

**INVITATION TO BID
BID # 23-24-33
PUBLIC WORKS DEPARTMENT
BUILDINGS AND GROUNDS DIVISION
HVAC REPLACEMENT
UNIT #1 CITY HALL
CITY OF GREENVILLE, NORTH CAROLINA**



Find yourself in good company

Mandatory

**Pre-Bid Meeting: Tuesday, January 16, 2024 @ 2:00 PM
Room 337 at City Hall
200 West Fifth Street, Greenville, NC 27858**

**Bid Due Date: Tuesday, February 6, 2024 @ 2:00 PM
Public Works Administrative Building
1500 Beatty Street, Greenville, NC 27834**

Contact Persons:

Questions regarding the bid package:

**Wanda House
Financial Services Manager
Telephone: 252-329-4862
Fax: 252-329-4464
Email: whouse@greenvillenc.gov**

Questions regarding the specifications:

**Michael Turner
Building Facilities Coordinator
Telephone: 252-329-4921
Fax: 252-329-4844
Email: mturner@greenvillenc.gov**

**CITY OF GREENVILLE
ADVERTISEMENT FOR BIDS
CITY OF GREENVILLE PUBLIC WORKS DEPARTMENT
BUILDINGS AND GROUNDS DIVISION
HVAC REPLACEMENT-UNIT #1 CITY HALL**

The City of Greenville, NC is requesting proposals for "HVAC REPLACEMENT-UNIT #1 CITY HALL". The scope of work shall include, but is not limited to, removal of the existing rooftop unit #1 condenser and air handler, extending existing roof curb, replacing ductwork and all other electrical and associated items.

Sealed proposals will be received by the City of Greenville until Tuesday, February 6, 2024 at 2:00 pm at the Public Works Department Administrative offices located at 1500 Beatty Street, Greenville, NC 27834-7207 with the Company Name, Attention: Michael Turner, Building Facilities Coordinator, and the words City of Greenville Public Works Department City Hall Unit #1 Replacement bid written on the outside of the sealed envelope. All bids will be marked with the date and time they are received by reception staff. Bids will not be opened and read aloud at this time but will be reviewed and contracts will be awarded at a later date.

A mandatory pre-bid conference will be held in room 337 of City Hall, located at 200 W. 5th Street, on Tuesday, January 16, 2024 at 2:00 pm. Site visit to follow the pre-bid meeting. An additional site visit for pre-bid attendees will be available by appointment at 9:00AM on Thursday, January 18, 2024. Please contact Michael Turner, Building Facilities Coordinator at mturner@greenvillenc.gov to schedule this appointment.

The City of Greenville reserves the right to reject any or all bids, waive any informality and award contracts that appear to be in its best interest. The right is reserved to hold any or all proposals for a period of ninety(90) days from the bid opening thereof.

From the date of this advertisement until the date of opening the proposals, the plans and specifications of the proposed work and/or a complete description of the apparatus, supplies, materials or equipment are, and will continue to be on file, in the office of Wanda House, Financial Services Manager, 201 W. 5th Street, Greenville NC or at the Public Works Department located at 1500 Beatty Street, Greenville, NC 27835-7207, during regular business hours, and available to prospective bidders. Inquiries regarding the bidding process or documents should be directed to Wanda House, Financial Services Manager at whouse@greenvillenc.gov or by telephone (252) 329-4862. Minority/Women owned business are encouraged to submit proposals.

Wanda House, Financial Services Manager
City of Greenville
P O Box 7207
Greenville, NC 27835-7207

INSTRUCTIONS TO CONTRACTORS**Bid #23-24-33****HVAC Replacement – Unit #1 City Hall****Location: Greenville N.C.**

1. Contractor is to provide verification to the City that the company's employees are covered under worker's compensation insurance coverage.
2. All permits can be obtained through the City at no cost to the Contractor.
3. It is expressly understood by the contractor offering a proposal after a written notice of award by the City, a written contract or purchase order will be required to be executed, and will serve together with this proposal, these instructions, and any detailed specifications as the entire form of contract between the parties.
3. Each Contractor submitting a bid is affirming that no official or employee of the City is directly or indirectly interested in this proposal for any reason of personal gain.
4. Sales taxes may be listed on the bid, but as a separate item. No charge will be allowed for Federal Excise and Transportation Tax from which the City is exempt.
5. Questions regarding the specifications for submission of a bid for HVAC replacement – Unit #1 City Hall, shall be directed by email to Michael Turner, Building Facilities Coordinator at mturner@greenvillenc.gov.
6. By submitting a bid for the Contractor to provide HVAC replacement – Unit #1 City Hall, the Contractor attests to compliance with all items listed in the bid/proposal instructions. Further, the Contractor attests that the City of Greenville accepts no responsibility for any injuries to the firm's employees while on City property performing their duties.
7. Contractor shall comply with all local, state, and federal laws, as well as safety/regulatory requirements and ordinances associated with the work within this contract.
8. No work will be performed at any time without proper supervision. Supervisors name and direct contact information shall be provided to Michael Turner, Building Facilities Coordinator at mturner@greenvillenc.gov.
9. The Contractor shall accompany a designated representative(s) of the City on inspections of work at any time during the contract period. The City reserves the right to make determinations as to whether service is performed satisfactorily.
10. Deficiencies in work performance must be corrected immediately. The City reserves the right to add or delete similar items/services specified in the proposal as requirements change during the period of the contract. The City of Greenville and the Contractor will mutually agree upon prices for items/services to be added or deleted from contract. A contract amendment will be issued for each addition or deletion.
11. It shall be the responsibility of the contractor to visit the site that will be covered in this contract and to understand the area that is to be included prior to submitting a bid.
12. All work shall be completed in a professional manner consistent with customary industry practices.
13. Contractor is responsible for all measurements pertaining to the scope of work when submitting a bid.
14. Contractor shall be responsible for damage to the property caused by work performed during HVAC replacement – Unit #1 City Hall including, but not limited to, buildings, curbs, parking blocks, islands, sidewalks, light poles, signs, landscaping, paving or striping of the property or equipment used in connection therewith.

15. Contractor will report in writing to Michael Turner, Building Facilities Coordinator at mturner@greenvillenc.gov any property damage caused by the Contractor within 24 hours of the occurrence.
16. Contractor agrees to contact Michael Turner, Building Facilities Coordinator at mturner@greenvillenc.gov if for some reason the work as called for cannot be completed in a timely manner.
17. Contractor agrees to provide Michael Turner, Building Facilities Coordinator at mturner@greenvillenc.gov agent with all current after-hours telephone numbers.
18. Contractor shall not engage subcontractors to perform the Services without the City of Greenville's prior written consent by the Director of Public Works or designee. If any part of this work agreement is sublet, the subcontractor shall be required to meet all insurance requirements set forth in the Agreement. The parties stipulate that the Company will maintain each type of insurance set forth in the Agreement at a coverage equal to the amount set forth in the Agreement at a coverage equal to the amount set forth for each type of insurance. However, nothing contained herein shall relieve the Company from meeting all insurance requirements or otherwise being responsible for the subcontractor.
19. Parking and staging areas for equipment and materials can be arranged on site during the pre-construction meeting conducted prior to the work starting.
20. Contractor is responsible for protecting all roofs (including coatings), surfaces, fixtures, equipment, walking/driving surfaces, pedestrians and general public and their property from damage from work performed.
21. Contractor is responsible for cleaning the worksite daily prior to the end of day.
22. This project will have to be performed over a three (3) day holiday weekend beginning at 5:00PM Friday afternoon through 5:00PM on Monday afternoon. Unit must be operational and have the building acclimated to set points by 5:00PM the day before staff returns to the building.
23. If street closures are deemed necessary, a street closure permit must be filled out and approved by the City's traffic engineer. Any street closure will be coordinated with Michael Turner, Building Facilities Coordinator.
24. Traffic control will be maintained by the Contractor in coordination with the city staff.
25. Contractor is to include a service call to check refrigerant and ensure unit is cooling and working properly once ambient temperatures reach 80 degrees.
26. New vendors must register online at the City of Greenville Vendor Self Service portal: <https://selfservice.greenvillenc.gov/vss>. This does not have to be completed to submit a bid, however, the bidder must be a registered vendor prior to award of the contract.

**CITY OF GREENVILLE
PUBLIC WORKS DEPARTMENT
SPECIFICATIONS FOR
HVAC REPLACEMENT – UNIT #1 CITY HALL**

1.0 SCOPE:

- 1.1 The scope of work shall include, but is not limited to, removal of the existing rooftop unit #1 condenser and air handler, extending existing roof curb, replacing ductwork and all other electrical and associated items.**
- 1.2 The Contractor shall provide all labor, equipment, crane, materials and insurance necessary to remove and replace rooftop unit #1 condensing unit (CU) and air handler (AHU) split system and all necessary work to complete installation per the attached equipment specifications and drawings. See Attachment "G".**
- 1.3 The new rooftop unit shall be manufactured by Trane. No other manufacturer will be accepted.**
- 1.4 Include extended warranty of ten (10) years for the compressor, as well as, a five (5) year parts, refrigerant and labor warranty.**
- 1.5 Start-up and commissioning shall be performed by a Trane authorized representative.**
- 1.6 The new air handler (AHU) is longer than the existing AHU. A custom adapter curb will be built by Trane so new AHU can sit on existing AHU curb. Contractor shall verify all dimensions.**
- 1.7 Obtain all permits from the City of Greenville at no cost.**
- 1.8 All rigging for AHU and CU shall be in accordance with manufacturer's recommendations.**
- 1.9 All electrical and duct connections shall be included. Connections shall be water tight and insulated.**
- 1.10 The new unit shall provide input/output as needed to maintain all current third party controls.**
- 1.11 Reconnections of high and low voltage power to the condensing unit and AHU shall be done by a licensed electrician. Contractor is to utilize and connect to existing electrical services and verify the existing electrical is adequate and compatible with installation of the new unit. The contractor will be responsible for replacing and updating all necessary electrical components.**
- 1.12 Replace all existing flexible electrical conduit and connections shall be water tight.**
- 1.13 Third party vendor, Schneider Electric, will be retained by the City to disconnect and reconnect Building Automation System (BAS) control. The Contractor and City Staff will coordinate with Schneider based on a timeline provided by the Contractor.**
- 1.14 Refrigerant lines shall be replaced and reinsulated, as to the existing design, with shielded Armaflex insulation.**
- 1.15 Install new liquid and suction line filter drier shells and cores.**
- 1.16 Install new refrigerant metering devices and cutoff valves.**
- 1.17 Leak check refrigerant system and maintain vacuum to factory recommended levels. Contractor is also responsible for charging the system with the correct refrigerant charge.**
- 1.18 Install new PVC drain piping to existing roof drains. New PVC supports shall be provided.**
- 1.19 All areas of work shall be scheduled two (2) weeks in advance and be scheduled through Michael Turner, Building Facilities Coordinator.**
- 1.20 Contractor is responsible for haul off and proper disposal of old units and associated equipment and debris.**

2.0 GENERAL:

- 2.1 HVAC replacement – Unit #1 City Hall shall be completed in a professional manner and shall conform to these specifications.**
- 2.2 Failure of the contractor to meet or perform work to these specifications as determined by the Public Works Department shall warrant a written notice to the contractor specifying areas of nonperformance or unacceptable performance. Immediate cancellation of the contract or purchase order may occur if performance is not rectified within ten (10) days.**
- 2.3 Contractor shall be aware of the impending weather conditions and shall follow all product manufacturer's specifications when using products.**
- 2.4 Contractor shall submit, for review by city staff, and coordinate a plan for staging of lifting equipment and hauling/transporting of equipment to and from the work site.**

3.0 PAYMENT AND BID:

- 3.1 Payment will be made by the City to the Contractor upon said work being performed satisfactorily per specifications and within thirty (30) days of receipt of an approved invoice. All invoices shall have the contract number written on them when submitted for payment.**
- 3.2 Bidders will comply with all local, state, and federal laws and ordinances governing said work including the current Occupational Safety and Health regulations.**
- 3.3 By submitting a bid, the firm is attesting that they are an Equal Opportunity Employer.**
- 3.4 The City of Greenville has adopted an Affirmative Action Program. Firms submitting a bid are attesting that they also have taken affirmative action to insure equality of opportunity in all aspects of employment.**
- 3.5 Minority and/or Women Business Enterprise (M/WBE) Program**

It is the policy of the City of Greenville to provide minorities and women equal opportunity for participating in all aspects of the City's contracting and procurement programs, including but not limited to, construction projects, supplies and materials purchase, and professional and personal service contracts. In accordance with this policy, the City has adopted a Minority and Women Business Enterprise (M/WBE) Plan and subsequent program, outlining verifiable goals.

The City has established a 10% Minority Business Enterprise (MBE) and 6% Women Business Enterprise (WBE) goal for the participation of M/WBE firms in supplying goods and services for the completion of this project. All firms submitting bids agree to utilize minority and women-owned suppliers and service providers whenever possible. Bidder will need to fill out Attachment "D" in accordance with the instructions provided.

Questions regarding the City's M/WBE Program should be directed to Tish Williams, M/WBE Coordinator, at (252) 329-4462 or tfwilliams@greenvillenc.gov

- 3.6 Bidder, its assignees and successors in interest, further agrees that in the performance of these services that it shall comply with the requirements of Title VI of the Civil Rights Act of 1964 and other pertinent Nondiscrimination Authorities, as cited in Attachment "F" to this Agreement, and will not discriminate in its hiring, employment, and contracting practices in any manner or form based on actual or perceived political affiliation, genetic information, sexual orientation, age, sex, race, color, religion, marital status, veteran status, economic status, national origin, handicap or disability.**

3.7 TITLE VI NONDISCRIMINATION NOTIFICATION

The City of Greenville, North Carolina in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4) and the Regulations, hereby notifies all respondents that it will affirmatively ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit proposals in response to this advertisement and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.

3.9 The City of Greenville reserves the right to reject any and all bids, to waive any informalities and to accept the bid that seems most advantageous to the City. Any bid submitted will be binding for ninety (90) days after the date of the bid opening.

4.0 Contractor must complete a new vendor application, or update an existing vendor profile, and associated documents as required upon acceptance of contract.

4.0 WORKERS COMPENSATION AND INSURANCE:

4.1 The contractor must maintain during the life of this contract, Worker’s Compensation Insurance for all employees working at the project site under this contract, or as otherwise required by North Carolina General Statutes.

4.2 The Consultant/Contractor agrees to purchase at its own expense insurance coverages to satisfy the following minimum requirements. Work under this contract shall not commence until all insurance required as listed has been obtained. Insurance required shall remain in effect through the life of this contract.

a. Workers’ Compensation Insurance: No contractor or subcontractor may exclude executive officers. Workers Compensation must include all employees

Limits:

Workers Compensation: Statutory for the State of North Carolina.
Employers Liability: Bodily Injury by Accident \$1,000,000 each accident.
 Bodily Injury by Disease \$1,000,000 policy limit.
 Bodily Injury by Disease \$1,000,000 each employee.

b. Commercial General Liability:

Limits:

Each Occurrence:	\$1,000,000
Personal and Advertising Injury	\$1,000,000
General Aggregate Limit	\$2,000,000
Products and Completed Operations Aggregate	\$2,000,000

The aggregate limit must apply per project. The form of coverage must be the ISO CG 00 01 policy as approved by the State of North Carolina Department of Insurance. If a form of coverage other than the CG 00 01 is used it must be approved by the City. Any endorsed exclusions or limitations from the standard policy must be clearly stated in writing and attached to the Certificate of Insurance. Completed Operations coverage must be maintained for the period of the applicable statute of limitations. Additionally, the Consultant/Contractor must be added as an Additional Insured to the Commercial General Liability policy.

c. Commercial Automobile Liability:

Limits: \$1,000,000 combined single limit.

d. Cancellation:

Each certificate of insurance shall bear the provision that the policy cannot be altered or canceled in less than ten (10) days after mailing written notice to the assured of such alteration or cancellation, sent registered mail.

e. Proof of Carriages:

i. The Consultant/Contractor shall provide the City with insurance industry standard ACCORD form Certificate(s) of Insurance on all policies of insurance and renewals thereof in a form(s) acceptable to the City prior to the commencement of services. Said policies shall provide that the City be an additional named insured.

ii. The City shall be notified in writing of any reduction, cancellation, or substantial change of policy or policies at least thirty (30) days prior to the effective date of said action.

iii. All insurance policies shall be issued by responsible companies who are acceptable to the City and licensed and authorized to do business under the laws of North Carolina.

4.3 The contractor shall furnish such additional insurance as may be required by the General Statutes of North Carolina, including motor vehicle insurance in amounts not less than statutory limits.

