TO PORCH OVERHANG (BY OTHERS). ARRANGE DUCTWORK TO ALLOW 6" CLEARANCE IN FRONT OF ACCESS PANEL.                                    |
| 4 | 1" CONDENSATE DRAIN DOWN THROUGH FLOOR.   |
| 5 | REFRIGERANT PIPING UP FROM BELOW.   |
| 6 | 3" FLUE AND COMBUSTION AIR INLET UP TO CONCENTRIC VENT THROUGH ROOF.  |
| 7 | DUCT DOWN TO CEILING GRILLE BELOW. COORDINATE EXACT LOCATION WITH STRUCTURAL FRAMING.   |

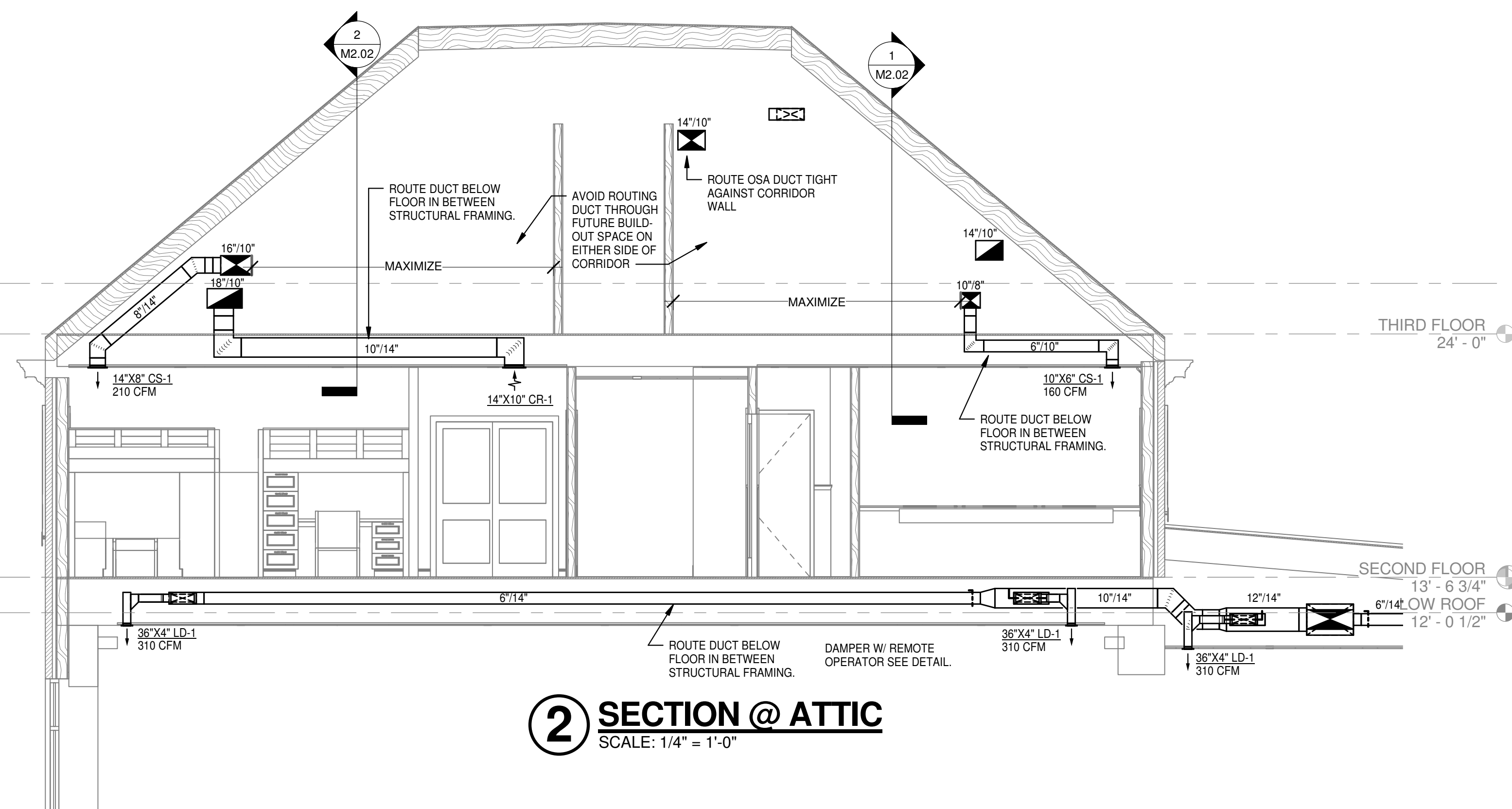




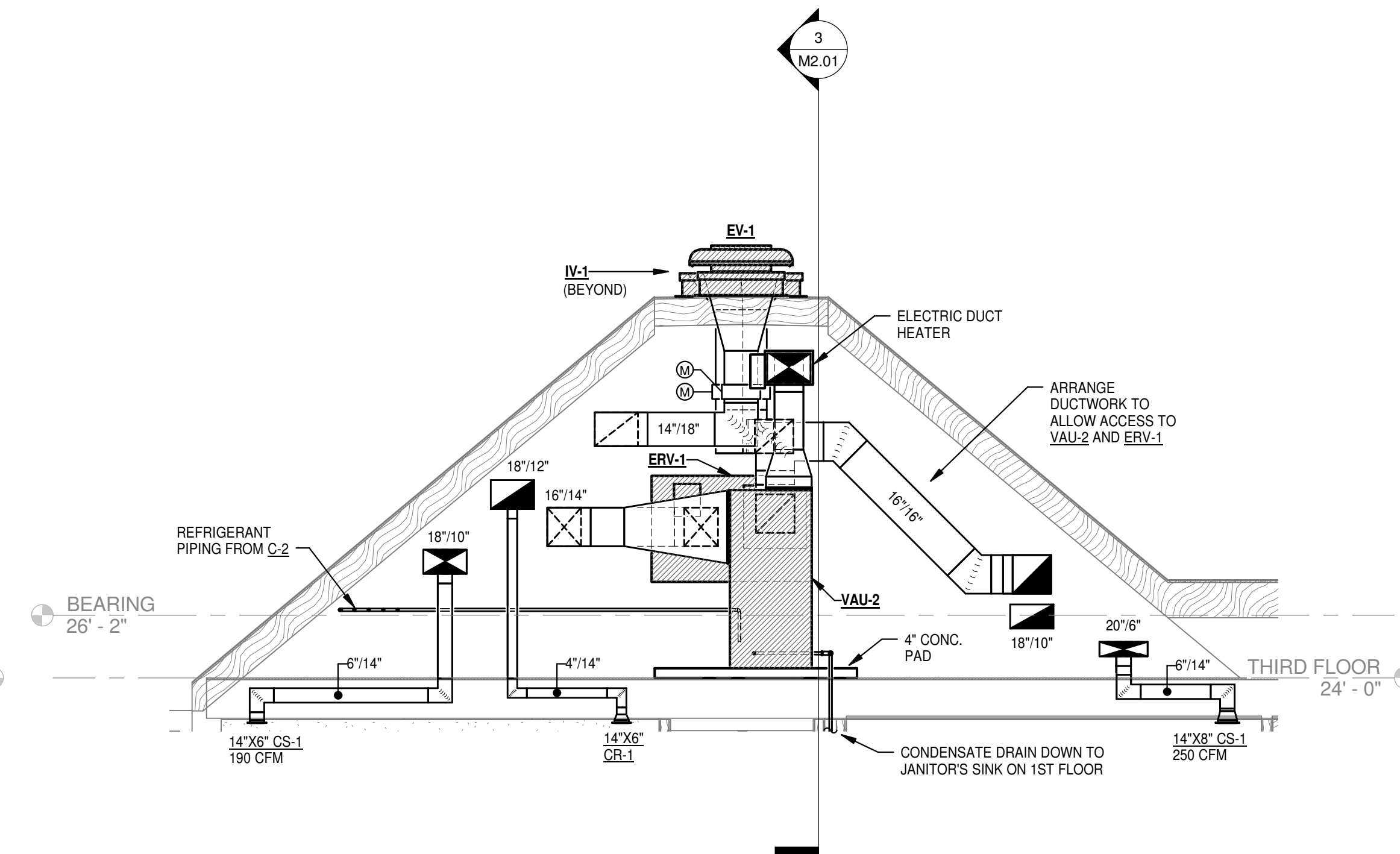
**1 SECTION @ BASEMENT**  
SCALE: 1/4" = 1'-0"



**3 EAST/WEST SECTION @ VAV-2**  
SCALE: 1/4" = 1'-0"



**2 SECTION @ ATTIC**  
SCALE: 1/4" = 1'-0"



**4 NORTH/SOUTH SECTION @ VAV-2**  
SCALE: 1/4" = 1'-0"

IDIQ TAB REQUEST FOR QUALIFICATIONS

## EXAMPLE PROJECT #2

UNIVERSITY OF ARKANSAS - FAYETTEVILLE

JOB NO. 20-120

DESIGN TJJ

DATE 03/19/2021

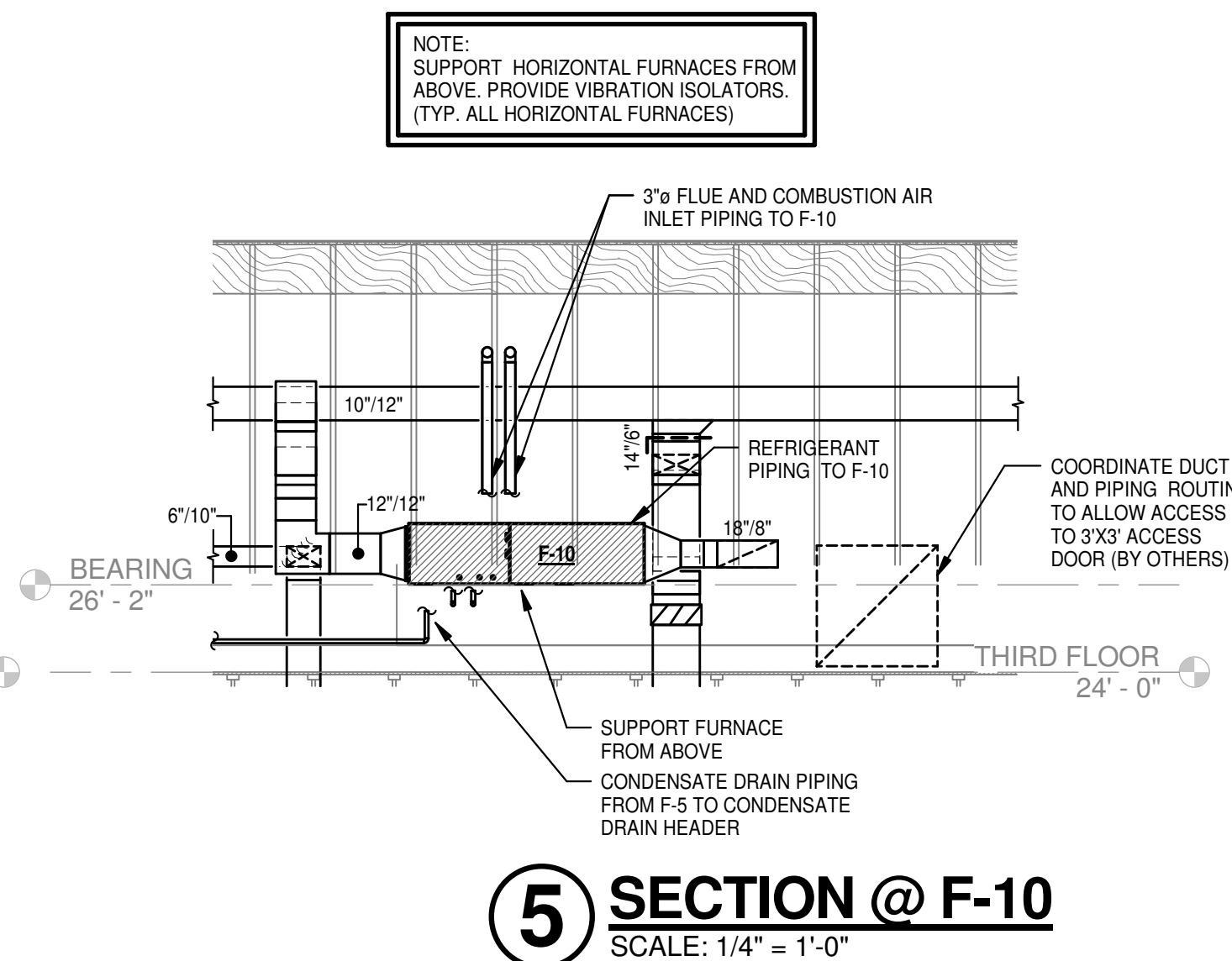
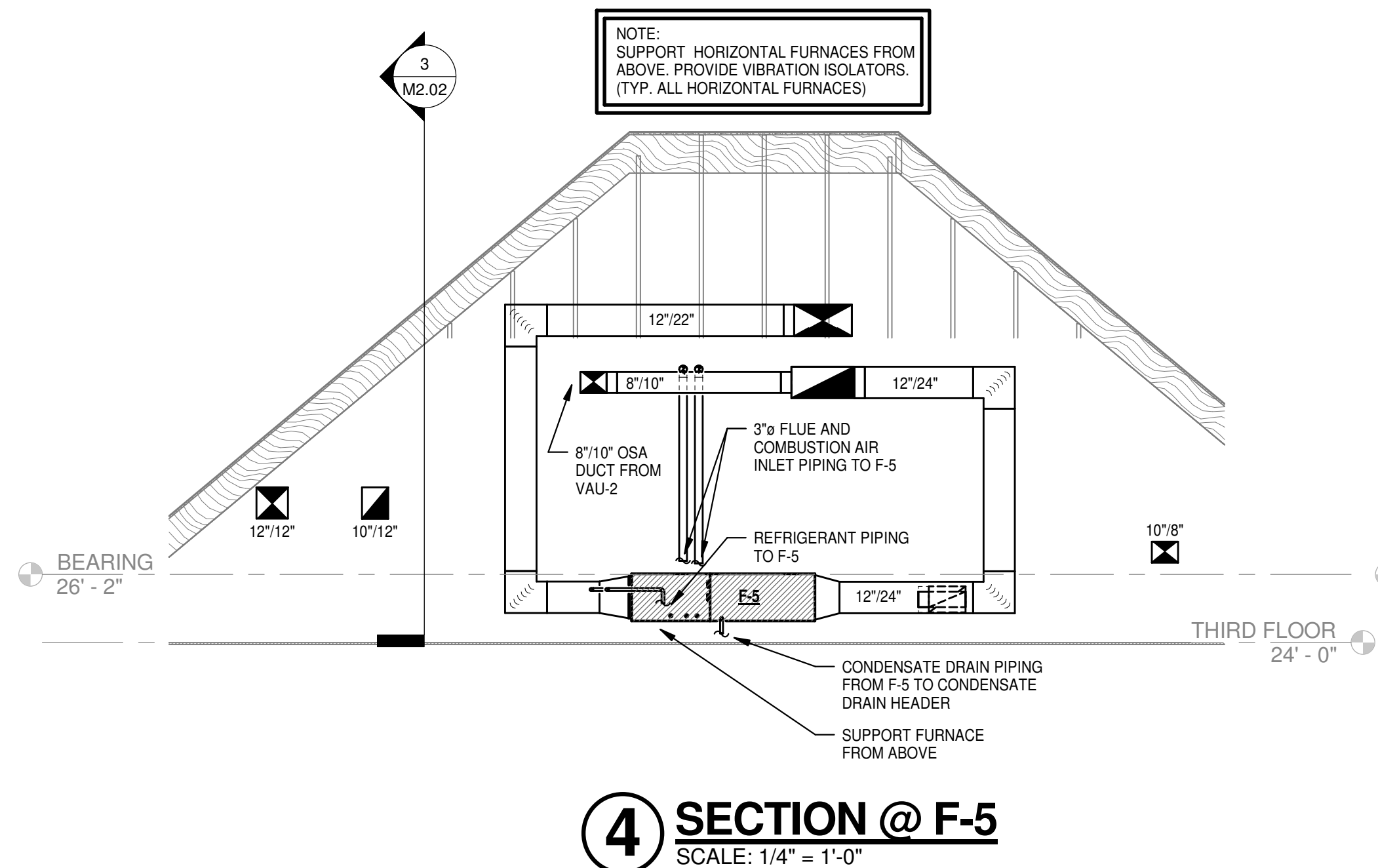
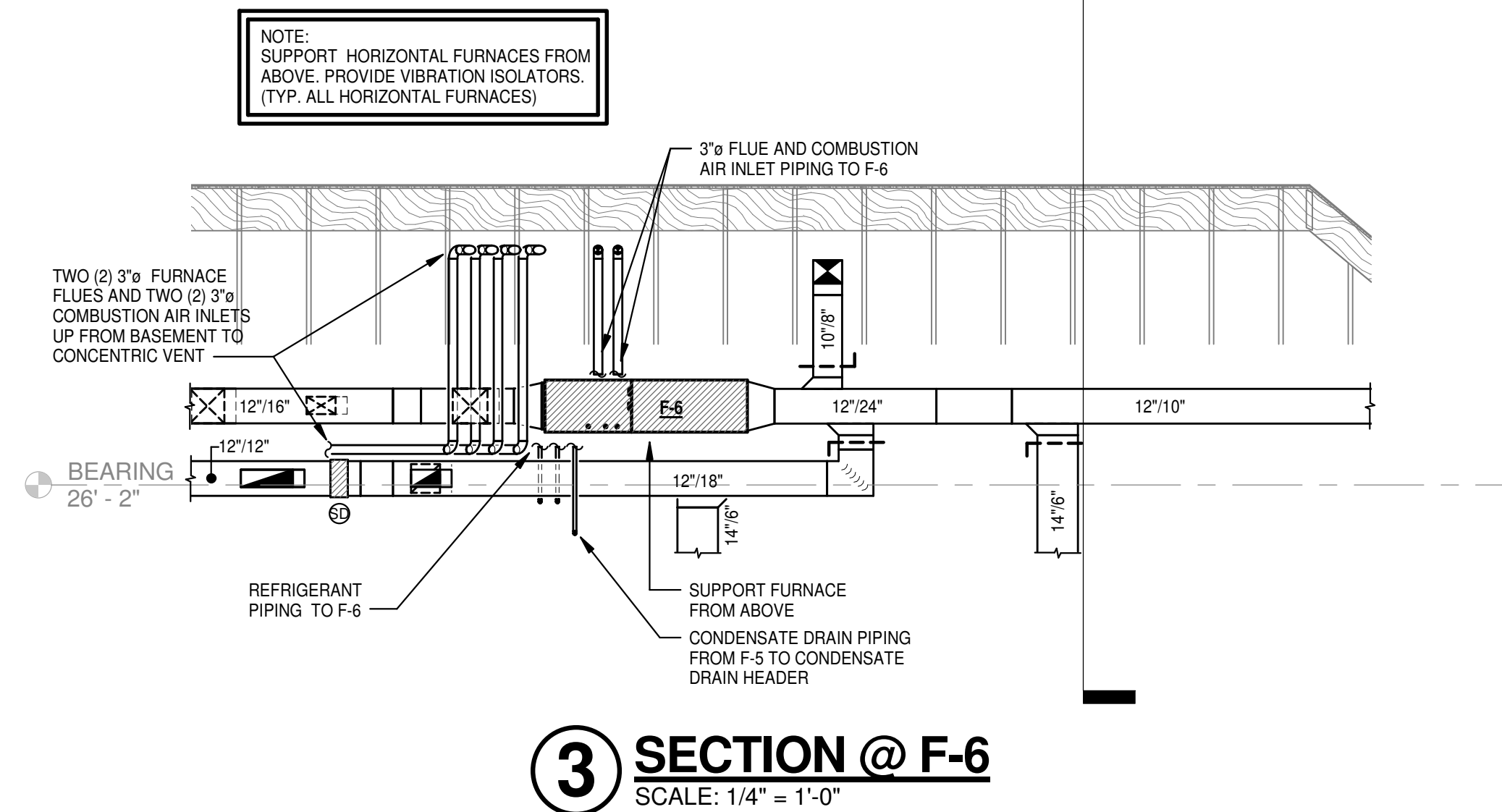
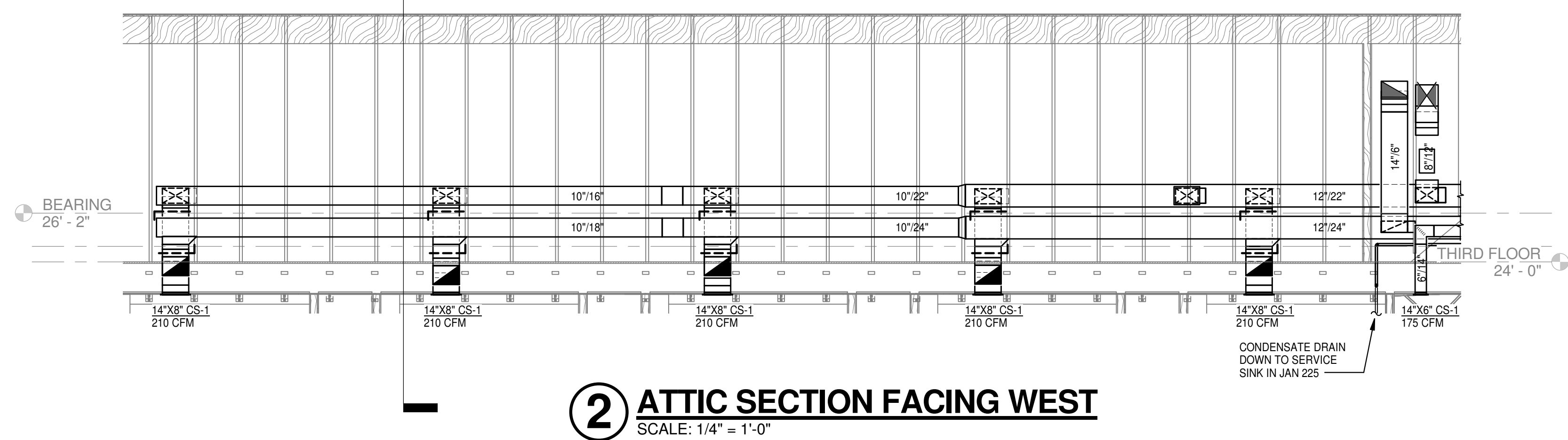
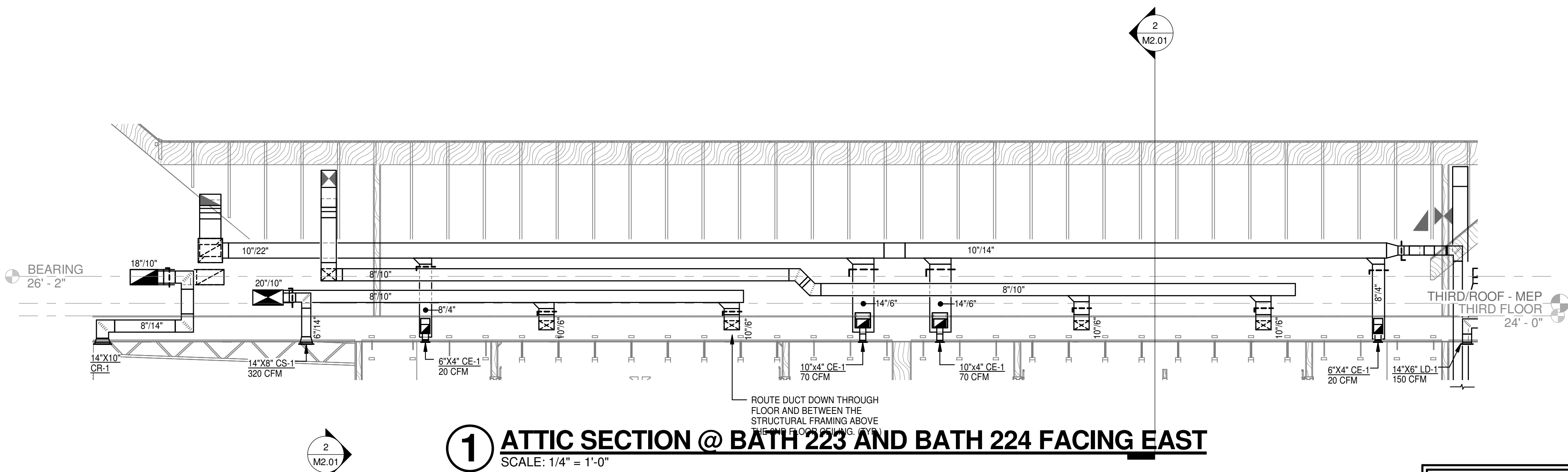
SHEET NO.