4.4 The contractor shall furnish the owner with satisfactory proof of insurance required before written approval of such insurance is granted by the owner. Executed contract documents, insurance certifications, invoices and other information requested, are to be sent to:

Michael Turner
 Building Facilities Coordinator
 City of Greenville
 Public Works Department
 1500 Beatty Street
 Greenville, N.C. 27834
 Email: mturner@greenvillenc.gov

5.0 DAMAGE TO CONTRACTORS PROPERTY:

5.1 Should fire, theft, vandalism or other casualty, damage or destroy the equipment or property belonging to the Contractor while on City property, the City shall be under no obligation to replace or in any way compensate the contractor for said property.

5.2 The successful bidder agrees to indemnify, or hold harmless, the City from and against any liability, loss, cost, damage suit, claim, or expense arising from any occurrence on the part of the successful bidder to include its officers, servants, agents or employees arising from its activities, operations, and performance of services while on City property and further agrees to release and discharge City and its Agents from all claims or liabilities arising from or caused by the successful bidder in fulfilling its obligations under this Agreement.

5.3 It is understood and agreed by the parties that City will assume no liability for damages, injury, or other loss to the successful bidder, its employees or property, tools or equipment, or to other persons or properties located on City facilities resulting from the successful bidder's activities and operations while performing those services enumerated herein.

5.4 The successful bidder shall assume full and complete liability for any and all damages to buildings, building improvements, fences, curbs, buildings, parking blocks, islands, sidewalks, light poles, signs, landscaping, paving, striping or other City or private properties caused by or resulting from its activities, operations, and that of its employees, agents and officers.

6.0 AMENDMENTS, ADDENDA OR QUESTIONS:

- 6.1 Addendum:** Any changes to the specifications will be issued as a written addendum. No oral statements, explanations, or commitments by whosoever shall be of any effect. Any issued addenda will be posted on the City's bid advertisement site. The contractor must acknowledge receipt of each addendum on the attached bid sheet.
- 6.2 Amendment:** The contract may be amended from time to time through written agreement by both parties.
- 6.3** Any questions regarding these bid specifications must be sent by email to mturner@greenvillenc.gov
- 6.4** Schedule for questions and addenda:

Last date to submit a question: Thursday, January 25, 2024 by 5:00 pm. Questions will be answered via addenda posted on the City's website answered by: Thursday, February 1, 2024 by 5:00 pm.

7.0 E-VERIFY:

- 7.1** The Contractor shall comply with the requirements of Article 2 of Chapter 64 of the North Carolina General Statutes. Further, if the Contractor utilizes a Subcontractor, the Contractor shall require the Subcontractor to comply with the requirements of Article 2 of Chapter 64 of the North Carolina General Statutes. The Contractor represents that the Contractor and its Subcontractors are in compliance with the requirements of Article 2 of Chapter 64 of the North Carolina General Statutes.
- 7.2** BIDDER acknowledges that compliance with the requirements of Article 2 of Chapter 64 of the North Carolina General Statutes is required by the Contractor and its Subcontractors by North Carolina law and the provisions of the Contract Documents. The BIDDER represents that the BIDDER and its Subcontractors are in compliance with the requirements of Article 2 of Chapter 64 of the North Carolina General Statutes.
- 7.3** All firms submitting bids are required to complete the Affidavit form (Attachment "E") included in this bid package.

8.0 LOCAL PREFERENCE AND SERVICE POLICIES:

- 8.1** The City of Greenville has adopted a Local Preference Policy, Resolution No. 056-13, and a Professional and other Services Policy, Resolution No. 057-13 that will pertain to this project. For more information, please see www.greenvillenc.gov/government/financial-services/purchasing on the City of Greenville's webpage.

9.0 IRAN DIVESTMENT ACT:

- 9.1** Vendor certifies that it is not on the Iran Final Divestment List created by the North Carolina State Treasurer pursuant to N.C.G.S. 147-86.58. The vendor will not utilize on the contract any subcontractor that is listed on the Iran Final Divestment List created by the North Carolina State Treasurer pursuant to N.C.G.S. 147-86.58.

10.0 NON-COLLUSION:

10.1 Respondents, by submitting a signed bid, certify that the accompanying submission is not the result of, or affected by, any unlawful act of collusion with any other person or company engaged in the same line of business or commerce, or any other fraudulent act punishable under North Carolina or United States law.

11.0 WITHDRAWAL OF PROPOSALS:

11.1 No bid/proposal may be changed or withdrawn after the stated time and date for submittal. Bids/proposals submitted shall be binding for ninety (90) days after the date of submittal.

12.0 REFERENCE INFORMATION:

12.1 All bidders must provide a list of three (3) client references of similar projects. The reference information must include the company's name, a contact person's name with his or her title and their telephone number. Please provide the information on Attachment "A"-Contractor Reference Information sheet and attach with the bid sheet.

13.0 CONTRACTOR INFORMATION:

13.1 Please provide the information on Attachment "B"- Contractor Data Form and attach with the bid sheet. All information should be accurate and detailed in description.

The remainder of this page intentionally left blank



Contractor Reference Information

1. **Company name:** _____

Contact person: _____

Title: _____ **Phone No.** _____

2. **Company name:** _____

Contact person: _____

Title: _____ **Phone No.** _____

3. **Company name:** _____

Contact person: _____

Title: _____ **Phone No.** _____

****Include with completed and submitted bid package****



Contractor Data Form

Company Name: _____

Address: _____

Phone Number: _____ **Mobile Phone Number:** _____

Company Owner: _____ **Company Owner Phone Number:** _____

Authorized Company Representative submitting bid: _____

Title: _____

Phone Number of Authorized Representative: _____

Email: _____

NC Electrical Contractor's License# _____

Description of equipment, any certifications and a performance plan, including the number of employees, you plan to utilize to perform this contract: Attach additional sheet or continue on back if needed.

****Include with completed and submitted bid package****



REQUEST FOR BIDS

In compliance with the request for bids by the City of Greenville and subject to all conditions and specifications thereof, the undersigned offers and agrees to furnish all equipment, labor and work site clean up as provided in the above mentioned specifications. Contract will be awarded based on the lump sum bid

HVAC Replacement – Unit #1 City Hall

Description

Lump Sum Bid

A. HVAC Replacement – Unit #1 City Hall

Addendum Acknowledgement:

Please record each Addendum Number Received: ____/ ____/ ____/ ____/ ____

Company Name: _____

Signed: _____

Print Name: _____

Title: _____

Date: _____

Bids should have Attachments A, B, C, D and E filled out completely to be considered responsive

Attach to Bid Attach to Bid Attach to Bid Attach to Bid Attach to Bid Attach to Bid

**City of Greenville/Greenville Utilities Commission
Minority and Women Business Enterprise (MWBE) Program**

**City of Greenville
Construction Guidelines and Affidavits
\$50,000 and above**

These instructions shall be included with each bid solicitation.

Attach to Bid Attach to Bid Attach to Bid Attach to Bid Attach to Bid Attach to Bid

City of Greenville/Greenville Utilities Commission Minority and Women Business Enterprise Program

\$50,000 and above Construction Guidelines for MWBE Participants

Policy Statement

It is the policy of the City of Greenville and Greenville Utilities Commission to provide minorities and women equal opportunity for participating in all aspects of the City's and Utilities' contracting and procurement programs, including but not limited to, construction projects, supplies and materials purchases, and professional and personal service contracts.

Goals and Good Faith Efforts

Bidders responding to this solicitation shall comply with the MWBE program by making Good Faith Efforts to achieve the following aspiration goals for participation.

	CITY	
	MBE	WBE
Construction This goal includes Construction Manager at Risk.	10%	6%

Bidders shall submit MWBE information with their bids on the forms provided. This information will be subject to verification by the City prior to contract award. **As of July 1, 2009, contractors, subcontractors, suppliers, service providers, or MWBE members of joint ventures intended to satisfy City MWBE goals shall be certified by the NC Office of Historically Underutilized Businesses (NC HUB) only.** Firms qualifying as "WBE" for City's goals must be designated as a "women-owned business" by the HUB Office. Firms qualifying as "MBE" for the City's goals must be certified in one of the other categories (i.e.: Black, Hispanic, Asian American, American Indian, Disabled, or Socially and Economically Disadvantaged). Those firms who are certified as both a "WBE" and "MBE" may only satisfy the "MBE" requirement. **Each goal must be met separately. Exceeding one goal does not satisfy requirements for the other.** A complete database of NC HUB certified firms may be found at <http://www.doa.nc.gov/hub/>. An internal database of firms who have expressed interest to do business with the City and GUC is available at www.greenvillenc.gov. However, the HUB status of these firms must be verified by the HUB database. The City shall accept NCDOT certified firms on federally funded projects only. **Please note: A contractor may utilize any firm desired. However, for participation purposes, all MWBE vendors who wish to do business as a minority or female must be certified by NC HUB.**

The Bidder shall make good faith efforts to encourage participation of MWBEs prior to submission of bids in order to be considered as a responsive bidder. Bidders are cautioned that even though their submittal indicates they will meet the MWBE goal, they should document their good faith efforts and be prepared to submit this information, if requested.

The MWBE's listed by the Contractor on the **Identification of Minority/Women Business Participation** which are determined by the City to be certified shall perform the work and supply the materials for which they are listed unless the Contractors receive prior authorization from the City to perform the work with other forces or to obtain materials from other sources. If a contractor is proposing to perform all elements of the work with his own forces, he must be prepared to document evidence satisfactory to the owner of similar government contracts where he has self-performed.

The Contractor shall enter into and supply copies of fully executed subcontracts with each MWBE or supply signed Letter(s) of Intent to the Project Manager after award of contract and prior to Notice to Proceed. Any amendments to subcontracts shall be submitted to the Project Manager prior to execution.

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Instructions

The Bidder shall provide with the bid the following documentation:

Identification of Minority/Women Business Participation
(if participation is zero, please mark zero—Blank forms will be considered nonresponsive)

Affidavit A (if subcontracting)

OR

Identification of Minority/Women Business Participation
(if participation is zero, please mark zero—Blank forms will be considered nonresponsive)

Affidavit B (if self-performing; must attest that bidder does not customarily subcontract work on this type of project—includes supplies and materials)

Within 72 hours or 3 business days after notification of being the apparent low bidder who is subcontracting anything must provide the following information:

Affidavit C (if aspirational goals are met or are exceeded)

OR

Affidavit D (if aspirational goals are not met)

After award of contract and prior to issuance of notice to proceed:

Letter(s) of Intent or Executed Contracts

****With each pay request, the prime contractors will submit the Proof of Payment Certification, listing payments made to MWBE subcontractors.**

*****If a change is needed in MWBE Participation, submit a Request to Change MWBE Participation Form. Good Faith Efforts to substitute with another MWBE contractor must be demonstrated.**

Minimum Compliance Requirements:

All written statements, affidavits, or intentions made by the Bidder shall become a part of the agreement between the Contractor and the City for performance of contracts. Failure to comply with any of these statements, affidavits or intentions or with the minority business guidelines shall constitute a breach of the contract. A finding by the City that any information submitted (either prior to award of the contract or during the performance of the contract) is inaccurate, false, or incomplete, shall also constitute a breach of the contract. Any such breach may result in termination of the contract in accordance with the termination provisions contained in the contract. It shall be solely at the option of the City whether to terminate the contract for breach or not. In determining whether a contractor has made Good Faith Efforts, the CITY will evaluate all efforts made by the Contractor and will determine compliance in regard to quantity, intensity, and results of these efforts.

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City of Greenville AFFIDAVIT A – Listing of Good Faith Efforts

County of _____

(Name of Bidder)

Affidavit of _____

I have made a good faith effort to comply under the following areas checked:

Bidders must earn at least 50 points from the good faith efforts listed for their bid to be considered responsive. (1 NC Administrative Code 30 I.0101)

- 1 – (10 pts)** Contacted minority businesses that reasonably could have been expected to submit a quote and that were known to the contractor, or available on State or local government maintained lists, at least 10 days before the bid date and notified them of the nature and scope of the work to be performed.
- 2 --(10 pts)** Made the construction plans, specifications and requirements available for review by prospective minority businesses, or providing these documents to them at least 10 days before the bids are due.
- 3 – (15 pts)** Broken down or combined elements of work into economically feasible units to facilitate minority participation.
- 4 – (10 pts)** Worked with minority trade, community, or contractor organizations identified by the Office of Historically Underutilized Businesses and included in the bid documents that provide assistance in recruitment of minority businesses.
- 5 – (10 pts)** Attended prebid meetings scheduled by the public owner.
- 6 – (20 pts)** Provided assistance in getting required bonding or insurance or provided alternatives to bonding or insurance for subcontractors.
- 7 – (15 pts)** Negotiated in good faith with interested minority businesses and did not reject them as unqualified without sound reasons based on their capabilities. Any rejection of a minority business based on lack of qualification should have the reasons documented in writing.
- 8 – (25 pts)** Provided assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily required. Assisted minority businesses in obtaining the same unit pricing with the bidder's suppliers in order to help minority businesses in establishing credit.
- 9 – (20 pts)** Negotiated joint venture and partnership arrangements with minority businesses in order to increase opportunities for minority business participation on a public construction or repair project when possible.
- 10 - (20 pts)** Provided quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands.

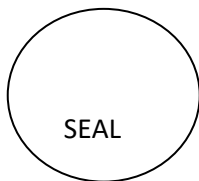
The undersigned, if apparent low bidder, will enter into a formal agreement with the firms listed in the Identification of Minority/Women Business Participation schedule conditional upon scope of contract to be executed with the Owner. Substitution of contractors must be in accordance with GS143-128.2(d) Failure to abide by this statutory provision will constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of the minority/women business commitment and is authorized to bind the bidder to the commitment herein set forth.

Date: _____ Name of Authorized Officer: _____

Signature: _____

Title: _____



State of _____, County of _____

Subscribed and sworn to before me this _____ day of _____ 20____

Notary Public _____

My commission expires _____

Attach to Bid Attach to Bid Attach to Bid Attach to Bid Attach to Bid Attach to Bid

City of Greenville --AFFIDAVIT B-- Intent to Perform Contract with Own Workforce.

County of _____

Affidavit of _____

(Name of Bidder)

I hereby certify that it is our intent to perform 100% of the work required for the _____

_____ contract.

(Name of Project)

In making this certification, the Bidder states that the Bidder does not customarily subcontract elements of this type project, and normally performs and has the capability to perform and will perform all elements of the work on this project with his/her own current work forces; and

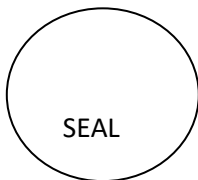
The Bidder agrees to provide any additional information or documentation requested by the owner in support of the above statement.

The undersigned hereby certifies that he or she has read this certification and is authorized to bind the Bidder to the commitments herein contained.

Date: _____ Name of Authorized Officer: _____

Signature: _____

Title: _____



State of _____, County of _____

Subscribed and sworn to before me this _____ day of _____ 20____

Notary Public _____

My commission expires _____

City of Greenville - **AFFIDAVIT C** - Portion of the Work to be Performed by MWBE Firms

County of _____

(Note this form is to be submitted only by the apparent lowest responsible, responsive bidder.)

If the portion of the work to be executed by MWBE businesses as defined in GS143-128.2(g) and the COG/CITY MWBE Plan sec. III is equal to or greater than 16% of the bidders total contract price, then the bidder must complete this affidavit. This affidavit shall be provided by the apparent lowest responsible, responsive bidder within **72 hours** after notification of being low bidder.

Affidavit of _____ I do hereby certify that on the _____
 (Name of Bidder)

_____ (Project Name)
 Project ID# _____ Amount of Bid \$ _____

I will expend a minimum of _____% of the total dollar amount of the contract with minority business enterprises and a minimum of _____% of the total dollar amount of the contract with women business enterprises. Minority/women businesses will be employed as construction subcontractors, vendors, suppliers or providers of professional services. Such work will be subcontracted to the following firms listed below. Attach additional sheets if required

Name and Phone Number	*MWBE Category	Work description	Dollar Value

*Minority categories: Black, African American (**B**), Hispanic or Latino (**L**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**S**) Disabled (**D**)

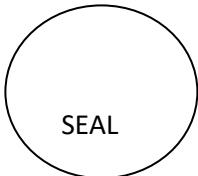
Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with MWBE Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of this commitment and is authorized to bind the bidder to the commitment herein set forth.