M2.01

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HVAC SECTIONS



HOOD INFORMATION

HOOD NO.	TAG	MODEL	LENGTH	MAX. COOKING TEMP.	EXHAUST PLENUM							MUA CFM	AC CFM	HOOD CONSTRUCTION	HOOD CONFIG.	
					TOTAL EXH. CFM	WIDTH	LENGTH	HEIGHT	DIA.	CFM	VEL.	S.P.			END TO END	ROW
1	KH-1	5424 ND-2-ACPSP-F	16' 0.00"	600 Deg	3000			4"	12"	1500	1910	-0.680"	2700	690	430 SS Where Exposed	ALONE
2	KH-2	3624 VHB-G	6' 0.00"	700 Deg	700			4"	8"	350	1003	-0.047"	0	0	430 SS 100%	ALONE

HOOD INFORMATION

HOOD NO.	TAG	TYPE	FILTER(S)				LIGHT(S)				UTILITY CABINET(S)				FIRE SYSTEM PIPING	HOOD HANGING WGT
			QTY	HEIGHT	LENGTH	EFFICIENCY @ 7 MICRONS	QTY	TYPE	WIRE GUARD	LOCATION	TYPE	SIZE	MODEL #	QUANTITY		
1	KH-1	Capitate Solo Filter	12	20"	16"	85% See Filter Spec.	5	LSS Series E26	NO	Right	Electric Wet Chemical	3.0/3.0	DOV-1111	1 Light 1 Fan	YES	1207 LBS
2	KH-2						0								NO	182 LBS

HOOD OPTIONS

HOOD NO.	TAG	OPTION
1	KH-1	FIELD WRAPPER 16.00" High Front, Left, Right BACKSPLASH 122.00" High X 222.00" Long 430 SS Vertical RIGHT VERTICAL END PANEL 27" Top Width, 21" Bottom Width, 80" High Insulated 430 SS SENSOR-OV MOUNT SENSOR(S) IN HOOD CAPTURE VOLUME LEFT WIDE VERTICAL END PANEL 42" Top Width, 36" Bottom Width, 80" High Insulated 430 SS
2	KH-2	FIELD WRAPPER 16.00" High Front, Left, Right

PERFORATED SUPPLY PLENUM(S)

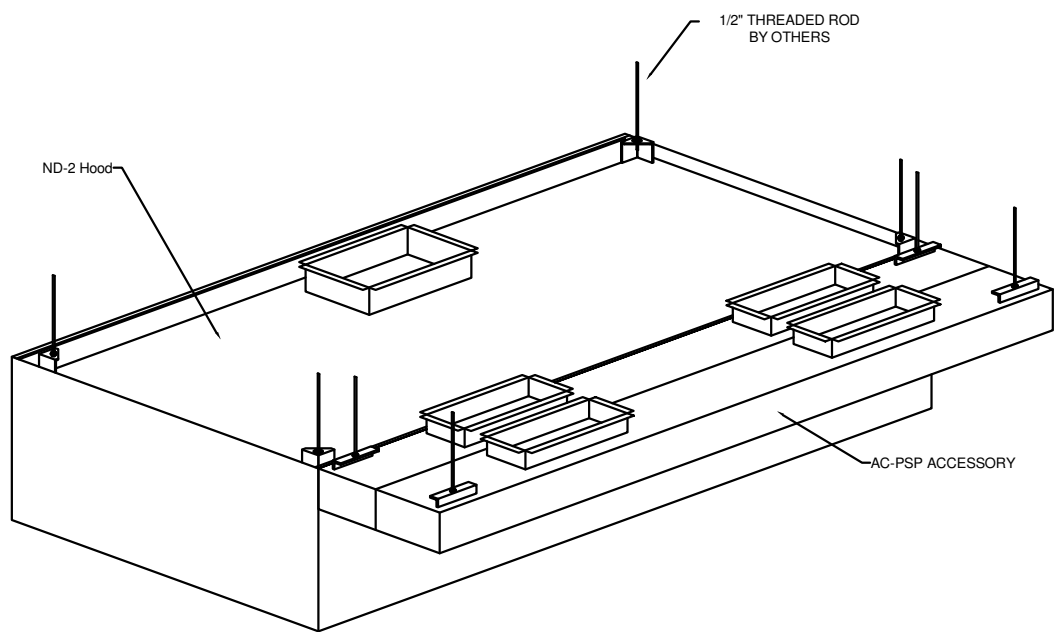
HOOD NO.	TAG	POS.	LENGTH	WIDTH	HEIGHT	TYPE	RISER(S)				
							WIDTH	LENGTH	DIA.	CFM	S.P.
1	KH-1	Front	204"	24"	6"	MUA	12"	24"		675	0.202"
						MUA	12"	24"		675	0.202"
						MUA	12"	24"		675	0.202"
						MUA	12"	24"		675	0.202"
						AC	8"	115	0.042"		
						AC	8"	115	0.042"		
						AC	8"	115	0.042"		
						AC	8"	115	0.042"		
						AC	8"	115	0.042"		
						AC	8"	115	0.042"		

SUPPLY RISER SUPPLIED BY DEDICATED OUTSIDE AIR UNIT MAU-1

HVAC RISER SUPPLIED BY HVAC RTU UNIT

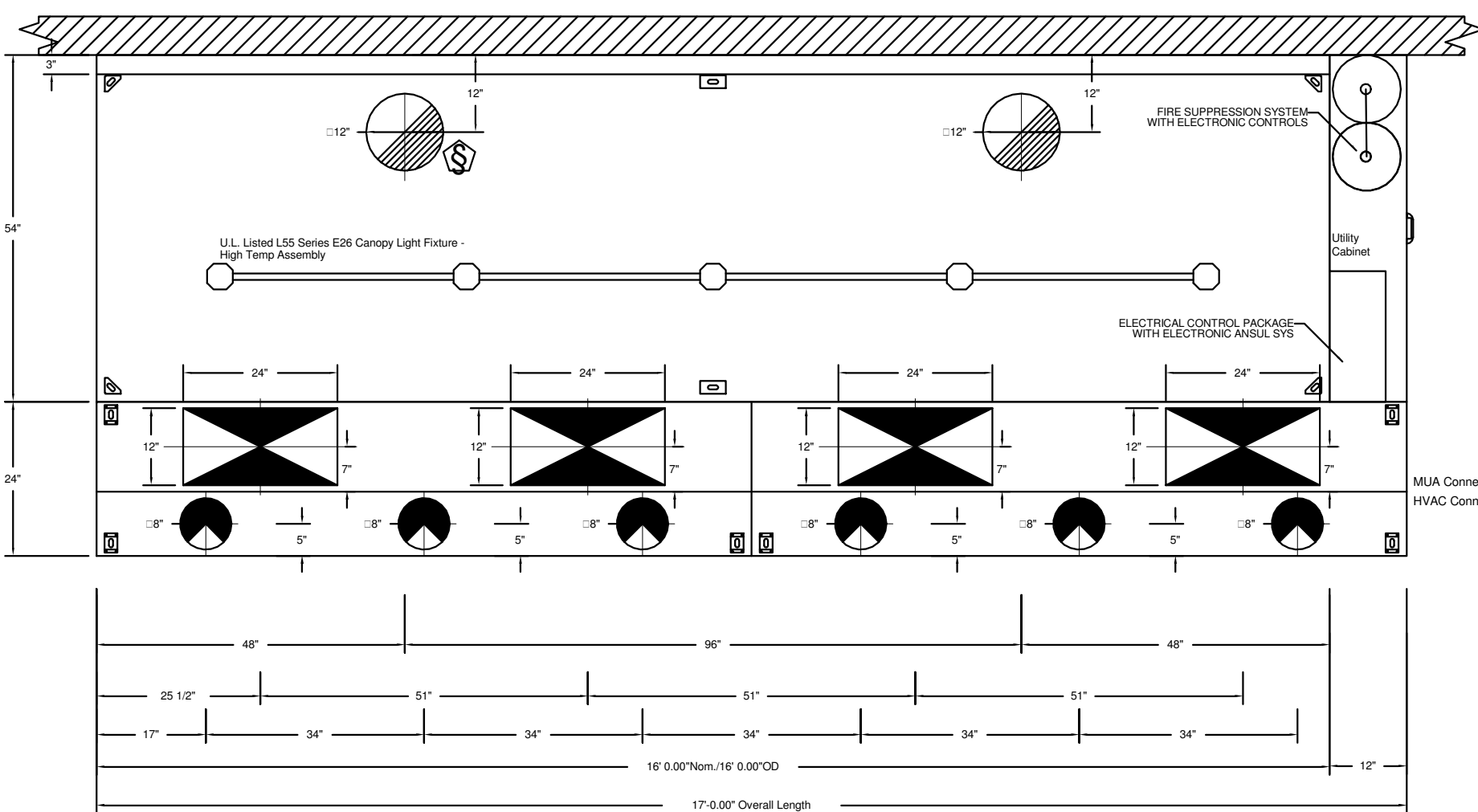
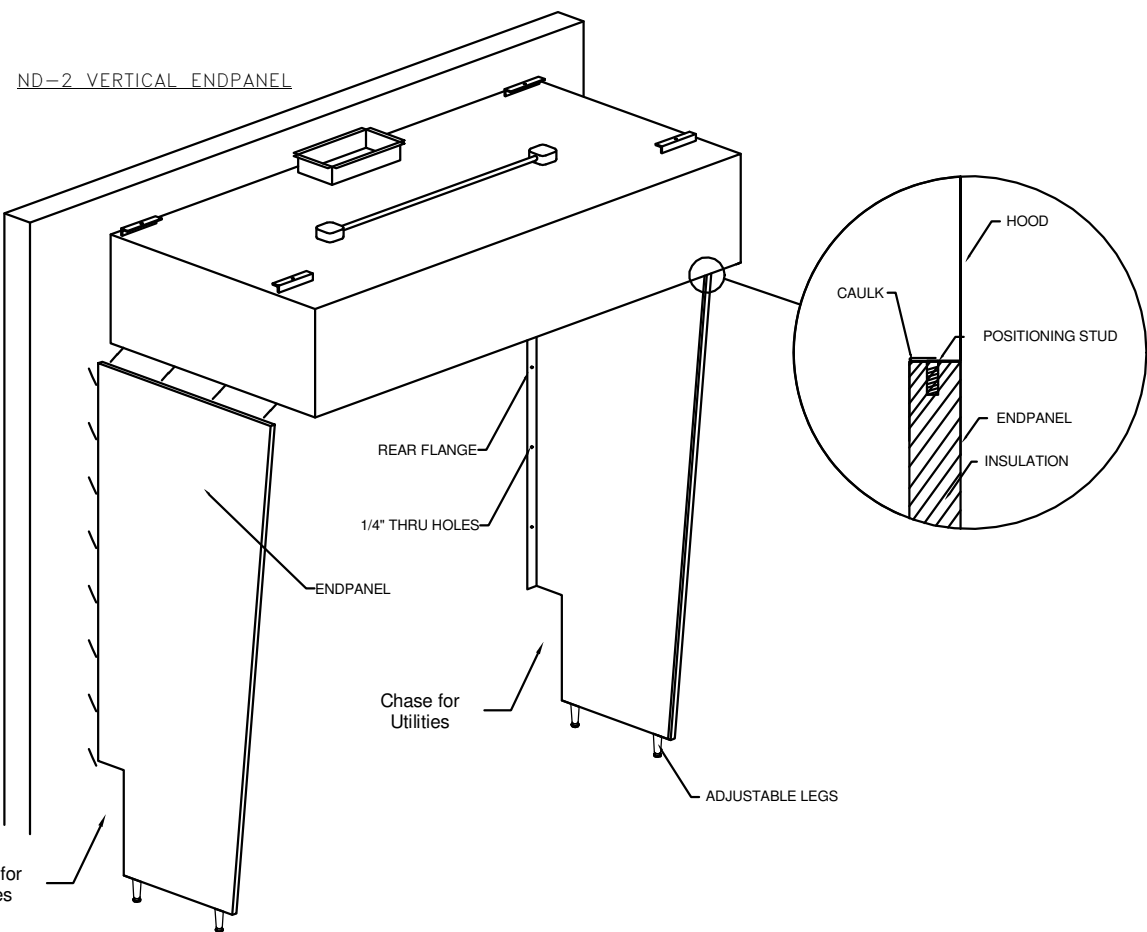
Fire System Information