Date: _____ Name of Authorized Officer: _____

Signature: _____

Title: _____



State of _____, County of _____

Subscribed and sworn to before me this _____ day of _____ 20____

Notary Public _____

My commission expires _____

City of Greenville **AFFIDAVIT D – Good Faith Efforts**

County of _____

(Note this form is to be submitted only by the apparent lowest responsible, responsive bidder.)

If the goal of 16% participation by minority/women business **is not** achieved, the Bidder shall provide the following documentation to the Owner of his good faith efforts:

Affidavit of _____ I do hereby certify
(Name of Bidder)

that on the _____
(Project Name)

Project ID# _____ Amount of Bid \$ _____

I will expend a minimum of _____% of the total dollar amount of the contract with minority business enterprises and a minimum of _____% of the total dollar amount of the contract with women business enterprises. Minority/women businesses will be employed as construction subcontractors, vendors, suppliers or providers of professional services. Such work will be subcontracted to the following firms listed below. (Attach additional sheets if required)

Name and Phone Number	*MWBE Category	Work description	Dollar Value

*Minority categories: Black, African American (**B**), Hispanic or Latino (**L**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**S**) Disabled (**D**)

Examples of documentation required to demonstrate the Bidder's good faith efforts to meet the goals set forth in these provisions include, but are not necessarily limited to, the following:

- A. Copies of solicitations for quotes to at least three (3) minority business firms from the source list provided by the State for each subcontract to be let under this contract (if 3 or more firms are shown on the source list). Each solicitation shall contain a specific description of the work to be subcontracted, location where bid documents can be reviewed, representative of the Prime Bidder to contact, and location, date and time when quotes must be received.
- B. Copies of quotes or responses received from each firm responding to the solicitation.
- C. A telephone log of follow-up calls to each firm sent a solicitation.
- D. For subcontracts where a minority business firm is not considered the lowest responsible sub-bidder, copies of quotes received from all firms submitting quotes for that particular subcontract.
- PART 1 - E. Documentation of any contacts or correspondence to minority business, community, or contractor organizations in an attempt to meet the goal.
- F. Copy of pre-bid roster.
- G. Letter documenting efforts to provide assistance in obtaining required bonding or insurance for minority business.
- H. Letter detailing reasons for rejection of minority business due to lack of qualification.
- I. Letter documenting proposed assistance offered to minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letter of credit, including waiving credit that is ordinarily required.

Do not submit with the bid Do not submit with the bid Do not submit with the bid Do not submit with the bid

Failure to provide the documentation as listed in these provisions may result in rejection of the bid and award to the next lowest responsible and responsive bidder.

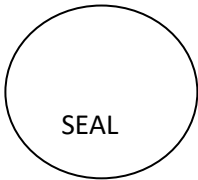
Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with MWBE Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of this commitment and is authorized to bind the bidder to the commitment herein set forth.

Date: _____ Name of Authorized Officer: _____

Signature: _____

Title: _____



State of _____, County of _____

Subscribed and sworn to before me this _____ day of _____ 20____

Notary Public _____

My commission expires _____

LETTER OF INTENT MWBE Subcontractor Performance

Please submit this form or executed subcontracts with MWBE firms after award of contract and prior to issuance of notice to proceed.

PROJECT: _____
(Project Name)

TO: _____
(Name of Prime Bidder/Architect)

The undersigned intends to perform work in connection with the above project as a:

____ Minority Business Enterprise _____ Women Business Enterprise

The MWBE status of the undersigned is certified the NC Office of Historically Underutilized Businesses (required). ___ Yes ___ No

The undersigned is prepared to perform the following described work or provide materials or services in connection with the above project at the following dollar amount:

Work/Materials/Service Provided	Dollar Amount of Contract	Projected Start Date	Projected End Date

(Date)

(Address)

(Name & Phone No. of MWBE Firm)

(Name & Title of Authorized Representative of MWBE)

(Signature of Authorized Representative of MWBE)

REQUEST TO CHANGE MWBE PARTICIPATION

(Submit changes only if notified as apparent lowest bidder, continuing through project completion)

Project: _____

Bidder or Prime Contractor: _____

Name & Title of Authorized Representative: _____

Address: _____ **Phone #:** _____

_____ **Email Address:** _____

Total Contract Amount (including approved change orders or amendments): \$ _____

Name of subcontractor: _____

Good or service provided: _____

Proposed Action:

Replace subcontractor

Perform work with own forces

For the above actions, you must provide one of the following reasons (Please check applicable reason):

The listed MBE/WBE, after having had a reasonable opportunity to do so, fails or refuses to execute a written contract.

The listed MBE/WBE is bankrupt or insolvent.

The listed MBE/WBE fails or refuses to perform his/her subcontract or furnish the listed materials.

The work performed by the listed subcontractor is unsatisfactory according to industry standards and is not in accordance with the plans and specifications; or the subcontractor is substantially delaying or disrupting the progress of the work.

If replacing subcontractor:

Name of replacement subcontractor: _____

The MWBE status of the contractor is certified by the NC Office of Historically Underutilized Businesses (required). ___Yes ___No

Dollar amount of original contract \$ _____

Dollar amount of amended contract \$ _____

Other Proposed Action:

___ Increase total dollar amount of work

___ Add additional subcontractor

___ Decrease total dollar amount of work

___ Other

Please describe reason for requested action: _____

If adding additional subcontractor:*

The MWBE status of the contractor is certified by the NC Office of Historically Underutilized Businesses (required). ___Yes ___No

**Please attach Letter of Intent or executed contract document*

Dollar amount of original contract \$ _____

Dollar amount of amended contract \$ _____

Interoffice Use Only:

Approval __Y__N

Date _____

Signature _____

Pay Application No. _____
Purchase Order No. _____

Proof of Payment Certification

MWBE Contractors, Suppliers, Service Providers

Project Name: _____

Prime Contractor: _____

Current Contract Amount (including change orders): \$_____

Requested Payment Amount for this Period: \$_____

Is this the final payment? ___Yes ___No

Firm Name	MWBE Category*	Total Amount Paid from this Pay Request	Total Contract Amount (including changes)	Total Amount Remaining

*Minority categories: Black, African American (**B**), Hispanic or Latino (**L**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**S**) Disabled (**D**)

Date: _____

Certified By: _____

Name

Title

Signature

STATE OF NORTH CAROLINA

AFFIDAVIT

CITY OF GREENVILLE

I, _____ (the individual attesting below), being duly authorized by and on behalf of _____ (the entity bidding on project hereinafter "Employer") after first being duly sworn hereby swears or affirms as follows:

1. Employer understands that E-Verify is the federal E-Verify program operated by the United States Department of Homeland Security and other federal agencies, or any successor or equivalent program used to verify the work authorization of newly hired employees pursuant to federal law in accordance with NCGS §64-25(5).
 2. Employer understands that Employers Must Use E-Verify. Each employer, after hiring an employee to work in the United States, shall verify the work authorization of the employee through E-Verify in accordance with NCGS§64-26(a).
 3. Employer is a person, business entity, or other organization that transacts business in this State and that employs 25 or more employees in this State. (Mark Yes or No)
 - a. YES _____, or
 - b. NO _____
 4. Employer's subcontractors comply with E-Verify, and if Employer is the winning bidder on this project Employer will ensure compliance with E-Verify by any subcontractors subsequently hired by Employer.
- This ____ day of _____, 20__.

Signature of Affiant
Print or Type Name: _____

State of _____ City of _____

Signed and sworn to (or affirmed) before me, this the _____

Day of _____, 20__.

My Commission Expires:

Notary Public

(Affix Official/Notarial Seal)

****Include with bid package****

Title VI of the Civil Rights Act of 1964 Nondiscrimination Provisions, Appendices A & E.

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

1) Compliance with Regulations: The contractor (hereinafter includes consultants) will comply with the Acts and the Regulations relative to Nondiscrimination in Federally-assisted programs of the U.S. Department of Transportation (USDOT), as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.

(2) Nondiscrimination: The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, national origin, sex, age, creed (religion), low-income, limited English proficiency, or disability in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.

(3) Solicitations for Subcontractors, Including Procurements of Materials and Equipment: In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor's obligations under this contract and the Acts and the Regulations relative to Nondiscrimination on the grounds of race, color, or national origin.

(4) Information and Reports: The contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or the USDOT to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the contractor will so certify to the Recipient or the USDOT, as appropriate, and will set forth what efforts it has made to obtain the information.

(5) Sanctions for Noncompliance: In the event of a contractor's noncompliance with the Non-discrimination provisions of this contract, the Recipient will impose such contract sanctions as it or the USDOT may determine to be appropriate, including, but not limited to:

- (a) withholding payments to the contractor under the contract until the contractor complies; and/or
- (b) cancelling, terminating, or suspending a contract, in whole or in part.

(6) Incorporation of Provisions: The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement as the Recipient or the USDOT may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the contractor may request the Recipient to enter into any litigation to protect the interests of

the Recipient. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

- I. During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees to comply with the following nondiscrimination statutes and authorities; including but not limited to:

Pertinent Nondiscrimination Authorities

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d et seq., 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin); and 49 CFR Part 21.
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Federal-Aid Highway Act of 1973, (23 U.S.C. § 324 et seq.), (prohibits discrimination on the basis of sex);
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 et seq.), as amended, (prohibits discrimination on the basis of disability); and 49 CFR Part 27;
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 et seq.), (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982, (49 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131-12189) as implemented by Department of Transportation regulations at 49 C.F.R. parts 37 and 38;
- The Federal Aviation Administration's Nondiscrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures Nondiscrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of Limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 et seq);
- Federal transit laws, specifically 49 U.S.C. § 5332 (prohibiting discrimination based on race, color, religion, national origin, sex (including gender identity), disability, age, employment, or business opportunity).

**CITY OF GREENVILLE
PUBLIC WORKS DEPARTMENT
HVAC REPLACEMENT
UNIT #1 CITY HALL SUBMITTAL FROM TRANE**



Submittal

Prepared For:
City of Greenville

Date: December 26, 2023

Job Name:
Greenville City Hall Unit #1

Trane U.S. Inc. is pleased to provide the following submittal for your review and approval.

Product Summary

Qty Product

- 1 Performance Climate Changer (CSAA)
- 1 Air-Cooled Condensing Units (Commercial)

David McDaniel
Trane U.S. Inc.
808 Aviation Parkway
Suite 1100
Morrisville, NC 27560
Office Phone: (919) 781-0458

The attached information describes the equipment we propose to furnish for this project and is submitted for your approval.

Submittal acceptance and return is a critical step, so please ensure submittals are returned with approval to release to production within 14 days of submittal date.

Product performance and submittal data is valid for a period of 6 months from the date of submittal generation. If six months or more has elapsed between submittal generation and equipment release, the product performance and submittal data will need to be verified. It is the customer's responsibility to obtain such verification.

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Tag Data - Performance Climate Changer (CSAA) (Qty: 1)

Item	Tag(s)	Qty	Description	Model Number
A1	AHU-1	1	Performance Climate Changer (CSAA)	CSAA050UB

Product Data - Performance Climate Changer (CSAA)

Item: A1 Qty: 1 Tag(s): AHU-1

Unit level options

Outdoor unit
Unit size 50
6in. integral base frame
UL listed unit
Single metal handle - ganged latches
179.4780 Total unit length
No hurricane certification
Adapter curb

Controls and VFD/starter

No controller
Supply fan VFD

Warranty

Extended warranty
Parts warranty - 2nd-5th year additional
1st year labor warranty
Labor warranty 2nd thru 5th year

Air mixing section (Pos #1)

Air mixing section
Reduced length mixing box w/o filter
Door- left side
Back damper - high velocity parallel
Front full face opening
Right damper - high velocity parallel

Filter section (Pos #2)

Filter
Cartridge filter
Door- left side
Bag/cartridge filter frame
12in. cartridge - 95% eff (Field Installed)
MERV 15
2" Pleated media (Field Installed)
MERV 8

Coil section (Pos #3)

Horizontal coil
Medium
Stainless steel drain pan
Left side - drain connection
Left side - coil supply
Service panel both sides
Unit coil height
Cooling coil
Refrigerant
Type "UF" coil
4 rows
121 Coil fins per foot
Aluminum fins
Delta flo H (Hi efficient)
Internally enhanced Cu .016 (0.406 mm)
1/2in. tube diameter (12.7 mm)
Stainless steel coil casing

Access section (Pos #4)

Access/blank/turning section
Extended medium
Door- left side

Fan section (Pos #5)

Fan section
Supply fan
Door- left side
Outward swing
27in. dd plenum, 80% width, H press
Higher efficiency
2 Fan quantity
Plenum fan
Left side drive
NEMA premium compliant ODP
Voltage 460/3
20 max applied hp
1800 RPM
Inverter balance with shaft grounding
Motor wiring conduit
VFD

Controls section (Pos #6)

Starter/VFD only
Supply section
Internal NEMA
Supply high volt. door - left

Access section (Pos #7)

Access/blank/turning section
Extra small

Access section (Pos #8)

Access/blank/turning section
Extra small

Performance Data - Performance Climate Changer (CSAA)

Tags	AHU-1		
Unit level options			
Position			
Length (in)	179.478		
Width (in)	125.500		
Height (in)	79.250		
Rigging weight (lb)	6595.4		
Installed weight (lb)	6595.4		
Roof curb weight (lb)	0.0		
Actual airflow (cfm)	22000		
Unit elevation (ft)	0.00		
Shipping split 1 weight (lb)	2922.7		
Shipping split 2 weight (lb)	3672.8		
Controls section			
Position			
	#6		
Section length (in)	21.830		
Section weight (lb)	648.3		
Greatest discharge PD (in H2O)	0.000		
Controls section static pressure (in H2O)	0.000		
Fan section			
Position			
	#5		
Section length (in)	56.023		
Section weight (lb)	2597.3		
Fan airflow (cfm)	22000		
Elevation (ft)	0.00		
Overall ESP (in H2O)	3.000		
Total static pressure (in H2O)	5.719		
Maximum TSP @ 60 Hz (in H2O)	5.719		
Fan pressure drop (in H2O)	3.022		
Speed (rpm)	1866		
Total brake horsepower (hp)	30.975		
Unit static efficiency (%)	64.04		
Motor hertz (Hz)	63.00		
Discharge 1 front - face velocity (ft/min)	377		
Discharge 1 front - pressure drop (in H2O)	0.022		
Discharge 1 front - area (sq ft)	16.64		
Access section			
Position			
	#4	#7	#8
Section length (in)	19.000	2.000	2.000
Section weight (lb)	406.3	193.6	233.6
Coil section			
Position			
	#3		
Section length (in)	14.000		
Section weight (lb)	756.2		
Coil performance airflow (cfm)	22000		
Unit airflow (cfm)	22000		
Coil face area (sq ft)	49.05		
Coil face velocity (ft/min)	449		
Air pressure drop (in H2O)	0.486		
Coil section pressure drop (in H2O)	0.486		

Tags	AHU-1		
Coil rigging weight (lb)	488.8		
Top or single coil dry weight (lb)	244.4		
Middle or bottom coil dry weight (lb)	244.4		
Leaving dry bulb (F)	55.96		
Leaving wet bulb (F)	53.50		
Entering dry bulb (F)	77.70		
Entering wet bulb (F)	64.70		
Fluid volume (gal)	19.71		
Liquid temp entering TXV (F)	115.00		
Saturated suction temperature (F)	43.00		
Suction superheat (F)	8.00		
Sensible capacity (MBh)	524.41		
Total capacity (MBh)	735.00		
Number of distributors	4		
Filter section			
Position	#2		
Section length (in)	23.000		
Section weight (lb)	568.9		
Filter airflow (cfm)	22000		
Filter area (sq ft)	50.00		
Pre-filter area (sq ft)	50.00		
Filter condition	Mid-life		
Filter pressure drop (in H2O)	0.798		
Pre-filter pressure drop (in H2O)	0.626		
Filter section pressure drop (in H2O)	1.423		
Filter face velocity (ft/min)	440		
Pre-filter face velocity (ft/min)	440		
Air mixing section			
Position	#1		
Section length (in)	41.500		
Section weight (lb)	1191.3		
Opening 1 back - airflow (cfm)	22000		
Opening 1 front - airflow (cfm)	22000		
Opening 1 right - airflow (cfm)	22000		
Opening 1 back - area (sq ft)	12.04		
Opening 1 front - area (sq ft)	58.43		
Opening 1 right - area (sq ft)	12.32		
Opening 1 back - face velocity (ft/min)	1827		
Opening 1 right - face velocity (ft/min)	1786		
Opening 1 back - pressure drop (in H2O)	0.577		
Opening 1 right - pressure drop (in H2O)	0.286		
Opening 1 back total pressure drop (in H2O)	0.577		
Opening 1 right side total pressure drop (in H2O)	0.286		
Back hood pressure drop (in H2O)	0.211		
Back hood area (sq ft)	30.71		
Back inlet type	Unducted		
Right side inlet type	Ducted		
Greatest entry PD (in H2O)	0.788		
Total mixing section pressure drop (in H2O)	0.788		
Front total pressure drop (in H2O)	0.000		

Tags	AHU-1		
Back total pressure drop (in H2O)	0.788		
Top total pressure drop (in H2O)	0.000		
Bottom total pressure drop (in H2O)	0.000		
Right side total pressure drop (in H2O)	0.286		
Left side total pressure drop (in H2O)	0.000		

Mechanical Specifications - Performance Climate Changer (CSAA)

Item: A1 Qty: 1 Tag(s): AHU-1

GENERAL

Outdoor air handling units will be shipped with all openings covered to protect unit interior from in-transit debris.

Installing contractor is responsible for long term storage in accordance with the Installation, Operation, and Maintenance manual (CLCH-SVX07*-EN).

Unit shall be UL and C-UL Listed.

Supply fans within the scope of AHRI Standard 430 are "Certified by the AHRI Central Station Air-Handling Unit (AHU) Certification Program, based on AHRI Standard 430/431. AHRI certified units are subject to rigorous and continuous testing, have performance ratings independently measured and are third-party verified. Certified units may be found in the AHRI Directory at www.ahridirectory.org".

Unit sound performance data shall be reported as sound power. Trane, in providing this program and data, does not certify or warrant NC levels. These levels are affected by factors specific to each application and/or installation and therefore unable to be predicted or certified by Trane. Refer to product data for specific fan footnote references.

Refer to product data for AHRI certification status. Propylene glycol and calcium chloride, or mixtures thereof, are outside the scope of AHRI Standard 410 and, therefore, do not require AHRI rating or certification. For coils within the scope of AHRI Standard 410 cooling coil performance is certified in accordance with the AHRI Forced-Circulation Air-Cooling and Air-Heating Coils Certification Program which is based on AHRI Standard 410 within the Range of Standard Rating Conditions listed in Table 1 of the Standard. Certified units may be found in the AHRI Directory at www.ahridirectory.org. Heating performance for heat pump or condenser mode is not certified.

Manufacturer provided VFDs shall be certified to AHRI Standard 1210 "Performance Rating of Variable Frequency Drives" to ensure documented and reliable VFD efficiency.

Unit Construction

Outdoor unit roofs shall incorporate a standing seam on the exterior to ensure a rigid roof construction and prevent water infiltration. Roof assembly shall overhang all walls by 1.5-inch minimum to prevent sheeting from roof to side panels. Rain gutters shall also be provided over all doors shorter than total unit height to direct rain away from the door assembly. Outdoor roofs shall be sloped, not less than 0.125 inches per foot, for water drainage. Where outdoor units are shipped in multiple sections, provide standing-seam joiners at each split with adhesive, hardware, and cover strips for field joining by the installing contractor.

All unit panels shall be 2" solid, double-wall construction to facilitate cleaning of unit interior. Unit panels shall be provided with a mid-span, no-through-metal, internal thermal break. Casing thermal performance shall be such that under 55°F supply air temperature and design conditions on the exterior of the unit of 81°F dry bulb and 73°F wet bulb, condensation shall not form on the casing exterior. Casing construction will comply with NFPA 90A.

All outdoor AHU interior casing panels will be made of galvanized steel.

Unit Paint

External surface of unit casing will be coated with water-based polyurethane paint. Color to be standard "Slate Gray". Factory-painted units will be able to withstand a salt spray test in accordance with ASTM B117 for a minimum of 500 consecutive hours and shall meet the following requirements following the salt-spray test:

- Mean scribe creepage rating of at least 6 per ASTM D1654 procedure A
- Blister size no larger than #6 per ASTM D714
- Blister density no greater than Medium per ASTM D714
- No onset of red rust

Casing Deflection

The casing shall not exceed 0.0042 inch deflection per inch of panel span at 1.00 times design static pressure. Maximum design static shall not exceed +8 inches w.g. in all positive pressure sections and -8 inches w.g. in all negative pressure sections.

Floor Construction

The unit floor shall be of sufficient strength to support a 300.0 lb load during maintenance activities and shall deflect no more than 0.0042 inch per inch of panel span.

Unit Base

Manufacturer to provide a full perimeter integral base frame for either ceiling suspension of units or to support and raise all sections of the unit for proper trapping. Indoor unit base frame will either be bolted construction or welded construction. All outdoor unit base frames shall be welded construction. For indoor units, refer to schedule for base height and construction type. Contractor will be responsible for providing a housekeeping pad when unit base frame is not of sufficient height to properly trap unit. Unit base frames not constructed of galvanized steel shall be chemically cleaned and coated with both a rust-inhibiting primer and finished coat of rust-inhibiting enamel. Unit base height to be included in total height required for proper trap height.

Insulation

Panel insulation shall provide a minimum thermal resistance (R) value of 13 ft²-h-°F/Btu throughout the entire unit. Insulation shall completely fill the panel cavities in all directions so that no voids exist and settling of insulation is prevented.

Drain Pan

In sections provided with a drain pan, the drain pan shall be designed in accordance with ASHRAE 62.1. To address indoor air quality (IAQ) the drain pan shall be sloped in two planes promoting positive drainage to eliminate stagnant water conditions. Drain pan shall be insulated, and of double wall construction. The outlet shall be the lowest point on the pan, and shall be of sufficient diameter to preclude drain pan overflow under normally expected operating conditions. All drain pans connections shall have a threaded connection, extending a minimum of 2-1/2" beyond the unit base, and shall be made from the same material as the drain pan. Drain pan located under a cooling coil shall be of sufficient size to collect all condensate produced from the coil.

Refer to Product Data for specific information on which sections are supplied with a drain pan, the drain pan material and connection location.

Access Door Construction

Access doors shall be 2" double wall construction. Interior and exterior door panels shall be of the same construction as the interior and exterior wall panels respectively. All doors shall be provided with a thermal break construction of door panel and door frame. Gasketing shall be provided around the full perimeter of the doors to prevent air leakage. Surface mounted handles shall be provided to allow quick access to the interior of the functional section and to prevent through cabinet penetrations that could likely weaken the casing leakage and thermal performance. Handle hardware shall be designed to prevent unintended closure. Outswing doors shall have easily removable hinges and handles that can be relocated to change the door swing if needed. Door hinges shall be made of stainless steel.

All doors shall be a minimum of 60" high when sufficient height is available or the maximum height allowed by the unit height.

Door handles shall be provided for each latching point of the door necessary to maintain the specified air leakage integrity of the unit. An optional shatterproof window shall be provided in access doors where indicated on the plans. Window shall either be single pane, or thermal dual pane, as defined on schedule. Window shall be capable of withstanding unit operating pressures and shall be safe for viewing UV-C lamps.

Refer to Product Data for specific information on which sections are supplied with an access door, the door location, a single handle and a window.

Field supplied Curb

Outdoor AHU is to be mounted on field-supplied specialty curb. Refer to the specialty curb manufacturer's installation requirements for any curb assembly, curb mounting to roof structure, or unit-to-curb attachment. For units requiring external piping cabinet(s), the specialty curb manufacturer is to also provide a curb for external pipe chase(s).

Lifting Instructions

The air handling units must be rigged, lifted, and installed in strict accordance with the Installation, Operation, and Maintenance manual (CLCH-SVX07G-EN). The units are also to be installed in strict accordance with the specifications. Units may be shipped fully assembled or disassembled to the minimum functional section size in accordance with shipping and job site requirements.

Outdoor units shall be shipped on frame for the purpose of mounting units on a roof curb or field-supplied pier support system. Refer to the Product Data section for type of the base frame provided (for roof curb or pier-mount).

All units will be shipped with an integral base frame designed with the necessary number of lift points for safe installation. All lifting lugs are to be utilized during lift. The lift points will be designed to accept standard rigging devices and be removable after installation.

MIXING SECTION

A mixing section shall be provided to support the damper assembly for outdoor, return, and/or exhaust air.

Dampers

Dampers shall modulate the volume of outdoor, return, or exhaust air. The dampers shall be of double-skin airfoil design with metal, compressible jamb seals and flexible blade-edge seals on all blades. The blades shall rotate on stainless-steel sleeve bearings. The dampers shall be rated for a maximum leakage rate of 3 cfm/ft² at 1 in. w.g. complying with ASHRAE 90.1 maximum damper leakage. All leakage testing and pressure ratings shall be based on AMCA Standard 500-D. Dampers may be arranged in a parallel or opposed-blade configuration.

Inlet Hoods

Inlet hoods are provided on the outside air openings and equipped with high performance moisture eliminators to minimize water carryover from the outside into the unit casing. Eliminators also perform the function of a bird screen to prevent nesting.

Refer to the unit As-Built and Product Data section for specific information on which sections are supplied with inlet hood.

Dampers

Dampers shall modulate the volume of outdoor, return, or exhaust air. The dampers shall be of double-skin airfoil design with metal, compressible jamb seals and flexible blade-edge seals on all blades. The blades shall rotate on stainless-steel sleeve bearings. The dampers shall be rated for a maximum leakage rate of 3 cfm/ft² at 1 in. w.g. complying with ASHRAE 90.1 maximum damper leakage. All leakage testing and pressure ratings shall be based on AMCA Standard 500-D. Dampers may be arranged in a parallel or opposed-blade configuration.

FILTER SECTION

A section shall be provided to support the filter rack as indicated throughout the unit. Refer to Product Data and As-Built sections of the submittal for specific locations within each unit.

Primary Filters

Cartridge Filters

The filters shall be 12-inch cartridge filters constructed with a continuous sheet of fine-fiber media made into uniformly spaced pleats. The filters shall be capable of operating up to 625 fpm face velocity without loss of filter efficiency and holding capacity. The filters shall be sealed into a metal frame assembled in a rigid manner. A gasket material shall be installed on the metal header of the filter to prevent filter bypass where the metal headers meet on the side-access racks. All cartridge filters shall be furnished with a 2-inch prefilter to provide extended cartridge filter life. The manufacturer shall supply a side-access filter rack capable of holding cartridge filters and prefilters.

The cartridge filters shall have a MERV 15 rating when tested in accordance with the ANSI/ASHRAE Standard 52.2.

Prefilter Type

2-inch pleated media filters made with 100% synthetic fibers that are continuously laminated to a supported steel-wire grid with water repellent adhesive shall be provided. Filters shall be capable of operating up to 625 fpm face velocity without loss of filter efficiency and holding capacity. The filters shall have a MERV 8 rating when tested in accordance with the ANSI/ASHRAE Standard 52.2.

COIL SECTION WITH FACTORY INSTALLED COIL

The coil section shall be provided complete with coil and coil holding frame. The coils shall be installed such that headers and return bends are enclosed by unit casings. If two or more cooling coils are stacked in the unit, an intermediate drain pan shall be installed between each coil and be of the same material as the primary drain pan. Like the primary drain pan, the intermediate drain pan shall be designed being of sufficient size to collect all condensation produced from the coil and sloped to promote positive drainage to eliminate stagnant water conditions. The intermediate pan shall begin at the leading face of the water-producing device and be of sufficient length

extending downstream to prevent condensate from passing through the air stream of the lower coil. Intermediate drain pan shall include downspouts to direct condensate to the primary drain pan. The outlet shall be located at the lowest point of the pan and shall be sufficient diameter to preclude drain pan overflow under any normally expected operating condition.

An easily removable service panel shall be provided in sections as specified, to facilitate access to unit for periodic servicing, or for removal and replacement of coils. Removal of service panel will not impact the structural integrity of the unit.

No casing penetrations supplied for hydronic drain and vents. If required, piping contractor will need to drill drain and vent penetrations using factory located features provided in coil panel.

Refrigerant Cooling Coils

The coils shall have aluminum fins and seamless copper tubes. The fins shall have collars drawn, belled, and firmly bonded to tubes by mechanical expansion of the tubes. Suction and liquid line connections shall extend to the unit exterior. The coil casing may be galvanized or stainless steel. Refer to the Product Data section of the submittal for the coil casing material.

The coils shall be proof-tested to 715 psig and leak-tested to 650 psig air pressure under water or equivalent tracer gas leak test. After testing, the inside of the coils shall be dried, all connections shall be sealed, and the coil shall be shipped with a charge of dry air or nitrogen.

Suction headers and liquid connections shall be constructed of copper tubing with connections penetrating unit casings to permit sweat connections to refrigerant lines. The coils shall have equalizing vertical distributors sized according to the capacities of the coils. Refer to the Product Data section of the submittals for AHRI certification status.

Refrigerant coil tubes are 1/2" [13mm] OD, 0.016" [0.406mm] thick, internally enhanced copper.

ACCESS/INSPECTION / TURNING SECTION

A section shall be provided to allow additional access/inspection of unit components and space for field-installed components as needed. An access door shall be provided for easy access. All access sections shall be complete with a double-wall, removable door downstream for inspection, cleaning, and maintenance. Interior and exterior door panels shall be of the same construction as the interior and exterior wall panels, respectively. All doors shall be provided with a thermal break construction of door panel and door frame.

DIRECT-DRIVE PLENUM FAN SECTION

The fan type shall be provided as required for stable operation and optimum energy efficiency. The fan shall be a single-width, single-inlet, multiblade-type direct-drive plenum fan. Motor bearing life of the direct-drive plenum fan shall be not less than L-10 250,000 hrs. *Refer to the Product Data section for fan quantity and number of blades selected within each unit.* Central Station Air Handling Unit Supply Fans are "Certified by the AHRI Central Station Air-Handling Unit (AHU) Certification Program, based on AHRI Standard 430/431. AHRI certified units are subject to rigorous and continuous testing, have performance ratings independently measured and are third-party verified. Certified units may be found in the AHRI Directory at www.ahridirectory.org" Central Station Air Handling Unit Supply Fans shall be tested and rated in-accordance with AHRI Standard 260 for sound performance.

Fans that are selected with inverter balancing shall first be dynamically balanced at design RPM. The fans then will be checked in the factory from 25% to 100% of design RPM to insure they are operating within vibration tolerance specifications, and that there are no resonant frequency issues throughout this operating range. Inverter balancing that requires lockout frequencies inputted into a variable frequency drive to in order to bypass resonant frequencies shall not be acceptable. If supplied in this manner by the unit manufacturer, the contractor will be responsible for rebalancing in the field after unit installation. Fans selected with inverter balancing shall have a maintenance free grounding assembly installed on the fan motor to discharge both static and induced shaft currents to ground.

On units supplied with plenum or motorized impeller fans, door guard(s) shall be supplied on the access door(s) to the fan and those downstream access door(s) where unintended access to the plenum or motorized impeller fan could occur. Door guard is intended to deter unauthorized entry and incidental contact with rotating components. *Refer to the Product Data section for fans with access door guard(s).*

Motor Frame

The motor shall be mounted integral to the isolated fan assembly and furnished by the unit manufacturer. The motor is mounted inside the unit casing on an adjustable base to permit adjustment of drive belt tension (not applicable for direct drive plenum fans). The motor shall meet or exceed all NEMA Standards Publication MG 1 requirements and

comply with NEMA Premium efficiency levels when applicable except for fractional horsepower motors which are not covered by the NEMA classification. The motor shall be T-frame, squirrel cage with size, type, and electrical characteristics as shown on the equipment schedule. *Refer to the Product Data section for selected fan motors within each unit.*

Two-Inch Spring Isolators

Direct-drive fan and motor assemblies shall be internally isolated from the unit casing with 2-inch (50.8 mm) deflection spring isolators. The isolation system shall be designed to resist loads produced by external forces, such as earthquakes, and conform to the current IBC seismic requirements.

Combination VFD / Disconnect

A combination Variable Frequency Drive (VFD) / disconnect shall be provided when variable air volume control is required for fan operation. Whether for single fan, dual fan, or fan array applications, a single VFD shall be provide to ensure proper operation and to optimize operating life. Each VFD / disconnect shall be properly sized, factory mounted in a full metal enclosure, wired to the fan motor(s), and commissioned to facilitate temporary heating, cooling, ventilation, and/or timely completion of the project. VFD / disconnects shall include a circuit breaker disconnect with a through-the-door interlocking handle and shall be lockable. The VFD package shall also include:

- a) Electronic manual speed control
- b) Hand-Off-Auto (H-O-A) selector switch
- c) Inlet fuses to provide maximum protection against inlet short circuit
- d) Current limited stall prevention
- e) Auto restart after momentary power loss
- f) Speed search for starting into rotating motor
- g) Anti-windmill w/DC injection before start
- h) Phase-to-phase short circuit protection
- i) Ground fault protection
- j) Manual motor protection MMP

Units with factory-mounted controls shall include power wiring from the VFD panel to the control system transformers, binary output on/off wiring, analog output-speed-signal wiring, and all interfacing wiring between the VFD and the direct digital controller.