FIRE SYSTEM NO.	Tag	TYPE	SIZE	FLOW POINTS	INSTALLATION	
					SYSTEM	LOCATION ON HOOD
1	Electronic Anal	Electric Wet Chemical	3.0/3.0	2	Fire Cabinet Right	Right



AC-PSP INSTALLATION IN FRONT OF MODEL ND2

ND-2 VERTICAL ENDPANEL

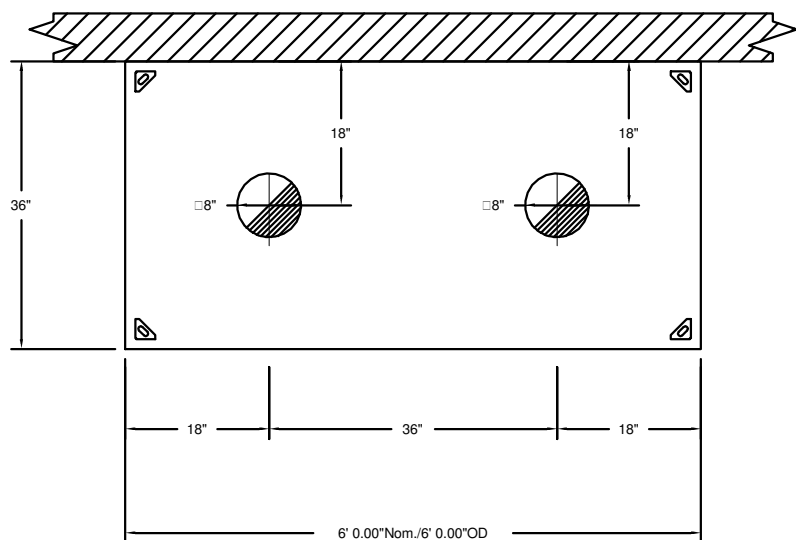


PLAN VIEW - Hood #1 (KH-1)

16' 0.00" LONG 5424ND-2-ACPSP-F

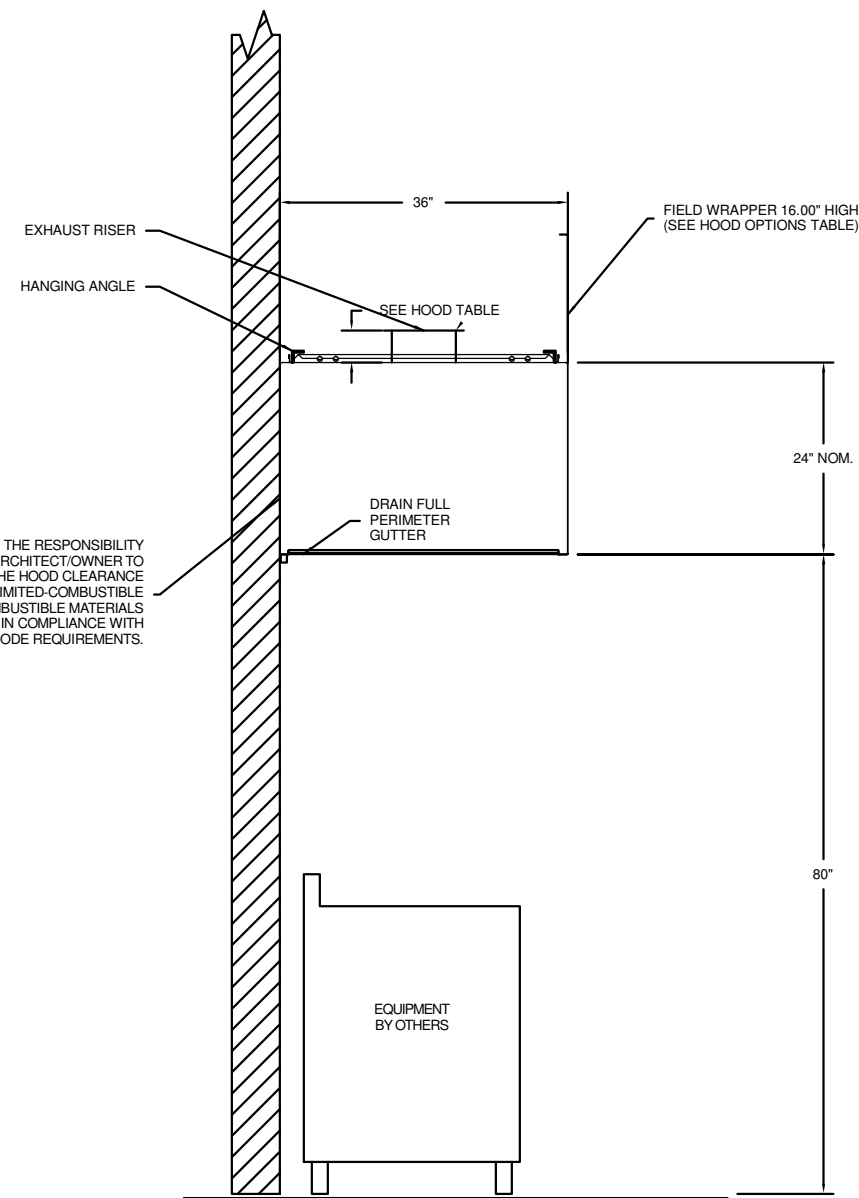
NOTE: Additional hanging angles provided for hoods 12' and longer.

AC-PSP ships loose for field installation



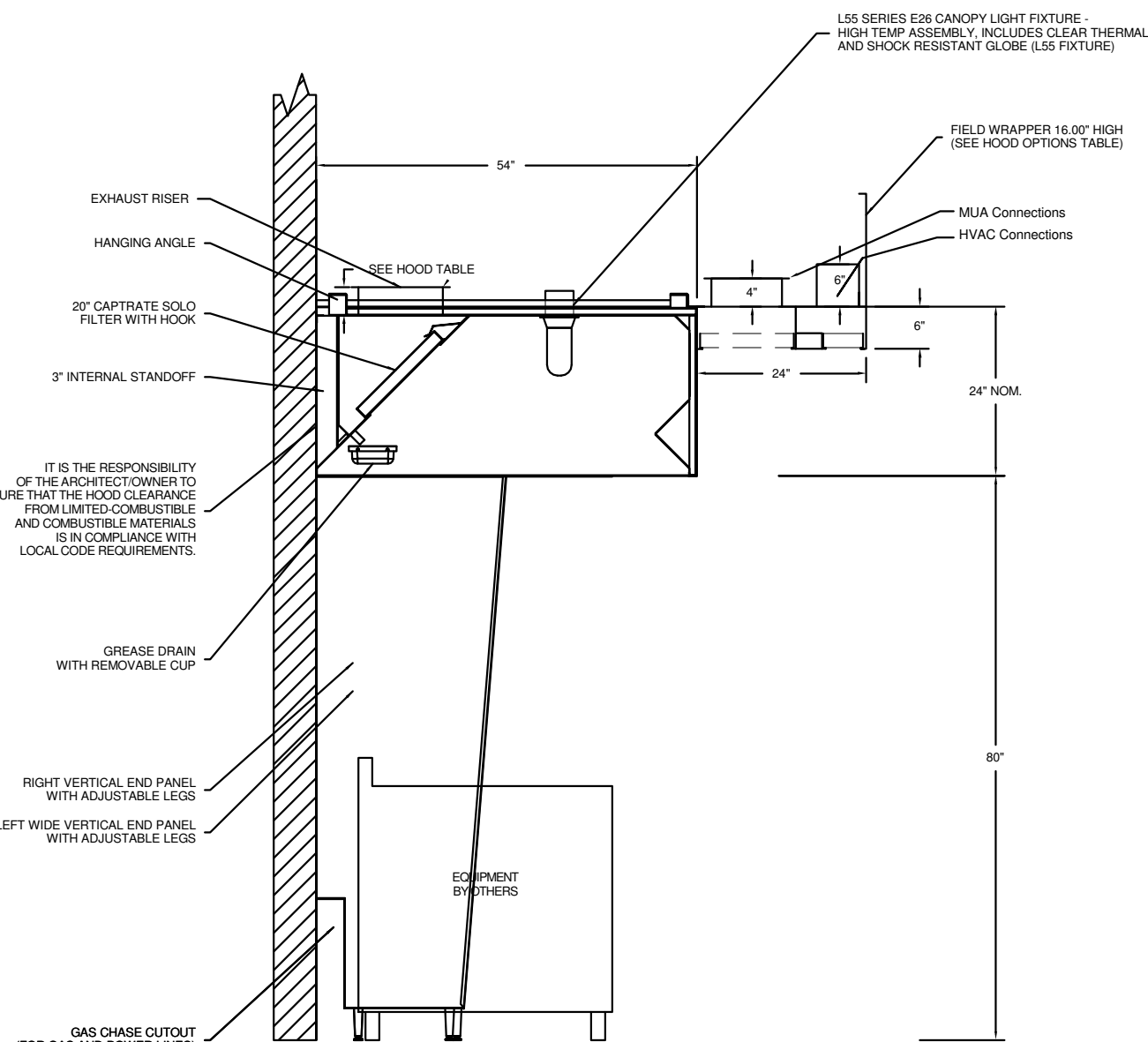
PLAN VIEW - Hood #2 (KH-2)

6' 0.00" LONG 3624VHR-G



SECTION VIEW - MODEL 3624VHR-G

HOOD - #2 (KH-2)



SECTION VIEW - MODEL 5424ND-2-ACPSP-F

HOOD - #1 (KH-1)

IDIQ TAB REQUEST FOR QUALIFICATIONS

EXAMPLE PROJECT #2

UNIVERSITY OF ARKANSAS - FAYETTEVILLE

Pettit Consulting Engineers, Inc.