The VFD shall be UL508C listed and CSA certified and conform to applicable NEMA, ICS, NFPA, & IEC standards.

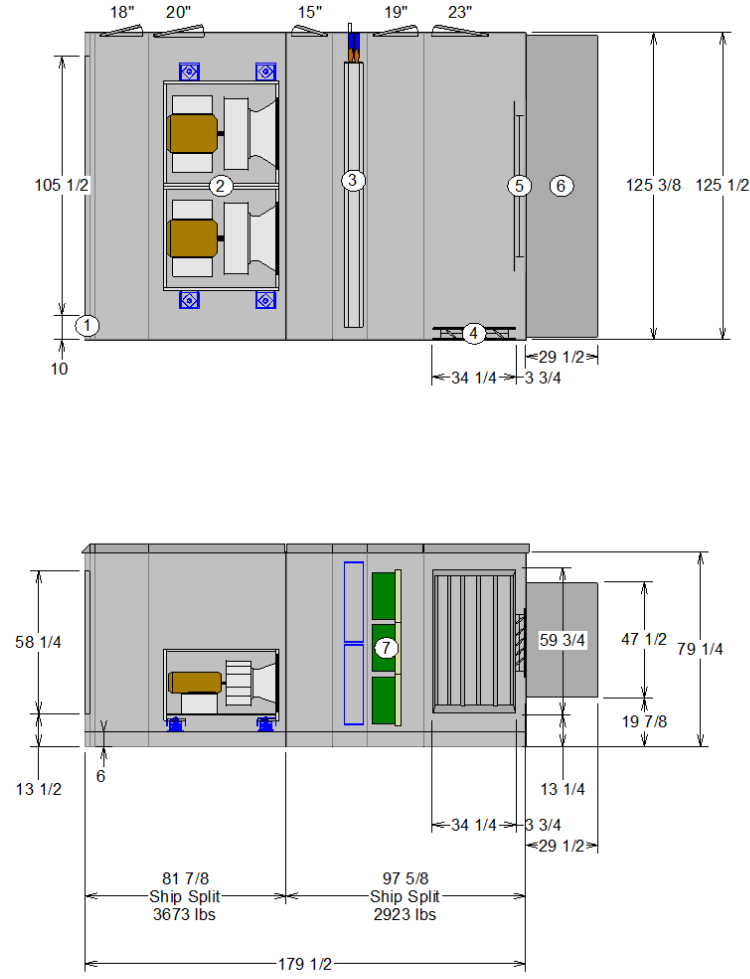
The supply fan's Starter/VFD shall be mounted internal of unit casing in the controls section. The internal enclosure shall be an integral part of the unit casing to allow for thermal venting to casing interior, but shall be accessible from unit exterior through access door. Internally mounted starters shall have doors with the same construction as other doors on unit. An external disconnect shall be mounted through the door to the starter/VFD to disconnect full power from starter/VFD.

Motor Wiring Conduit

The fan motor wiring shall be factory-wired to the unit-mounted disconnect, variable frequency drive, or external motor junction box within flexible metal conduit of adequate length so that the fan vibration isolation, if applicable, will not be restricted. Refer to the Product Data section for fans with motor wiring conduit.

Dimensional Drawings - Performance Climate Changer (CSAA)

Item: A1 Qty: 1 Tag(s): AHU-1



- 1 Opening front
58.25 x 105.5
 - 2 Plenum fan - 27in. dd plenum, 80% width, H press Supply fan 20 hp 460/3
 - 3 Cooling coil - 4 Rows
Coil type 1/2" Unit Optimized, General (UF)
 - 4 Damper right-parallel blade
59.75 x 34.25
 - 5 Damper back-parallel blade
28.5 x 71
 - 6 Hood back
 - 7 Cartridge filters - 12in. cartridge - 95% eff - MERV 15
- Doors
 18 width x 69 height
 20 width x 69 height
 15 width x 69 height
 19 width x 69 height
 23 width x 69 height

For maneuvering purposes, include 1.125 inches to each ship split length for overlapping panel flange. Flange will not add to overall installed unit length shown.

OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

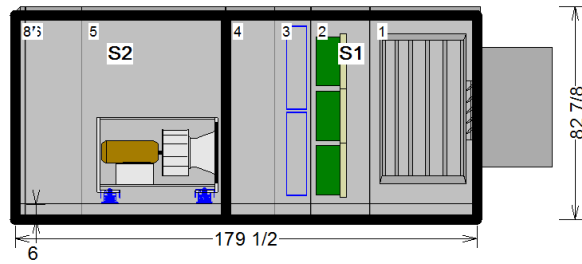
Unit size: 50	Job Name: Greenville City Hall Unit #1	Unit Casing: 2in Double Wall Foam
Product group: Outdoor unit	Actual airflow: 22000 cfm	Proposal Number:
Integral base frame: 6in. integral base frame	Sales Office: Raleigh	Tags: AHU-1
Paint: Slate gray		Rigging/Installed Weight: 6595.4 lb / 6595.4 lb



Dimensional Drawings - Performance Climate Changer (CSAA)

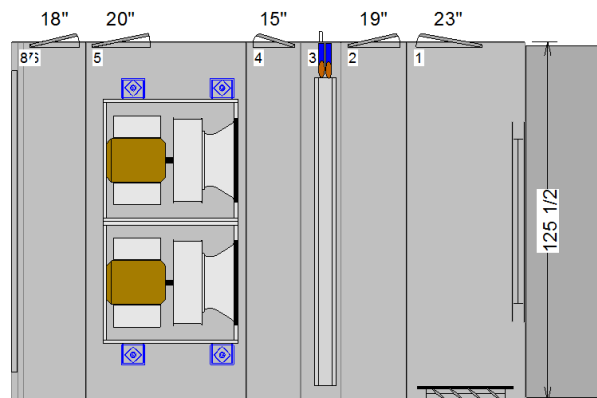
Item: A1 Qty: 1 Tag(s): AHU-1

Shipping splits are indicated by thick black lines




For maneuvering purposes, include 1.125 inches to each ship split length for overlapping panel flange. Flange will not add to overall installed unit length sh

Pos #	Module	Length	Weight
1	Air mixing section	41 1/2	1191.27
2	Filter section	23	568.89
3	Coil section	14	756.21
4	Access section	19 1/8	406.32
5	Fan section	56 1/8	2597.28
6	Controls section	21 7/8	648.30
7	Access section	2	193.56
8	Access section	2	233.62
			Installed Unit Weight 6595.44 lbs



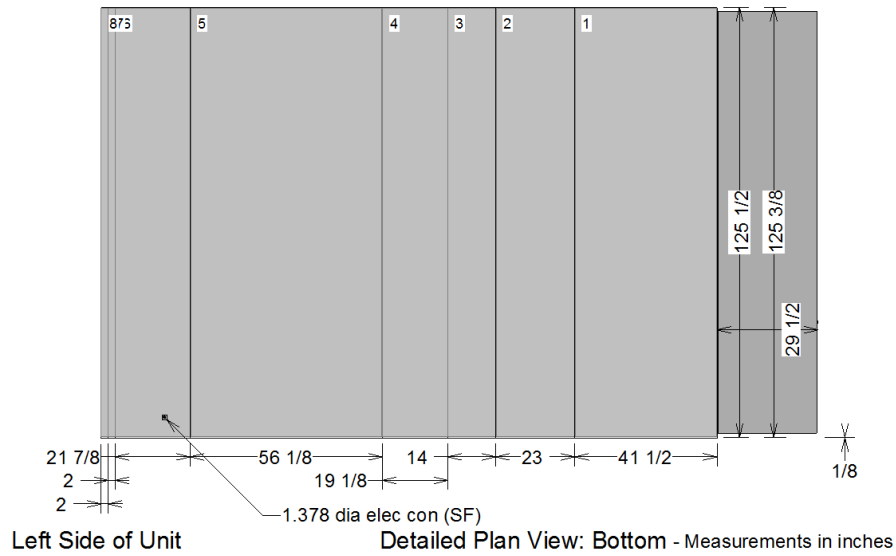
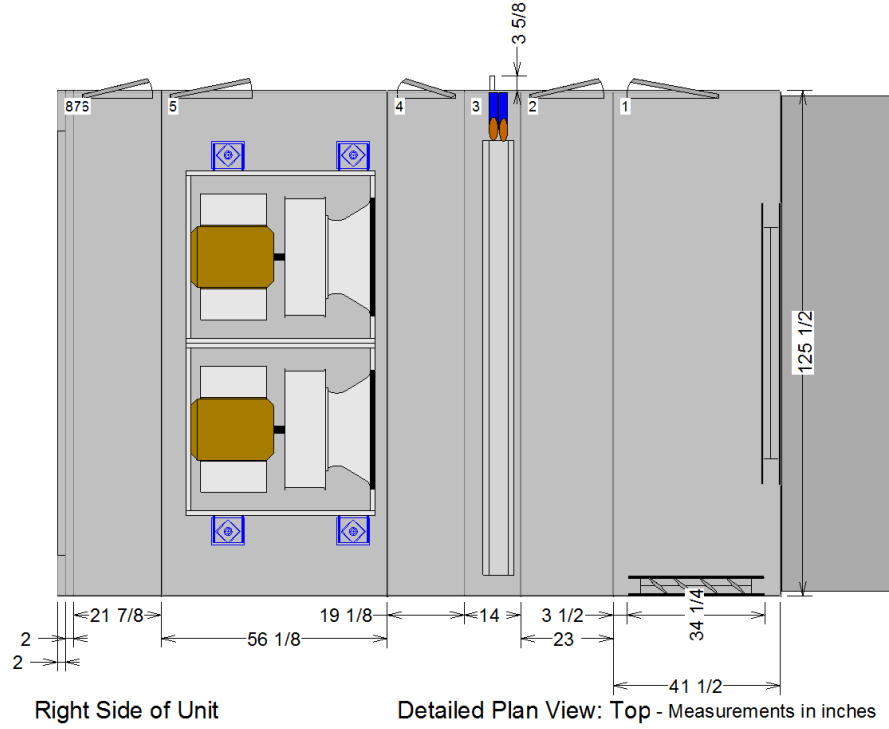
Basic Overall Plan View: Top - Measurements in inches

OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size: 50	Job Name: Greenville City Hall Unit #1	Unit Casing: 2in Double Wall Foam	
Product group: Outdoor unit	Actual airflow: 22000 cfm	Proposal Number:	
Integral base frame: 6in. integral base frame	Sales Office: Raleigh	Tags: AHU-1	
Paint: Slate gray		Rigging/Installed Weight: 6595.4 lb / 6595.4 lb	


Dimensional Drawings - Performance Climate Changer (CSAA)

Item: A1 Qty: 1 Tag(s): AHU-1



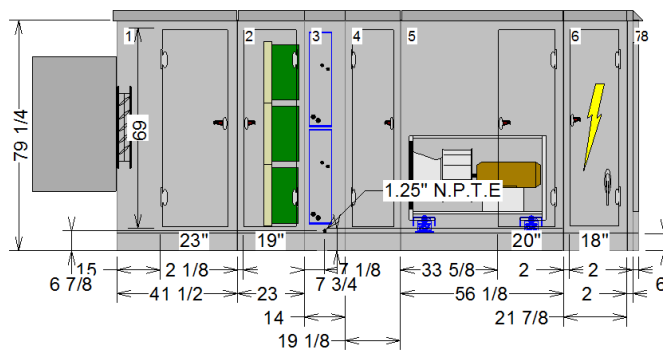
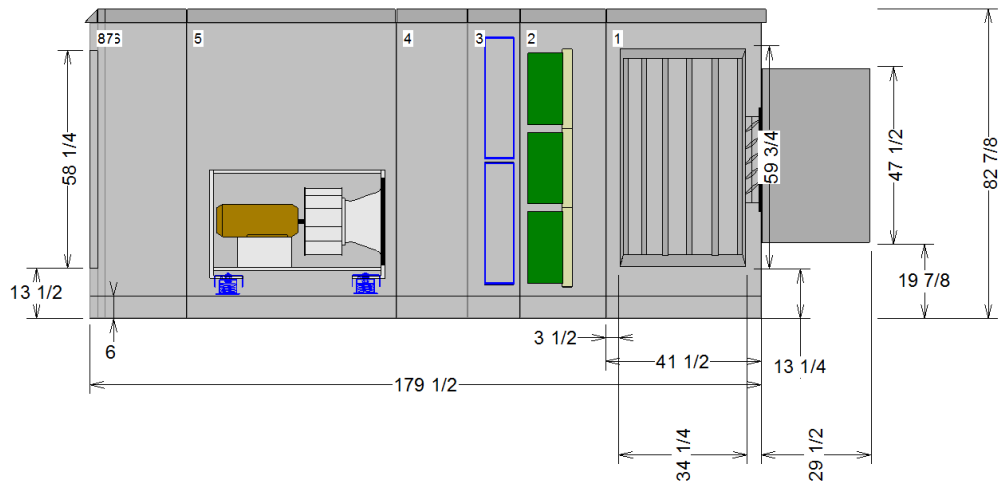
****Placement of electrical conduit may vary by a tolerance of 8" in any direction.**

OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size: 50	Job Name: Greenville City Hall Unit #1	Unit Casing: 2in Double Wall Foam	
Product group: Outdoor unit	Actual airflow: 22000 cfm	Proposal Number:	
Integral base frame: 6in. integral base frame	Sales Office: Raleigh	Tags: AHU-1	
Paint: Slate gray		Rigging/Installed Weight: 6595.4 lb / 6595.4 lb	


Dimensional Drawings - Performance Climate Changer (CSAA)

Item: A1 Qty: 1 Tag(s): AHU-1



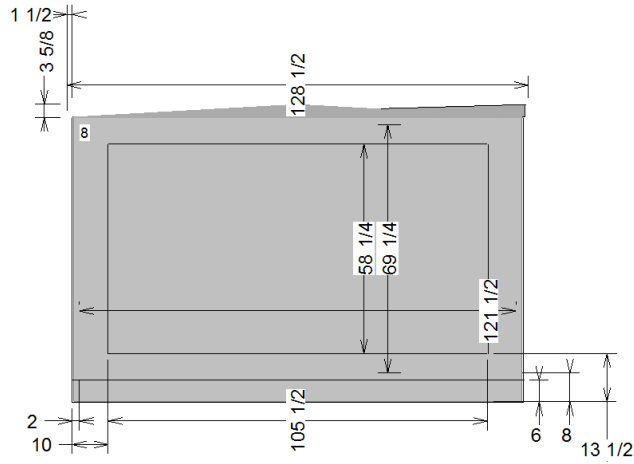
Detailed Elevation View: Left - Measurements in inches

OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

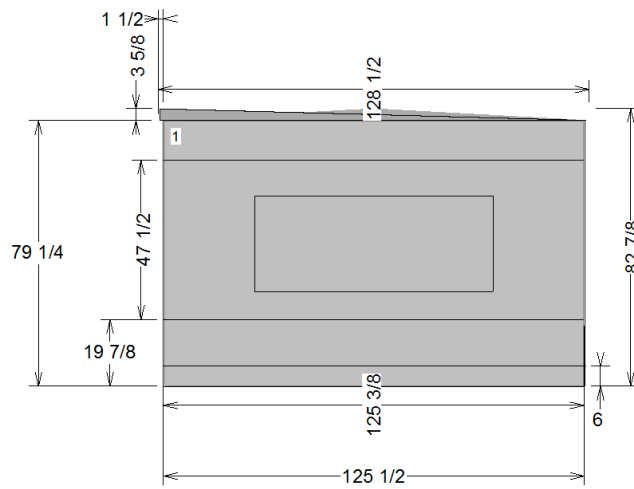
Unit size: 50	Job Name: Greenville City Hall Unit #1	Unit Casing: 2in Double Wall Foam	
Product group: Outdoor unit	Actual airflow: 22000 cfm	Proposal Number:	
Integral base frame: 6in. integral base frame	Sales Office: Raleigh	Tags: AHU-1	
Paint: Slate gray		Rigging/Installed Weight: 6595.4 lb / 6595.4 lb	

Dimensional Drawings - Performance Climate Changer (CSAA)

Item: A1 Qty: 1 Tag(s): AHU-1




Detailed Elevation View: Front - Measurements in inches



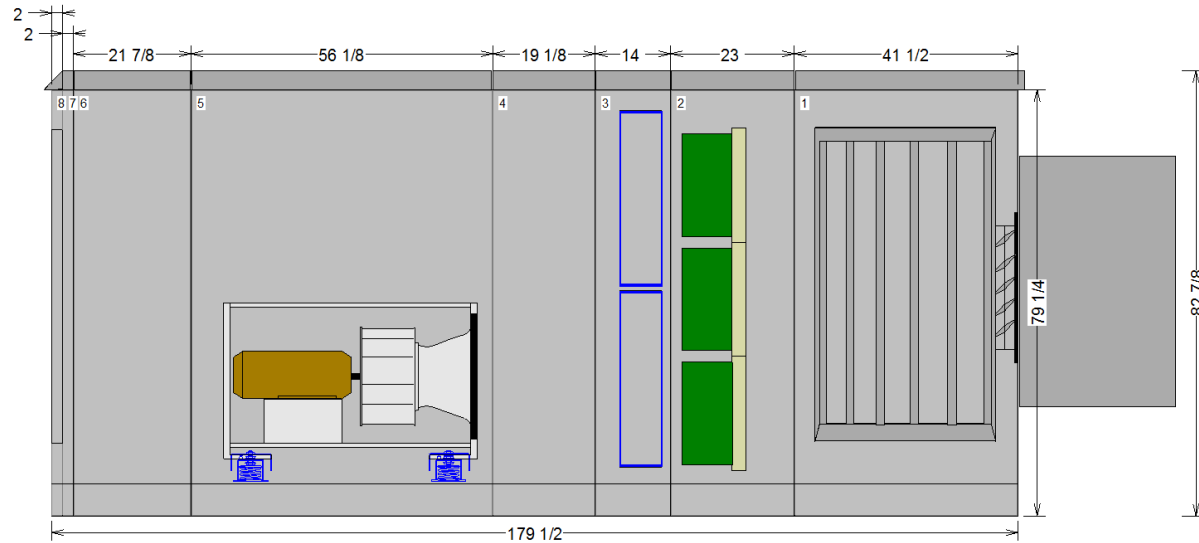
Detailed Elevation View: Back - Measurements in inches

OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size: 50	Job Name: Greenville City Hall Unit #1	Unit Casing: 2in Double Wall Foam	
Product group: Outdoor unit	Actual airflow: 22000 cfm	Proposal Number:	
Integral base frame: 6in. integral base frame	Sales Office: Raleigh	Tags: AHU-1	
Paint: Slate gray		Rigging/Installed Weight: 6595.4 lb / 6595.4 lb	

Dimensional Drawings - Performance Climate Changer (CSAA)

Item: A1 Qty: 1 Tag(s): AHU-1



NPTI : National Pipe Thread Internal Connection
NPTE : National Pipe Thread External Connection

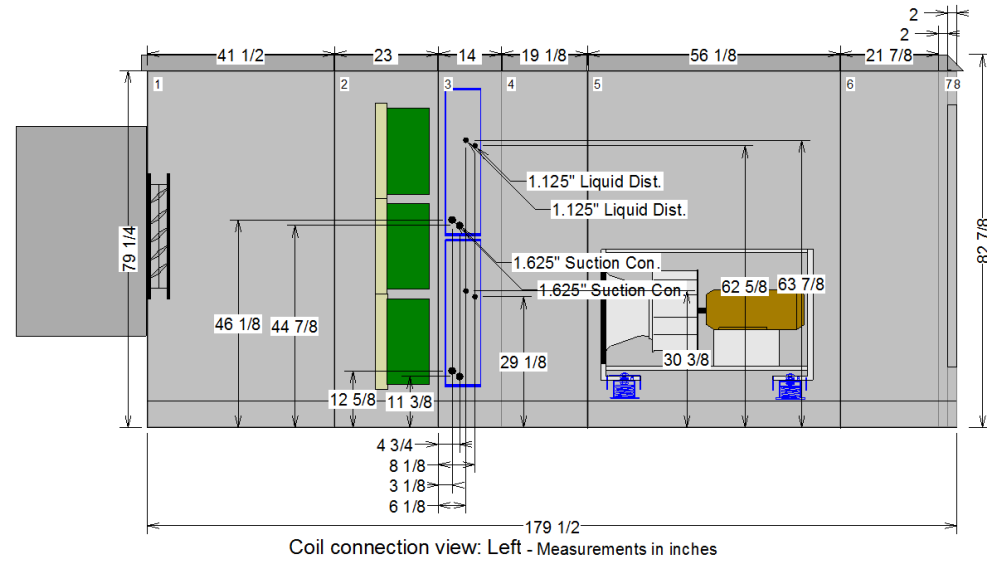
OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size: 50	Job Name: Greenville City Hall Unit #1	Unit Casing: 2in Double Wall Foam
Product group: Outdoor unit	Actual airflow: 22000 cfm	Proposal Number:
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Paint: Slate gray		Rigging/Installed Weight: 6595.4 lb / 6595.4 lb



Dimensional Drawings - Performance Climate Changer (CSAA)

Item: A1 Qty: 1 Tag(s): AHU-1



NPTI : National Pipe Thread Internal Connection
NPTE : National Pipe Thread External Connection

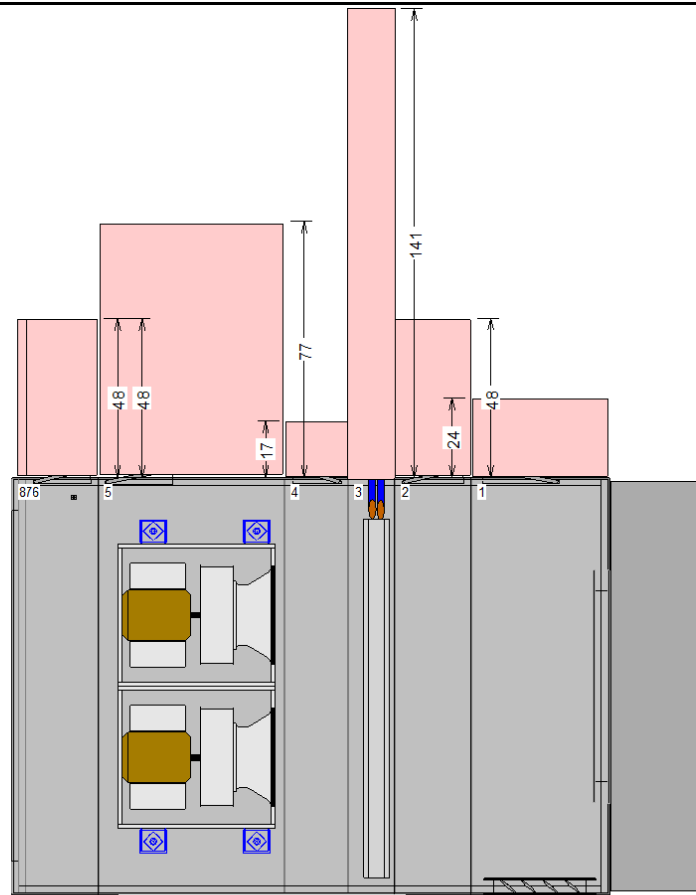
OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size: 50	Job Name: Greenville City Hall Unit #1	Unit Casing: 2in Double Wall Foam
Product group: Outdoor unit	Actual airflow: 22000 cfm	Proposal Number:
Integral base frame: 6in. integral base frame	Sales Office: Raleigh	Tags: AHU-1
Paint: Slate gray		Rigging/Installed Weight: 6595.4 lb / 6595.4 lb



Dimensional Drawings - Performance Climate Changer (CSAA)

Item: A1 Qty: 1 Tag(s): AHU-1



Basic Service Clearance - Plan - Measurements in inches

OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size: 50	Job Name: Greenville City Hall Unit #1	Unit Casing: 2in Double Wall Foam
Product group: Outdoor unit	Actual airflow: 22000 cfm	Proposal Number:
Integral base frame: 6in. integral base frame	Sales Office: Raleigh	Tags: AHU-1
Paint: Slate gray		Rigging/Installed Weight: 6595.4 lb / 6595.4 lb

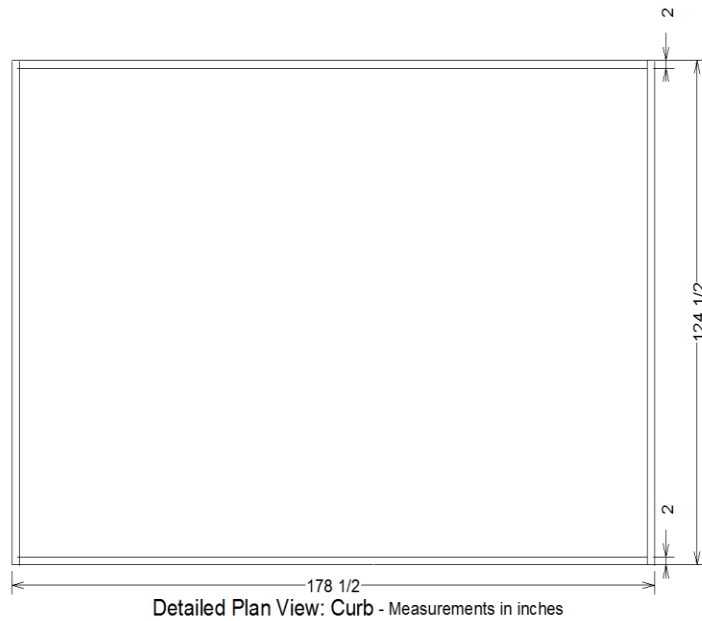


Dimensional Drawings - Performance Climate Changer (CSAA)

Item: A1 Qty: 1 Tag(s): AHU-1

ADAPTER CURB PROVIDED BY TRANE

Roof curb details included are intended to show dimensions for mounting unit to "A" roof curb on a flat roof.
All special curb details such as isolation curbs, adapter curbs and pitched roof curbs are to be provided by others.



OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size: 50	Job Name: Greenville City Hall Unit #1	Unit Casing: 2in Double Wall Foam
Product group: Outdoor unit	Actual airflow: 22000 cfm	Proposal Number:
Integral base frame: 6in. integral base frame	Sales Office: Raleigh	Tags: AHU-1
Paint: Slate gray		Rigging/Installed Weight: 6595.4 lb / 6595.4 lb



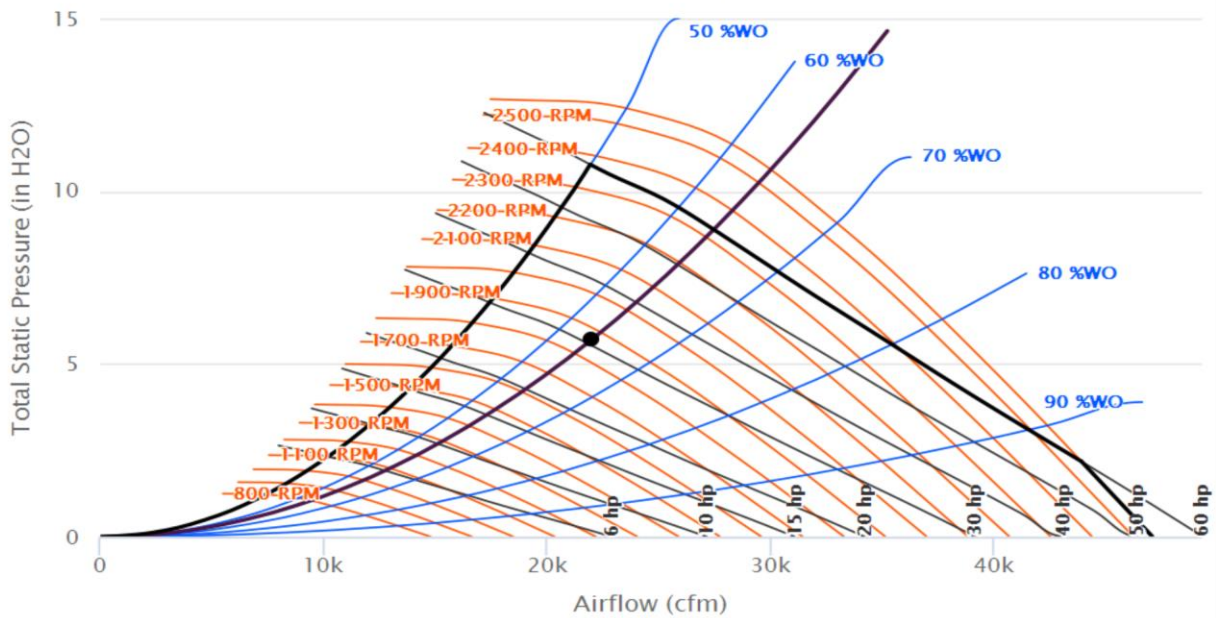
Fan Curve - Performance Climate Changer (CSAA)
Item: A1 Qty: 1 Tag(s): AHU-1

Fan Details

Unit Size	27UR	Operating Brake Power	30.975 hp
Motor Frequency	63.00 Hz	Altitude	0.00 ft
Operating Airflow	22,000 cfm	Design Temp.	70.00 F
Operating Static Pressure	5.719 in H2O	Efficiency	64.04 %
Operating RPM	1,866 rpm		

AHU-1 - Supply

Size 50 DDP 27 inch AF H Press 2x1 array 80% Width 9 blades



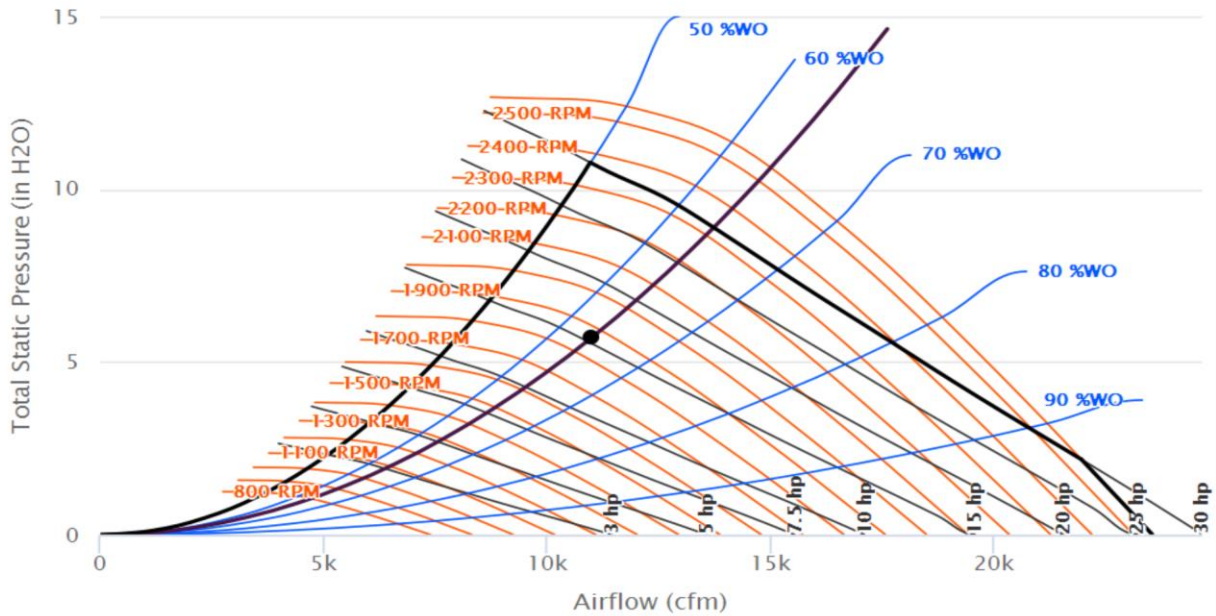
Fan Curve - Performance Climate Changer (CSAA)
 Item: A1 Qty: 1 Tag(s): AHU-1

Fan Details

Unit Size	27UR	Operating Brake Power	15.488 hp
Motor Frequency	63.00 Hz	Altitude	0.00 ft
Operating Airflow	11,000 cfm	Design Temp.	70.00 F
Operating Static Pressure	5.719 in H2O	Efficiency	64.04 %
Operating RPM	1,866 rpm		