201 EAST MARKHAM STREET, SUITE 400 | LITTLE ROCK, AR 72201-1631 | 501.374.3731 | WWW.PETTITINC.COM

JOB NO. 20-120

DESIGN TJJ

DATE 03/19/2021

SHEET NO.

M3.03

HVAC DETAILS



MINI-SPLIT INDOOR A/C UNIT SCHEDULE																				
DESIG.	MFR/MDL	TYPE	LOCATION	CFM	OSA	ESP	DIMENSIONS	WEIGHT	COOLING			HEATING			REFRIGERANT PIPE SIZE		ELECTRICAL DATA			REMARKS
									CAPACITY	INDOOR	OUTDOOR	CAPACITY	INDOOR	OUTDOOR	GAS	LIQUID	MCA	MOCP	VOLT/PHASE	
IMS-1	DAIKIN / FAQ18PVJU	WALL-MOUNTED EXPOSED CABINET	MECH 216	400 LOW 500 HIGH	--	0.00"	11-3/8" X 41-3/8" X 9"	31 LBS.	18,000 BTU/H	80° d.b. 67° w.b.	95° d.b.	20,000 BTU/H	70° d.b.	47° d.b.	5/8"	3/8"	-	-	208-230v / 1	PROVIDE T-STAT & MOUNTING BRACKET. PROVIDE CONDENSATE OVERFLOW SAFETY CUT-OFF SWITCH.
IMS-2	DAIKIN / CTXS12HVJU	WALL-MOUNTED EXPOSED CABINET	ELEC. 003	285 LOW 390 HIGH	--	0.00"	11-7/16" X 31-5/16" X 9-3/8"	20 LBS.	12,000 BTU/H	80° d.b. 67° w.b.	95° d.b.	11,500 BTU/H	70° d.b.	47° d.b.	3/8"	1/4"	-	-	208-230v / 1	PROVIDE T-STAT & MOUNTING BRACKET. PROVIDE CONDENSATE OVERFLOW SAFETY CUT-OFF SWITCH.
IMS-3	DAIKIN / CTXS12HVJU	WALL-MOUNTED EXPOSED CABINET	ART 002	285 LOW 390 HIGH	--	0.00"	11-7/16" X 31-5/16" X 9-3/8"	20 LBS.	12,000 BTU/H	80° d.b. 67° w.b.	95° d.b.	11,500 BTU/H	70° d.b.	47° d.b.	3/8"	1/4"	-	-	208-230v / 1	PROVIDE T-STAT & MOUNTING BRACKET. PROVIDE CONDENSATE OVERFLOW SAFETY CUT-OFF SWITCH.

MINI-SPLIT CONDENSING UNIT SCHEDULE																					
DESIG.	MFR/MDL	TYPE	SERVES	DIMENSIONS	WEIGHT	COOLING			HEATING			FAN DATA			COMPRESSOR DATA			ELECTRICAL DATA			REMARKS
						CAPACITY	INDOOR	OUTDOOR	CAPACITY	INDOOR	OUTDOOR	TYPE / QTY	CFM	KW	TYPE	MOTOR KW	HEATER KW	MCA	MOCP	VOLT/PHASE	
OMS-1	DAIKIN / RZQ18PVJU	AIR COOLED	IMS-1	30-5/16" X 35-7/16" X 12-5/8"	150 LBS.	18,000	80° d.b. 67° w.b.	95° d.b.	20,000 BTU/H	70°	47°	PROP / 1	2,062	-	DC INV-TWIN ROTARY	1.92 COOLING 2.73 HEATING	--	16.5	20	208-230v / 1	INDOOR AND OUTDOOR UNIT POWERED THRU OUTDOOR UNIT. VERIFY WITH MANUFACTURER'S INSTRUCTIONS.
OMS-2	DAIKIN / 3MXS24JVJU	AIR COOLED	IMS-2 AND IMS-3	30-5/16" X 35-7/16" X 12-5/8"	168 LBS.	24,000	80° d.b. 67° w.b.	95° d.b.	23,600 BTU/H	70°	47°	PROP / 1	2,062	-	DC INV-TWIN ROTARY	1.92 COOLING 2.73 HEATING	--	17.8	20	208-230v / 1	INDOOR AND OUTDOOR UNIT POWERED THRU OUTDOOR UNIT. VERIFY WITH MANUFACTURER'S INSTRUCTIONS.

GAS FIRED FURNACE SCHEDULE																							
DESIG.	MFR/MDL	TYPE	CFM	OSA	ESP	FAN DIA.xWID.	DRIVE	HP	HEATING SECTION						EVAPORATOR				ELECTRICAL DATA			REMARKS	
									INPUT MBH	OUTPUT MBH	FUEL	EAT	LAT	AFUE	TOTAL MBH	SENS. MBH	EAT	LAT	MODEL	MCA	MOCP		VOLT/PHASE
F-1	DAIKIN/DM97MC1005CN	VERTICAL CONDENSING	1,750	--	0.5"	--	DIRECT	1/2	100.0	115.2	NAT. GAS	60°	+110°	96.0	57	--	75° d.b. 63° w.b.	55° d.b. 55° w.b.	FULLY CASSED	15.4	20	120V/1ø	SEE SPECIFICATIONS. PROVIDE SEPARATE FLUE AND COMBUSTION AIR TERMINATIONS.
F-2	DAIKIN/DM97MC1005CN	VERTICAL CONDENSING	1,750	--	0.5"	--	DIRECT	1/2	100.0	115.2	NAT. GAS	60°	+110°	96.0	57	--	75° d.b. 63° w.b.	55° d.b. 55° w.b.	FULLY CASSED	15.4	20	120V/1ø	SEE SPECIFICATIONS. PROVIDE SEPARATE FLUE AND COMBUSTION AIR TERMINATIONS.
F-3	DAIKIN/DM97MC1005CN	VERTICAL CONDENSING	1,750	--	0.5"	--	DIRECT	1/2	100.0	115.2	NAT. GAS	60°	+110°	96.0	57	--	75° d.b. 63° w.b.	55° d.b. 55° w.b.	FULLY CASSED	15.4	20	120V/1ø	SEE SPECIFICATIONS. PROVIDE SEPARATE FLUE AND COMBUSTION AIR TERMINATIONS.
F-4	DAIKIN/DM97MC0603BN	VERTICAL CONDENSING	960	--	0.5"	--	DIRECT	1/2	60.0	57.6	NAT. GAS	60°	+110°	96.0	57	--	75° d.b. 63° w.b.	55° d.b. 55° w.b.	FULLY CASSED	8.8	20	120V/1ø	SEE SPECIFICATIONS. PROVIDE SEPARATE FLUE AND COMBUSTION AIR TERMINATIONS.
F-5	DAIKIN/DC97MC1005DN	HORIZONTAL CONDENSING	1,750	295	0.5"	--	DIRECT	1/2	100.0	115.2	NAT. GAS	60°	+110°	96.0	57	--	75° d.b. 63° w.b.	55° d.b. 55° w.b.	FULLY CASSED	15.4	20	120V/1ø	SEE SPECIFICATIONS. PROVIDE CONCENTRIC FLUE/VENT.
F-6	DAIKIN/DC97MC1005DN	HORIZONTAL CONDENSING	1,750	320	0.5"	--	DIRECT	1/2	100.0	115.2	NAT. GAS	60°	+110°	96.0	57	--	75° d.b. 63° w.b.	55° d.b. 55° w.b.	FULLY CASSED	15.4	20	120V/1ø	SEE SPECIFICATIONS. PROVIDE CONCENTRIC FLUE/VENT.
F-7	DAIKIN/DC97MC1005DN	HORIZONTAL CONDENSING	1,750	265	0.5"	--	DIRECT	1/2	100.0	115.2	NAT. GAS	60°	+110°	96.0	57	--	75° d.b. 63° w.b.	55° d.b. 55° w.b.	FULLY CASSED	15.4	20	120V/1ø	SEE SPECIFICATIONS. PROVIDE CONCENTRIC FLUE/VENT.
F-8	DAIKIN/DC97MC1005DN	HORIZONTAL CONDENSING	1,750	310	0.5"	--	DIRECT	1/2	100.0	115.2	NAT. GAS	60°	+110°	96.0	57	--	75° d.b. 63° w.b.	55° d.b. 55° w.b.	FULLY CASSED	15.4	20	120V/1ø	SEE SPECIFICATIONS. PROVIDE CONCENTRIC FLUE/VENT.
F-9	DAIKIN/DC97MC1005DN	HORIZONTAL CONDENSING	1,750	210	0.5"	--	DIRECT	1/2	100.0	115.2	NAT. GAS	60°	+110°	96.0	57	--	75° d.b. 63° w.b.	55° d.b. 55° w.b.	FULLY CASSED	15.4	20	120V/1ø	SEE SPECIFICATIONS. PROVIDE CONCENTRIC FLUE/VENT.
F-10	DAIKIN / DC97VC0603BN	HORIZONTAL CONDENSING	700	100	0.5"	--	DIRECT	1/2	60.0	57.6	NAT. GAS	60°	+110°	96.0	23.6	--	75° d.b. 63° w.b.	55° d.b. 55° w.b.	FULLY CASSED	8.8	20	120V/1ø	SEE SPECIFICATIONS. PROVIDE CONCENTRIC FLUE/VENT.
F-11	DAIKIN / DM97VC0603BN	VERTICAL CONDENSING	700	--	0.5"	--	DIRECT	1/2	60.0	57.6	NAT. GAS	60°	+110°	96.0	23.6	--	75° d.b. 63° w.b.	55° d.b. 55° w.b.	FULLY CASSED	8.8	20	120V/1ø	SEE SPECIFICATIONS. PROVIDE CONCENTRIC FLUE/VENT.