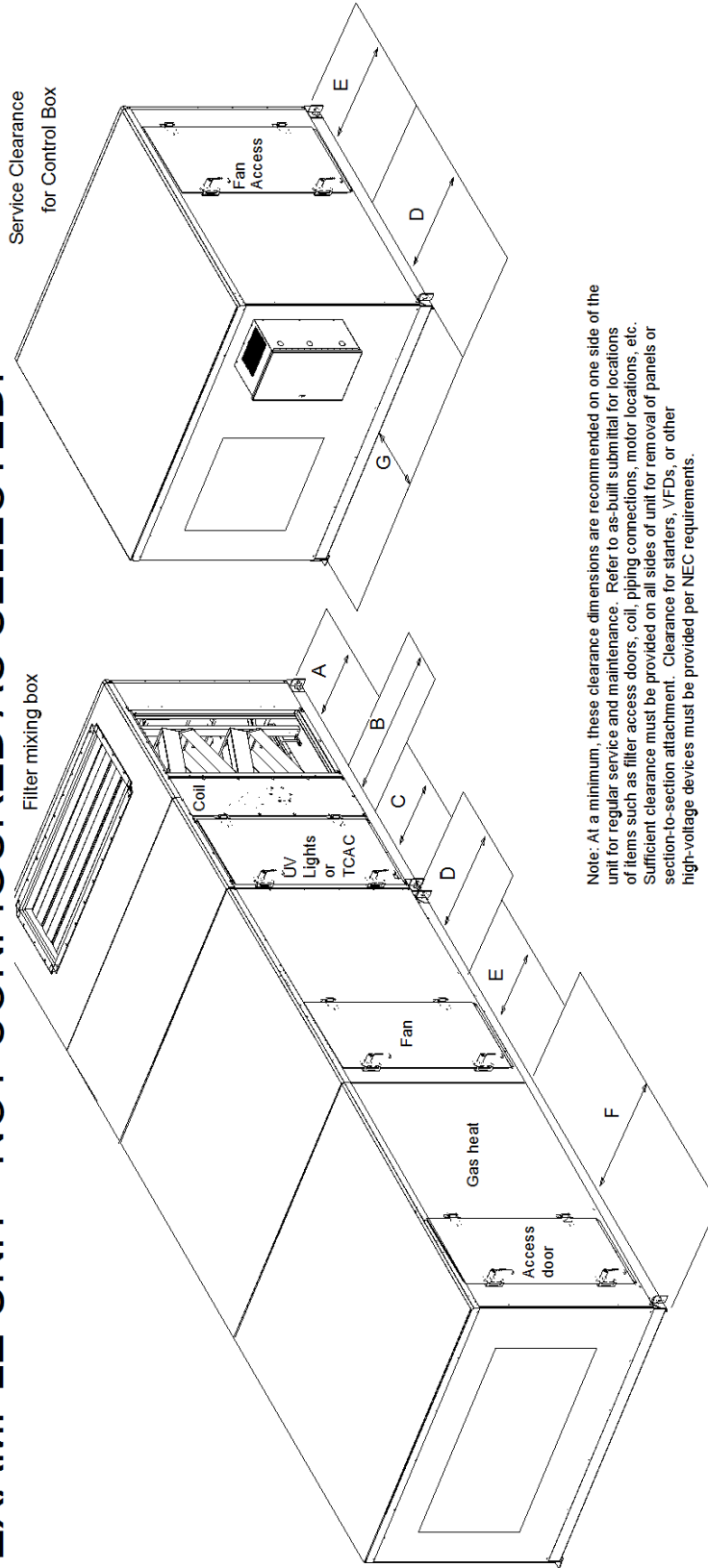
AHU-1 - Supply - Single Fan

Size 50 DDP 27 inch AF H Press 2x1 array 80% Width 9 blades



Accessory - Performance Climate Changer (CSAA)
Item: A1 Qty: 1 Tag(s): AHU-1

EXAMPLE UNIT - NOT CONFIGURED AS SELECTED.



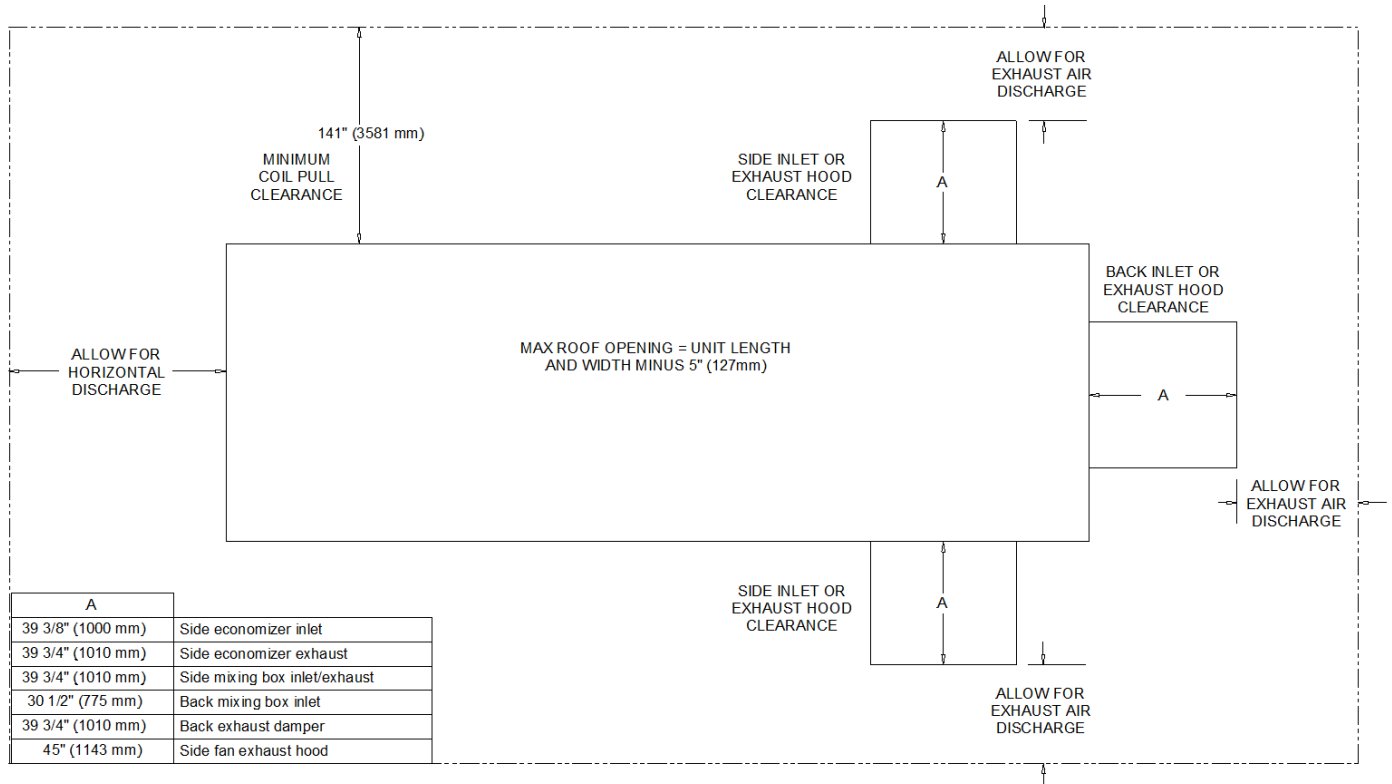
Note: At a minimum, these clearance dimensions are recommended on one side of the unit for regular service and maintenance. Refer to as-built submittal for locations of items such as filter access doors, coil, piping connections, motor locations, etc. Sufficient clearance must be provided on all sides of unit for removal of panels or section-to-section attachment. Clearance for starters, VFDs, or other high-voltage devices must be provided per NEC requirements.

Component	3	4	6	8	10	12	14	17	21	25	30	35	40	50	57	66	80	100	120
A (filter)	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	52	56	58	58
B (coil, humidifier)	48	59	66	77	82	87	87	87	95	95	109	115	128	141	141	156	156	170	197
B (staggered coil)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	67	67	76	80	88	96	96	105	105	113	129
C (UV Lights)	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	52	56	58	58
C (TCAC)	43	59	63	75	81	83	83	83	58	58	83	75	83	83	83	83	83	75	83
D (External Starter, VFD, LV box or Overload box)	61	61	61	61	61	61	61	61	64	64	64	64	64	64	64	64	64	64	64
D (Internal Starter or VFD)	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
E (fan)	48	48	48	48	51	54	58	61	60	66	66	66	70	77	77	93	93	101	101
F (Gas Heat Ext Vestible)	N/A	N/A	89	90	108	100	100	105	115	115	118	136	140	156	156	170	179	180	N/A
F (Gas Heat Int Vestible)	N/A	N/A	56	63	74	79	84	84	92	92	106	112	125	138	138	153	153	167	194

Component	All Sizes
G (Side mount LV box)	36
G (Front mount LV box)	13

Accessory - Performance Climate Changer (CSAA)

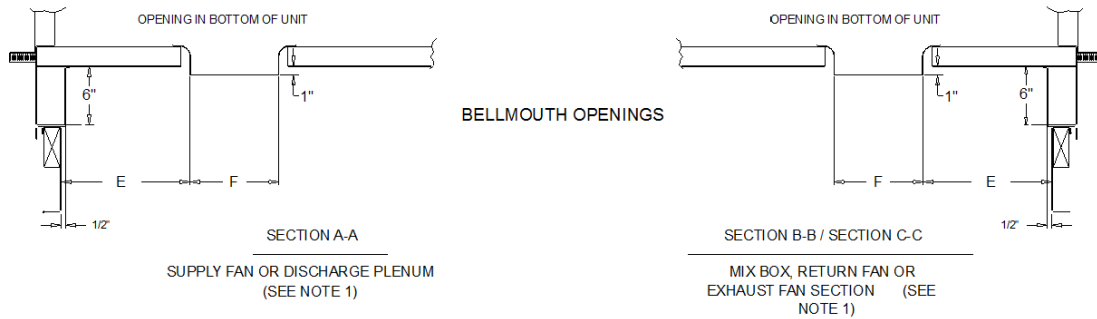
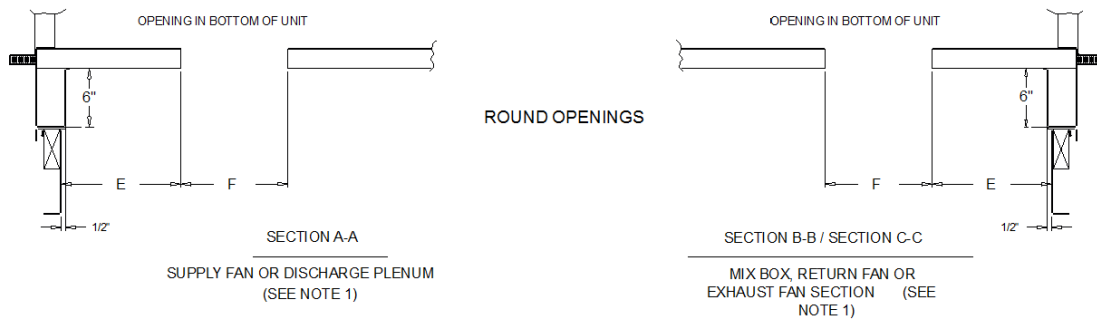
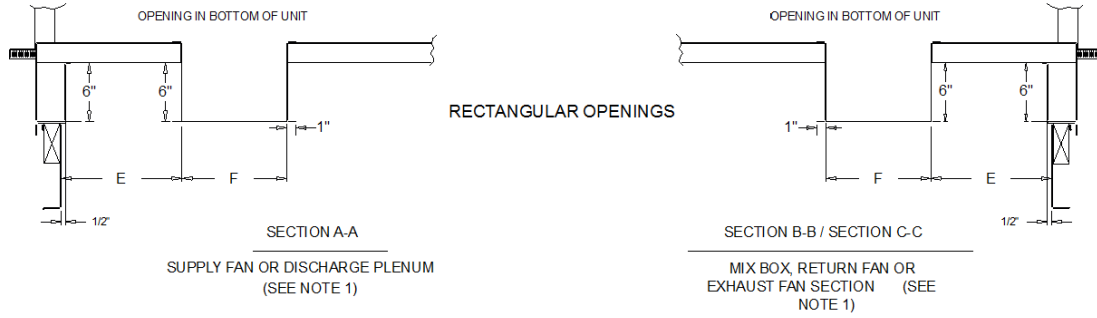
Item: A1 Qty: 1 Tag(s): AHU-1



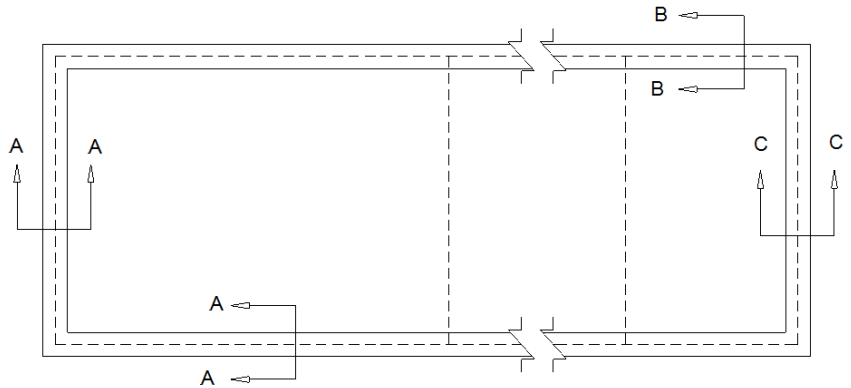
Accessory - Performance Climate Changer (CSAA)

Item: A1 Qty: 1 Tag(s): AHU-1

RELATIONSHIP OF CURB TO UNIT AS-BUILT

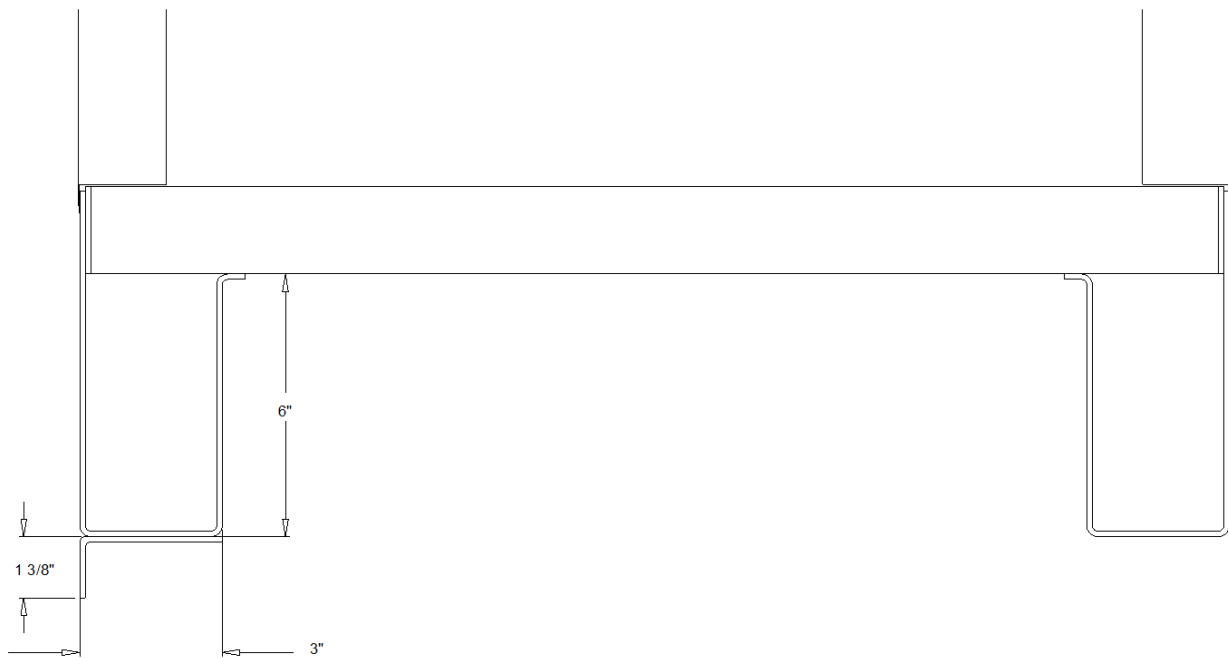


NOTE:
 1. E and F are representative of dimensions on the accessory as-built used to locate opening(s) in the roof surface.