OUTDOOR CONDENSING UNIT SCHEDULE										
DESIG.	CONDENSING UNIT				COMB. RATING		ELECTRICAL			REMARKS
	MFR/MDL	TYPE	OSA AMBIENT	SERVES	TOTAL	SENS	VOLTS/PHASE	MCA	MOCP	
CU-1	DAIKIN/ DX18TC0601A	AIR- COOLED	95°	F-1	57 MBH	-- MBH	208-230/1ø	36.7	60	PROVIDE R-410A, VIBRATION ISOLATORS, CONDENSER COIL GUARDS, AND LOW AMBIENT CONTROLS
CU-2	DAIKIN/ DX18TC0601A	AIR- COOLED	95°	F-2	57 MBH	-- MBH	208-230/1ø	36.7	60	PROVIDE R-410A, VIBRATION ISOLATORS, CONDENSER COIL GUARDS, AND LOW AMBIENT CONTROLS
CU-3	DAIKIN/ DX18TC0601A	AIR- COOLED	95°	F-3	57 MBH	-- MBH	208-230/1ø	36.7	60	PROVIDE R-410A, VIBRATION ISOLATORS, CONDENSER COIL GUARDS, AND LOW AMBIENT CONTROLS
CU-4	DAIKIN/ DX18TC0361A	AIR- COOLED	95°	F-4	35 MBH	-- MBH	208-230/1ø	21.9	35	PROVIDE R-410A, VIBRATION ISOLATORS, CONDENSER COIL GUARDS, AND LOW AMBIENT CONTROLS
CU-5	DAIKIN/ DX18TC0601A	AIR- COOLED	95°	F-5	57 MBH	-- MBH	208-230/1ø	36.7	60	PROVIDE R-410A, VIBRATION ISOLATORS, CONDENSER COIL GUARDS, AND LOW AMBIENT CONTROLS
CU-6	DAIKIN/ DX18TC0601A	AIR- COOLED	95°	F-6	57 MBH	-- MBH	208-230/1ø	36.7	60	PROVIDE R-410A, VIBRATION ISOLATORS, CONDENSER COIL GUARDS, AND LOW AMBIENT CONTROLS
CU-7	DAIKIN/ DX18TC0601A	AIR- COOLED	95°	F-7	57 MBH	-- MBH	208-230/1ø	36.7	60	PROVIDE R-410A, VIBRATION ISOLATORS, CONDENSER COIL GUARDS, AND LOW AMBIENT CONTROLS
CU-8	DAIKIN/ DX18TC0601A	AIR- COOLED	95°	F-8	57 MBH	-- MBH	208-230/1ø	36.7	60	PROVIDE R-410A, VIBRATION ISOLATORS, CONDENSER COIL GUARDS, AND LOW AMBIENT CONTROLS
CU-9	DAIKIN/ DX18TC0601A	AIR- COOLED	95°	F-9	57 MBH	-- MBH	208-230/1ø	36.7	60	PROVIDE R-410A, VIBRATION ISOLATORS, CONDENSER COIL GUARDS, AND LOW AMBIENT CONTROLS
CU-10	DAIKIN/ DX18TC2401A	AIR- COOLED	95°	F-10	23.6 MBH	-- MBH	208-230/1ø	15.2	20	PROVIDE R-410A, VIBRATION ISOLATORS, CONDENSER COIL GUARDS, AND LOW AMBIENT CONTROLS
CU-11	DAIKIN/ DX18TC2401A	AIR- COOLED	95°	F-11	23.6 MBH	-- MBH	208-230/1ø	15.2	20	PROVIDE R-410A, VIBRATION ISOLATORS, CONDENSER COIL GUARDS, AND LOW AMBIENT CONTROLS

ENERGY RECOVERY VENTILATOR SCHEDULE																								
DESIG.	MFR/MDL	SERVES	LOCAT.	TYPE	ENERGY RECOVERY DEVICE PERFORMANCE						O.S.A. INTAKE FAN DATA					EXHAUST FAN DATA					UNIT ELECTRICAL DATA			REMARKS
					SUMMER BUILDING SUPPLY		WINTER BUILDING SUPPLY		INDOOR TEMPERATURE		CFM	S.P.	DRIVE	BHP	HP	CFM	S.P.	DRIVE	HP	HP	MCA	MOCP	VOLT/PH	
					EAT	LAT	EAT	LAT	SUMMER	WINTER														
ERV-1	GREENHECK/ ERV-20-15L	VAU-2	ATTIC	ENTHALPY WHEEL	91.0° d.b. 79.0° w.b.	77.8° d.b. 67.0° w.b.	15.3° d.b. 12.4° w.b.	59.9° d.b. 47.5° w.b.	75.0° d.b. 63.0° w.b.	70.0° d.b. 54.4° w.b.	1,500	0.35"	DIRECT	0.84	1	1,700	0.5"	DIRECT	1.14	1-1/2	13.5	20	208V/3ø	PROVIDE DOUBLE WALL, UL LISTED UNIT WITH FACTORY NON-FUSED DISCONNECT, VIBRATION ISOLATORS, AND 2" 30% FILTERS

















AIR HANDLING UNIT SCHEDULE																								
DESIG.	MFR/MDL	TYPE	NOM. TONS	CFM	UNOCCUPIED OSA	OCCUPIED OSA	ESP	DRIVE	COOLING SECTION					HEATING SECTION						ELECTRICAL DATA			REMARKS	
									EAT	LAT	TOTAL CAPACITY	SENSIBLE CAPACITY	AMBIENT	TYPE	MFR/MDL	TAG	CFM	EAT	LAT	INPUT/ OUTPUT	MCA	MOCP		VOLT/PHASE
VAU-1	ABOVEAIR/ VKE-360D-3-HG0-00-OA-TR-D1-SZV-D	UPFLOW	30	6,500	1,250	4,450	1.0"	BELT	91°F d.b 79°F w.b.	53.1°F d.b 52.1°F w.b.	416.4 MBH	219.3 MBH	95°F	DUCT FURNACE	MODINE/ DFS 400	DF-1	3,900	10°F	+90°F	400 MBH / 320 MBH	139	175	208 / 3ø	PROVIDE TWO INDEPENDENT REFRIGERANT CIRCUITS WITH INTERLACED COIL, HOT GAS REHEAT, FACTORY DISCONNECT, AND 2" MERV 11 FILTERS
VAU-2	ABOVEAIR/ VKE-060D-3-HG0-00-OA-TR-D1	UPFLOW	5	1,500	1,500	1,500	1.5"	BELT	80°F d.b 67°F w.b.	51.7°F d.b 50.7°F w.b.	67.9 MBH	44.3 MBH	95°F	ELECTRIC SCR	ABOVEAIR	--	1,500	55°F	76.5°F	10 KW	65.8	70	208 / 3ø	PROVIDE TWO INDEPENDENT REFRIGERANT CIRCUITS WITH INTERLACED COIL, HOT GAS REHEAT, FACTORY DISCONNECT, AND 2" MERV 11 FILTERS

CONDENSER SCHEDULE											
DESIG.	CONDENSER				RATING W/ COIL			ELECTRICAL			REMARKS
	MFR/MDL	TYPE	OSA AMBIENT	SERVES	TOTAL	SENS	NOMINAL TONS	VOLTS/PH	MCA	MOCP	
CU-1	ABOVEAIR/ WP3-492D-3-00-OA-V-P66	AIR COOLED	95° F	VAU-1	416.4	219.3	30	208 / 1Ø	21.1	25	REFER TO SPECIFICATIONS.
CU-2	ABOVEAIR/ WP1-108-1-00-OA-V-P66	AIR COOLED	95° F	VAU-2	67.9	44.3	5	208 / 1Ø	5.9	15	REFER TO SPECIFICATIONS.

LOUVER SCHEDULE										
DESIG.	MFR./MDL.	TYPE	SERVES	CFM	S.P.	SIZE	VELOCITY FPM	FINISH	REMARKS	
L-1 AND L-3	AMERICAN WARMING AND VENTILATING / LE-33	6" DEEP 45° FIXED DRAINABLE	VAU-1 AND MAU-1 INTAKE	--	--	36"W x 36"H	--	KYNAR	PROVIDE WITH BIRD SCREEN. COLOR BY ARCHITECT.	
L-2	AMERICAN WARMING AND VENTILATING / LE-33	6" DEEP 45° FIXED DRAINABLE	VAU-2 INTAKE	--	--	72"W x 36"H	--	KYNAR	PROVIDE WITH BIRD SCREEN. COLOR BY ARCHITECT.	

AIR DEVICE SCHEDULE							
DESIG.	MFR./MDL.	TYPE	FACE SIZE	FINISH	FREE AREA	ACCESS.	REMARKS
CD-1	TITUS TMS	LOUVER FACE CEILING SUPPLY	AS NOTED	WHITE	---	OPPOSED BLADE DAMPER	ROUND NECK
CD-2	CAPTIVEAIRE D1-PSP	PERF. FACE CEILING SUPPLY	AS NOTED	WHITE	---	OPPOSED BLADE DAMPER	ROUND NECK
SG-1	TITUS 300RS	SIDEWALL SUPPLY	AS NOTED	COORDINATE WITH ARCHITECT	---	OPPOSED BLADE DAMPER	PROVIDE WITH 3/4" SPACED BLADES, 22.5" DEFLECTION, FRONT BLADES PARALLEL TO SHORT DIMENSION
CS-1	HART / COOLEY 683	CEILING 3-WAY SUPPLY	AS NOTED	WHITE	---	OPPOSED BLADE DAMPER	PROVIDE WITH 1/2" SPACED BLADES, 40 DEFLECTION
LD-1	TITUS CT-541	LINEAR BAR SIDEWALL SUPPLY	AS NOTED	COORDINATE WITH ARCHITECT	---	OPPOSED BLADE DAMPER	PROVIDE WITH 1/4" THICK BARS, 1/2" SPACING WIDTH, 15 DEGREE DEFLECTION, FRAME AND BORDER TYPE 4 FOR SIDEWALL / CEILING INSTALLATION
FG-1	TITUS CT-541	LINEAR BAR SIDEWALL SUPPLY	AS NOTED	COORDINATE WITH ARCHITECT	---	OPPOSED BLADE DAMPER	PROVIDE WITH 1/4" THICK BARS, 1/2" SPACING WIDTH, 15 DEGREE DEFLECTION, FRAME AND BORDER TYPE 6 FOR SIDEWALL / CEILING INSTALLATION
RA-1	TITUS PAR	PERF. FACE CEILING RETURN	AS NOTED	WHITE	51%	OPPOSED BLADE DAMPER	ROUND NECK
ER-1	TITUS PAR	PERF. FACE CEILING EXHAUST	AS NOTED	WHITE	51%	OPPOSED BLADE DAMPER	ROUND NECK
SR-1	TITUS CT-541	SIDEWALL RETURN	AS NOTED	WHITE	---	OPPOSED BLADE DAMPER	PROVIDE WITH 1/4" THICK BARS, 1/2" SPACING WIDTH, 15° DEFLECTION, FRAME AND BORDER TYPE 4 FOR SIDEWALL / CEILING INSTALLATION. PROVIDE PAINT GRADE CONSTRUCTION WITH PRIMED FINISH.
SR-2	WORTH WPGF	WOOD SIDEWALL RETURN	AS NOTED	PRIMER	70%	---	
SR-3	TITUS 350RL	SIDEWALL RETURN	AS NOTED	WHITE	---	---	
CR-1	HART / COOLEY 672	CEILING RETURN	AS NOTED	WHITE	---	---	
IV-1	COOK / PR 24	ROOF MOUNTED INTAKE VENTILATOR	AS NOTED	ALUMINUM	---	---	PROVIDE WITH ROOF CURB AND BIRD SCREEN.
EV-1	COOK / PR 24	ROOF MOUNTED EXHAUST VENTILATOR	AS NOTED	ALUMINUM	---	---	PROVIDE WITH ROOF CURB AND BIRD SCREEN.

EXHAUST FAN SCHEDULE																
DESIG.	MFR/MDL	SERVES	LOCAT.	TYPE	FAN DATA							MOTOR DATA				REMARKS
					CFM	S.P.	RPM	DRIVE	TYPE	DIA.	SONES	RPM	BHP	HP	VOLT/PH	
EF-1	COOK / GC-146	BATH 130	CEILING	INLINE	70	0.35"	846	DIRECT	CENT.	---	1.5	1,750	32.2 W	--	120 / 1ø	PROVIDE STEEL GRILLE, DISCONNECT, AND WALL CAP W/ BACKDRAFT DAMPER.

DUCTWORK LEGEND	
	CEILING DIFFUSER (CD)
	RETURN AIR GRILLE (RA)
	EXHAUST REGISTER (ER)
	624 CD-1 100 CFM FLEXIBLE DUCT CONNECTOR
	TURNING VANES
	SPLITTER DAMPER (TEE)
	INTERNALLY INSULATED DUCT
	EXTRACTOR
	MANUAL DAMPER
	FIRE DAMPER AND ACCESS DOOR (SMOKE DAMPER S.D. SIMILAR)
	CONDENSATE DRAIN PIPING
	REFRIGERANT SUCTION AND LIQUID PIPES
	DIAMETER
	THERMOSTAT (WITH UNIT NUMBER)
	1 M-1 DETAIL
	2 M-2 SECTION
TOP NUMBER REFERS TO THE DETAIL NUMBER. BOTTOM NUMBER REFERS TO THE SHEET WHERE DETAIL IS SHOWN	

HVAC GENERAL NOTES	
1.	DUE TO THE SMALL SCALE OF THIS DRAWING, IT IS NOT POSSIBLE TO INDICATE ALL OFFSETS, FITTINGS, AND ACCESSORIES WHICH MAY BE REQUIRED. THE CONTRACTOR SHALL INVESTIGATE THE STRUCTURAL AND FINISH CONDITIONS AFFECTING THE WORK AND SHALL COORDINATE AND ARRANGE HIS WORK ACCORDINGLY.
2.	ROUND BRANCH DUCT RUNOUTS SHALL BE SAME SIZE AS DIFFUSER THROAT UNLESS OTHERWISE NOTED.
3.	FLEXIBLE DUCT MAY BE USED FOR FINAL CONNECTIONS TO DIFFUSERS. A MAXIMUM LENGTH OF THREE FEET (3') SHALL BE USED. A HARD 90° ELBOW MUST BE USED WHERE DUCT TURNS DOWN ABOVE DIFFUSER.
4.	ALL CEILING-MOUNTED SUPPLY DIFFUSERS SHALL HAVE FOUR-WAY (4-WAY) PATTERN UNLESS OTHERWISE INDICATED.
5.	WHERE MANUAL DAMPERS ARE INSTALLED IN EXTERNALLY INSULATED DUCTWORK, PROVIDE STAND-OFF BRACKET TO PREVENT COMPRESSION OF INSULATION BY DAMPER OPERATOR HANDLE.
6.	PROVIDE TURNING VANES IN ALL 90-DEGREE MITERED ELBOWS.
7.	PROVIDE SLEEVES THROUGH WALLS AND FLOORS. SEAL EXCESS OPENING WITH WATER-PROOF SEALANT. COORDINATE LOCATIONS AND SIZES OF SLEEVES WITH GENERAL CONTRACTOR. SLEEVES SHALL PROVIDE A MAXIMUM OF 1" CLEARANCE BETWEEN DUCT OR PIPE AND SLEEVE. SEAL PENETRATION IN FIRE/SMOKE RATED WALLS AND FLOOR WITH AN APPROVED FIRE/SMOKE BLOCK SEALANT.
8.	EXTERNALLY INSULATE SUPPLY, RETURN, RELIEF, AND OUTSIDE AIR DUCTWORK UNLESS NOTED OTHERWISE.
9.	EXHAUST DUCTWORK SHALL BE UN-INSULATED, UNLESS NOTED OTHERWISE
10.	EXTERNALLY INSULATE LOW-VELOCITY ROUND RUNOUT DUCTWORK
11.	DUAL WALL DUCTWORK SHALL BE 1" THICK WITH INSULATION BETWEEN WALLS.
12.	INSULATE THE TOP OF ALL SUPPLY AIR DIFFUSERS WITH A MINIMUM OF 1/2" THICK FIBERGLASS DUCT WRAP.
13.	RUN COOLING COIL CONDENSATE DRAINS FULL SIZE TO NEAREST FLOOR OR ROOF DRAIN.
14.	REFER TO ARCHITECTURAL PLANS FOR LOCATIONS OF FIRE AND SMOKE RATED PARTITIONS.
15.	COORDINATE LOCATION OF DUCTS AND DIFFUSERS WITH STRUCTURAL FRAMING MEMBERS. OFFSET DUCTS AS REQUIRED TO CLEAR STRUCTURAL MEMBERS.
16.	COORDINATE LOCATIONS AND ELEVATION OF DUCT RUNS WITH PLUMBING, SPRINKLER, AND ELECTRICAL CONTRACTORS.
17.	COORDINATE MAKE-UP WATER AND GAS REQUIREMENTS WITH PLUMBING CONTRACTOR.
18.	PROVIDE ACCESS DOORS FOR ALL FIRE DAMPERS. PROVIDE CEILING ACCESS DOORS FOR DAMPERS ABOVE GYPSUM BOARD CEILINGS.
19.	PAINT DUCTWORK BLACK THAT MAY BE VISIBLE ABOVE PARTIAL CEILINGS. COORDINATE PAINTING OF DUCTWORK WITH ARCHITECT.
20.	COORDINATE CEILING DIFFUSER LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLANS.

IDIQ TAB REQUEST FOR QUALIFICATIONS

EXAMPLE PROJECT #2

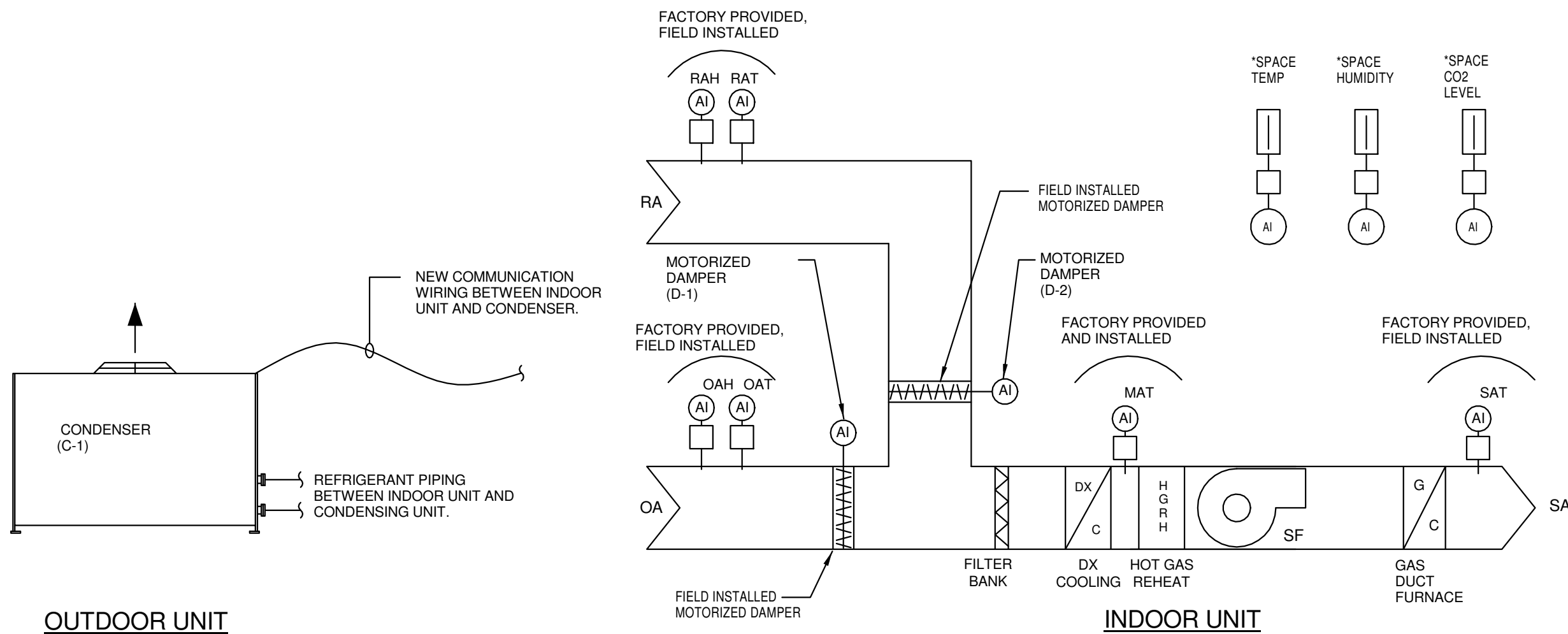
UNIVERSITY OF ARKANSAS - FAYETTEVILLE

JOB NO.	20-120
DESIGN	TJJ
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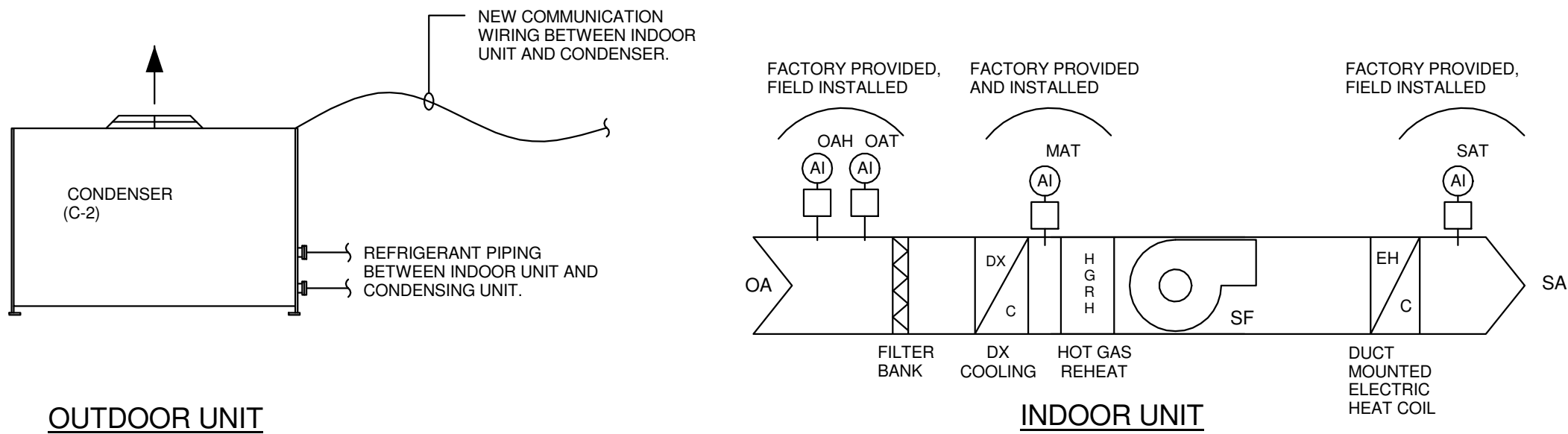
HVAC SCHEDULES



OUTDOOR UNIT

INDOOR UNIT

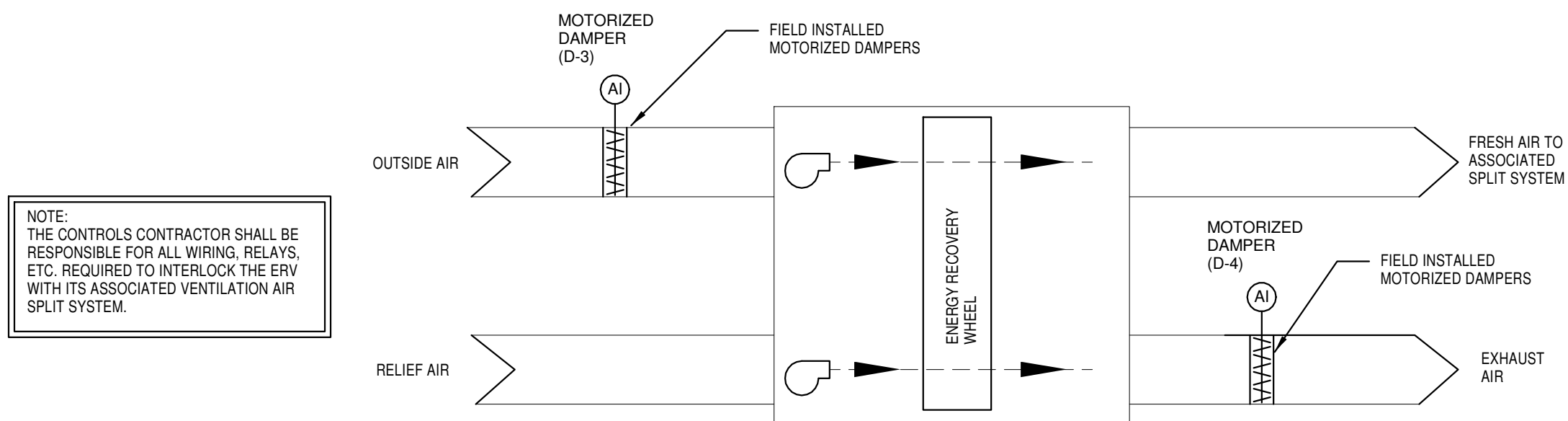
## 1 SINGLE ZONE VAV VENTILATION AIR SPLIT SYSTEM (VAU-1/C-1)



OUTDOOR UNIT

INDOOR UNIT

## 2 VENTILATION AIR SPLIT SYSTEM (VAU-2/C-2)



NOTE:  
THE CONTROLS CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WIRING, RELAYS, ETC. REQUIRED TO INTERLOCK THE ERV WITH ITS ASSOCIATED VENTILATION AIR SPLIT SYSTEM.

## 3 ENERGY RECOVERY VENTILATOR (ERV-1)

## SINGLE ZONE VAV VENTILATION AIR SPLIT SYSTEM SEQUENCE OF OPERATION (VAU-1/C-1)

**UNIT CONTROLS:**  
THE VENTILATION AIR SPLIT SYSTEM SHALL BE PROVIDED WITH EQUIPMENT MANUFACTURER'S UNIT-MOUNTED CONTROLS SYSTEM.

### A. OCCUPIED COOLING MODE

WHEN THE RTU IS IN THE OCCUPIED COOLING MODE, THE SUPPLY FAN SHALL OPERATE CONTINUOUSLY. THE SUPPLY FAN VFD WILL MODULATE AS DESCRIBED BELOW. AND THE COMPRESSORS, AND MOTORIZED DAMPERS D-1 & D-2 WILL MODULATE IN SEQUENCE TO MAINTAIN THE SPACE TEMPERATURE OF 72°F (ADJUSTABLE).

### B. UNOCCUPIED COOLING MODE

WHEN THE RTU IS IN THE UNOCCUPIED MODE, THE SUPPLY FAN WILL BE OFF. THE OUTDOOR AIR DAMPER SHALL BE CLOSED. COOLING SHALL BE DISABLED, AND THE RETURN AIR DAMPER WILL BE OPEN. IF HEATING, COOLING, OR HUMIDITY UNOCCUPIED SET POINT IS NOT MET, THE SUPPLY FAN SHALL BE ENABLED AND DX COOLING, GAS HEAT, OR ECONOMIZER FUNCTIONS SHALL BE UTILIZED AS REQUIRED TO MEET THE UNOCCUPIED SETPOINT.

### C. NIGHT SETBACK / MORNING WARM-UP HEATING MODE

THE RTU SHALL INDEX FROM UNOCCUPIED MODE TO OCCUPIED MODE AT A TIME SO THAT THE SET POINT IS MET DURING THE ENTIRE OCCUPIED HOURS (ADJ.).

### D. SUPPLY FAN CONTROL

THE SUPPLY FAN WILL BE OFF WHENEVER THE UNIT IS IN THE UNOCCUPIED MODE. THE STOP / AUTO INTERLOCK IS OPEN, OR THE SUPPLY FAN STATUS INDICATES A FAILURE (AFTER A TWO MINUTE DELAY). FAN FAILURE REQUIRES A MANUAL RESET. DURING COOLING MODE, THE MINIMUM COOLING CFM IS TO BE 40% DURING OCCUPIED TIMES. DURING HEATING MODE, THE SUPPLY FAN SHALL MODULATE TO 60% AND THE HEATING COIL SHALL MODULATE TO MAINTAIN A SPACE TEMPERATURE OF 72° (ADJ.).

### E. VFD CONTROL

WHEN THE SUPPLY FAN IS ON, VFD WILL SLOWLY RAMP (ADJUSTABLE) UP TO SET POINT DESCRIBED ABOVE.

### F. ECONOMIZER CONTROL

THE ECONOMIZER CYCLE SHALL BE ENABLED BASED ON COMPARATIVE ENTHALPY. THE OUTSIDE AIR DAMPER SHALL NOT BE ALLOWED TO MODULATE BELOW THE OCCUPIED OUTSIDE AIR SET POINT DURING OCCUPIED HOURS.

### G. COOLING CONTROL

WHEN THE RTU IS IN THE COOLING MODE, THE COMPRESSORS WILL STAGE TO MAINTAIN THE SPACE TEMPERATURE.

### H. HEAT CONTROL

WHEN THE RTU IS IN THE HEATING MODE OR THE NIGHT SETBACK MODE, THE GAS HEAT WILL MODULATE TO MAINTAIN THE SPACE TEMPERATURE.

### I. DEHUMIDIFICATION CONTROL

IF THE SPACE HUMIDITY LEVEL IS GREATER THAN 55%, THE DX COOLING SHALL MODULATE TO REDUCE THE LEAVING AIR TEMPERATURE TO 55°F, AND THE HOT GAS REHEAT COIL SHALL BE ENABLED AS REQUIRED TO PREVENT THE SPACE FROM BEING OVERCOOLED.

### J. OUTSIDE AIR CONTROL

SPACE CO2 LEVELS SHALL BE MONITORED. IF SPACE CO2 EXCEEDS 1,100 PPM THE OUTSIDE AIR DAMPER SHALL BE MODULATED OPEN LINEARLY TO THE MAX OSA BASED UPON DEVIATION FROM CO2 SETPOINT UNTIL SATISFACTORY SPACE CO2 LEVELS ARE REACHED. IF THE SPACE CO2 IS MEASURED AT 1,100 PPM OR LESS, THE MINIMUM OUTSIDE AIRFLOW SETPOINT SHALL BE 1,250 CFM. IF THE SPACE CO2 IS MEASURED AT 1,400 PPM, THE OUTSIDE AIR DAMPER SHALL MODULATE OPEN TO 4,450 CFM. DURING OCCUPIED PERIODS WHEN THE SPACE CO2 LEVELS ARE BELOW 1,100 PPM, THE MINIMUM OUTSIDE AIRFLOW SHALL BE 1,250 CFM.

## VENTILATION AIR SPLIT SYSTEM SEQUENCE OF OPERATION (VAU-2/C-2)

**UNIT CONTROLS:**  
THE VENTILATION AIR SPLIT SYSTEM SHALL BE PROVIDED WITH EQUIPMENT MANUFACTURER'S UNIT-MOUNTED CONTROLS SYSTEM.

### OCCUPIED / UNOCCUPIED MODE:

THE UNIT SHALL BE PROGRAMMABLE FOR OCCUPIED / UNOCCUPIED MODES. WHEN IN OCCUPIED MODE, MOTORIZED DAMPERS D-3 & D-4 SHALL OPEN. VAU-2 AND ERV-1 SHALL BE ENABLED, AND THE UNIT SHALL OPERATE 24/7. WHEN IN UNOCCUPIED MODE, MOTORIZED DAMPERS D-3 & D-4 SHALL BE CLOSED, AND VAU-2 & ERV-1 SHALL BE DISABLED.

### TEMPERATURE/DEHUMIDIFICATION CONTROL:

THE DX COIL, HOT GAS REHEAT COIL, AND ELECTRIC HEAT COIL CONTROLS SHALL OPERATE IN SEQUENCE TO PROVIDE ROOM NEUTRAL. DEHUMIDIFIED FRESH AIR TO THE RETURN AIR DUCTWORK OF ITS ASSOCIATED SPLIT SYSTEMS. WHENEVER THE OUTSIDE AIR TEMPERATURE IS ABOVE 53°F (ADJ.), THE DX COIL SHALL COOL INCOMING AIR TO 55°F (ADJ.) PRIOR TO REHEATING THE AIR TO THE ROOM NEUTRAL SUPPLY AIR TEMPERATURE SETPOINT OF 72°F (ADJ.). WHENEVER THE OUTSIDE AIR TEMPERATURE IS 53°F (ADJ.) OR BELOW, THE ELECTRIC HEAT COIL SHALL MODULATE TO PROVIDE A LEAVING A TEMPERATURE OF 70°F.

## ENERGY RECOVERY VENTILATOR (ERV-1) SEQUENCE OF OPERATIONS

### ERV CONTROL

**OCCUPIED/UNOCCUPIED MODE:**  
WHENEVER ITS ASSOCIATED VENTILATION AIR SPLIT SYSTEM IS IN OCCUPIED MODE, THE ERV SHALL BE ENABLED.

IN OCCUPIED MODE, DAMPERS D-3 & D-4 SHALL BE OPEN, AND THE ENERGY RECOVERY WHEEL, FRESH AIR, AND EXHAUST FAN SHALL BE ENABLED TO PRE-CONDITION THE OUTSIDE AIR.

IN UNOCCUPIED MODE, MOTORIZED FRESH AIR DAMPERS D-3 & D-4 SHALL BE CLOSED. EXHAUST AIR FAN AND ENERGY RECOVERY WHEEL SHALL BE DISABLED.

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EXAMPLE PROJECT #2

UNIVERSITY OF ARKANSAS - FAYETTEVILLE

JOB NO. 20-120

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M5.01

HVAC CONTROLS

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