Accessory - Performance Climate Changer (CSAA)
Item: A1 Qty: 1 Tag(s): AHU-1

Base Detail

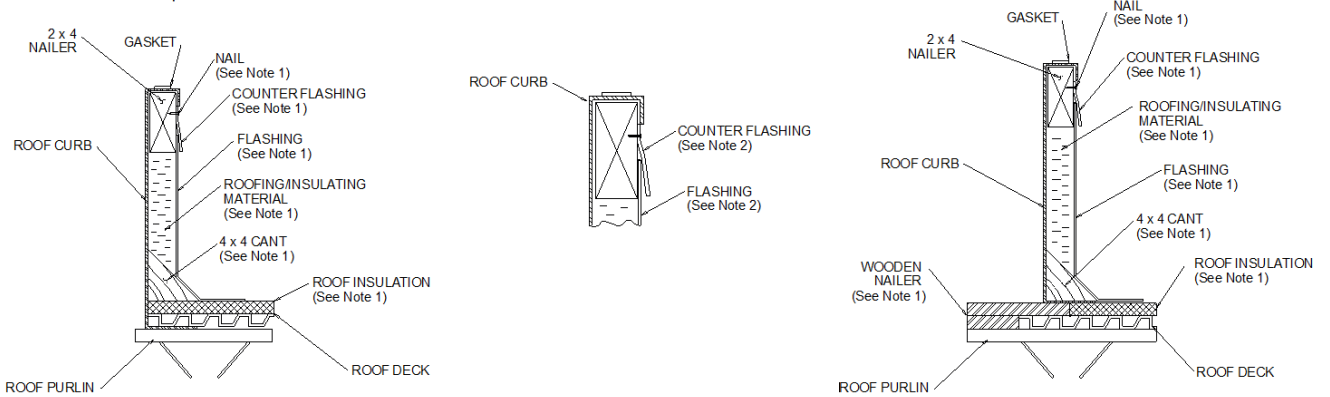


Accessory - Performance Climate Changer (CSAA)

Item: A1 Qty: 1 Tag(s): AHU-1

Recommendation for Roof Curb Installation

Refer to Performance IOM for specific installation instructions

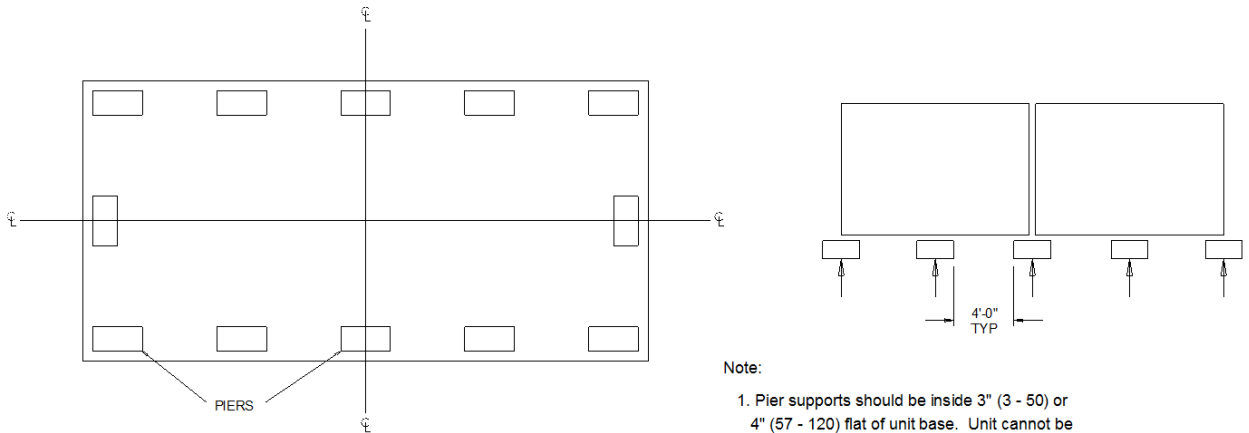


Note:

1. Materials to attach roof curb to roof are to be supplied by the installer.
2. Flashing or counter flashing should not come to or over top of curb.
3. Roof curb must be mechanically fastened to roof surface.

Recommendation for Pier Mounting

Refer to Performance IOM for specific installation instructions

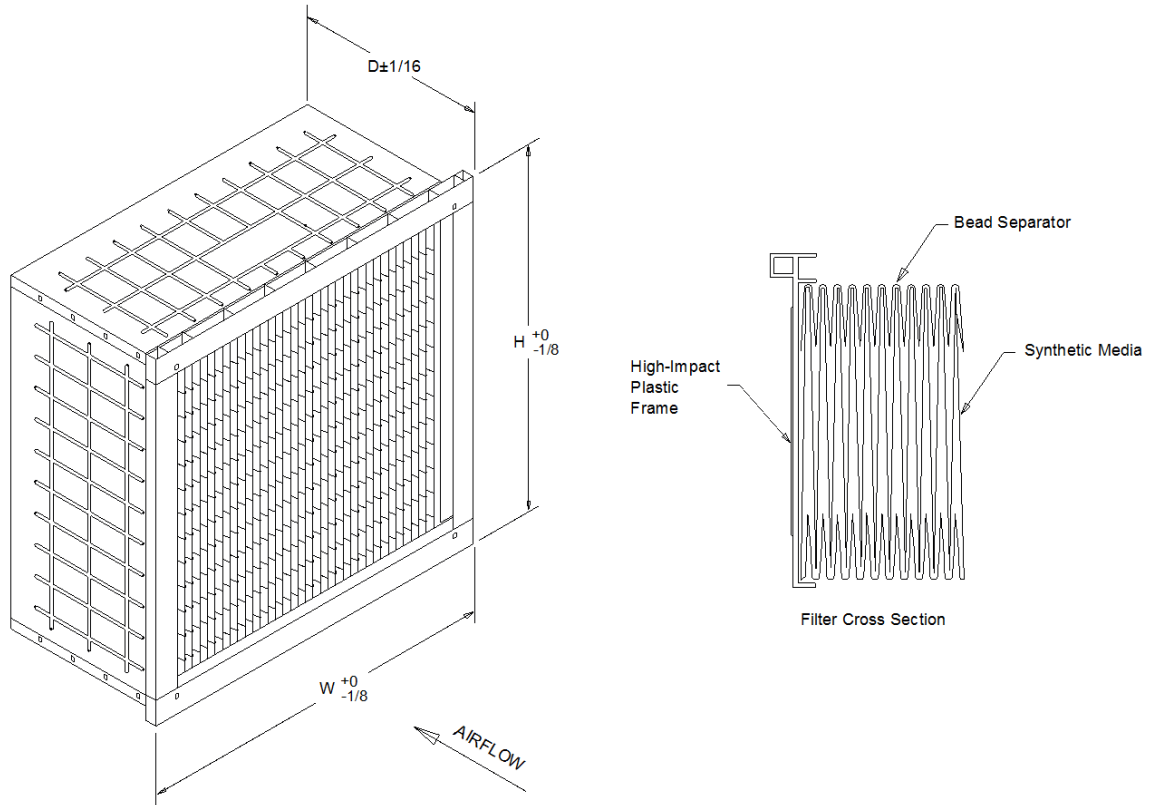


Note:

1. Pier supports should be inside 3" (3 - 50) or 4" (57 - 120) flat of unit base. Unit cannot be supported by unit base drip leg.
2. Piers beneath shipping splits must be structurally sound to support the weight of the unit.

Accessory - Performance Climate Changer (CSAA)

Item: A1 Qty: 1 Tag(s): AHU-1



MODEL NUMBER	NOMINAL SIZE (INCHES) HXWXD	ACTUAL SIZE (INCHES) HXWXD	RATED AIR FLOW (CFM)	INITIAL RESISTANCE (IN. w.G.)	MEDIA AREA (SQUARE FEET)	MERV RATING
DC95	24X24X12	23-3/8X23-3/8X11-1/2	2000	.45	58	15
DC95	20X24X12	19-3/8X23-3/8X11-1/2	1650	.45	47	15
DC95	20X20X12	19-3/8X19-3/8X11-1/2	1400	.45	39	15
DC95	12X24X12	11-3/8X23-3/8X11-1/2	1000	.45	28	15

USTANDARD CONSTRUCTION

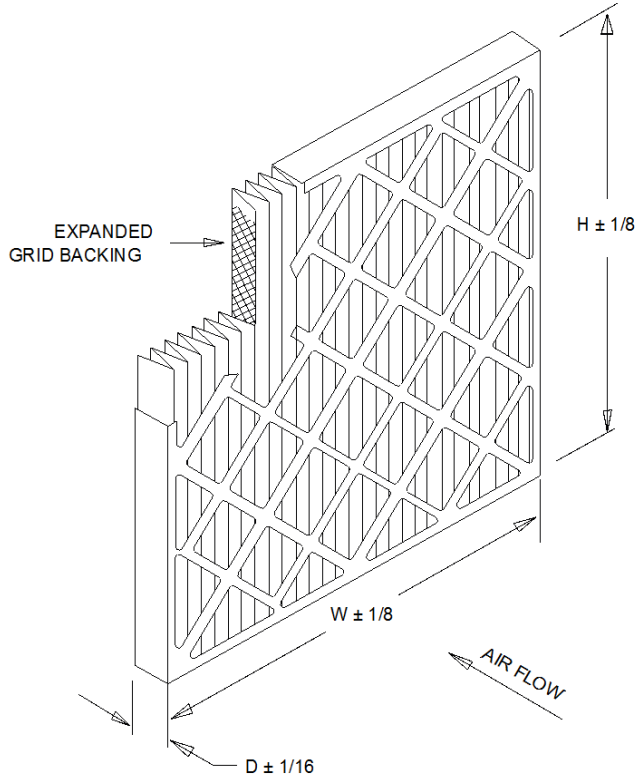
1. High Efficiency Synthetic Filter Media
2. Expanded Metal Pleat Supports
3. Adhesive seal on all four Media Pack Sides
4. 24 Gauge Galv. Steel Cell Sides
5. Plastic fingers maintain pleat spacing
6. Diagonal support braces on air entering and air leaving sides for additional rigidity
7. (4) retainer holes for spring latches, both sides

UNOTES

1. MERV per ASHRAE 52.2-2012
Tested at 492 FPM on 24x24 Face Size
2. Final Resistance: 1.5" W.G.
3. Rated Velocity - 500 FPM
4. Classified per UL Standard 900 for Flammability
5. Maximum Operating Temperature: 180deg F
6. Optional gasket available, note in the model number
U-Upstream Gasket
D-Downstream gasket
UD-Both sides
7. Special Sizes not available

Accessory - Performance Climate Changer (CSAA)

Item: A1 Qty: 1 Tag(s): AHU-1



STANDARD CONSTRUCTION

1. 100 % Synthetic White Un-Dyed Media
2. 10.0 Pleats Per Foot
3. Expanded Metal Pleat Supports
4. Moisture Resistant Beverage Board Frame
5. Double Wall Frame

NOTES

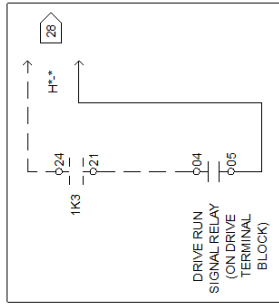
1. MERV 8-A Per ASHRAE 52.2-2007 Appendix J.
2. Final Resistance: 1/0" W.G.
3. Rated Velocity: 500 FPM
4. Class 2 Filter Per U.L. Standard 900
5. Maximum Operating Temperature: 225 DEG. F

MODEL NUMBER	NOMINAL SIZE IN. W X H X D	ACTUAL SIZE IN. W X H X D	RATED AIR FLOW CFM	INITIAL RESISTANCE IN. W.G.	MEDIA AREA SQ. FT.
MX40-STD2-217	10 X 20 X 2	9-1/2 X 19-1/2 X 1-3/4	700	0.29	4.7
MX40-STD2-220	12 X 20 X 2	11-1/2 X 19-1/2 X 1-3/4	840	0.29	5.5
MX40-STD2-210	12 X 24 X 2	11-3/8 X 23-3/8 X 1-3/4	1000	0.29	6.2
MX40-STD2-239	14 X 20 X 2	13-1/2 X 19-1/2 X 1-3/4	980	0.29	5.7
MX40-2TD2-241	14 X 25 X 2	13-1/2 X 24-1/2 X 1-3/4	1220	0.29	7.1
MX40-STD2-245	15 X 20 X 2	14-1/2 X 19-1/2 X 1-3/4	1050	0.29	6.2
MX40-STD2-201	16 X 20 X 2	15-1/2 X 19-1/2 X 1-3/4	1120	0.29	6.7
MX40-STD2-216	16 X 24 X 2	15-3/8 X 23-3/8 X 1-3/4	1340	0.29	8.0
MX40-STD2-202	16 X 24 X 2	15-1/2 X 24-1/2 X 1-3/4	1400	0.29	8.0
MX40-STD2-280	15 X 20 X 2	17-1/2 X 19-1/2 X 1-3/4	1250	0.29	7.8
MX40-STD2-212	18 X 24 X 2	17-3/8 X 23-3/8 X 1-3/4	1500	0.29	9.3
MX40-STD2-285	18 X 25 X 2	17-1/2 X 24-1/2 X 1-3/4	1570	0.29	9.7
MX40-STD2-203	20 X 20 X 2	19-1/2 X 19-1/2 X 1-3/4	1400	0.29	8.3
MX40-STD2-211	20 X 24 X 2	19-3/8 X 23-3/8 X 1-3/4	1670	0.29	9.9
MX40-STD2-204	20 X 25 X 2	19-1/2 X 24-1/2 X 1-3/4	1750	0.29	10.3
MX40-STD2-205	24 X 24 X 2	23-3/8 X 23-3/8 X 1-3/4	2000	0.29	11.7
MX40-STD2-225	25 X 25 X 2	24-1/2 X 24-1/2 X 1-3/4	2170	0.29	13.6

Accessory - Performance Climate Changer (CSAA)
Item: A1 Qty: 1 Tag(s): AHU-1

SUPPLY FAN 1 SCHEMATIC PAGE 1 OF 4

AFS CIRCUIT
2-FAN ARRAY



CAUTION
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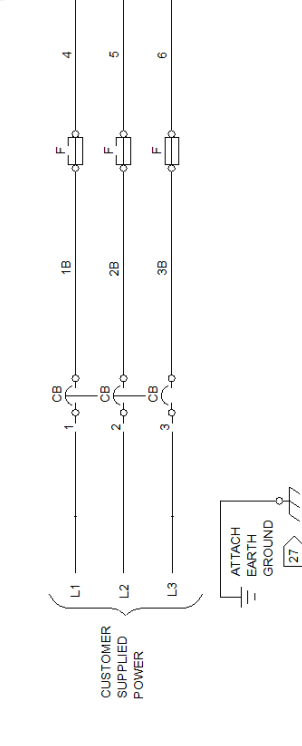
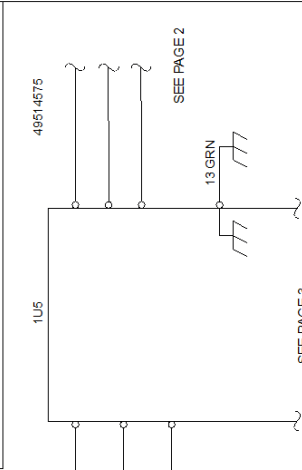
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 L'UTILISATION DE TOUT AUTRE CONDUCTEUR PEUT ENDOMMAGER L'ÉQUIPEMENT.

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 SI NO LO HACE, PUEDE OCASIONAR DAÑO ALEQUIPO.

WARNING
 HAZARDOUS VOLTAGE!
 DISCONNECT ALL ELECTRIC POWER INCLUDING REMOTE DISCONNECTS AND FOLLOW LOCK OUT AND TAG PROCEDURES BEFORE SERVICING. INSURE THAT ALL MOTOR CAPACITORS HAVE DISCHARGED STORED VOLTAGE. UNITS WITH VARIABLE SPEED DRIVE REFER TO DRIVE INSTRUCTIONS FOR CAPACITOR DISCHARGE. FAILURE TO DO THE ABOVE BEFORE SERVICING COULD RESULT IN DEATH OR SERIOUS INJURY.

AVERTISSEMENT
 TENSION DANGEREUSE!
 COUPER TOUTES LES TENSIONS ET OUVRIR LES SECTIONNEURS À DISTANCE. PUIS SUIVRE LES PROCÉDURES DE VERROUILLAGE ET DES ÉTIQUETTES AVANT TOUTE INTERVENTION. VÉRIFIER QUE TOUTS LES CONDENSATEURS DES MOTEURS SONT DÉCHARGÉS. DANS LE CAS D'UNITÉS COMPORTANT DES ENTRAÎNEMENTS À VITESSE VARIABLE, SE REPORTER AUX INSTRUCTIONS DE L'ENTRAÎNEMENT POUR DÉCHARGER LES CONDENSATEURS. NE PAS RESPECTER CES MESURES DE PRÉCAUTION PEUT ENTRAÎNER DES BLESSURES GRAVES POUVANT ÊTRE MORTELLES.

ADVERTENCIA
 ¡VOLTAJE PELIGROSO!
 DESCONECTE TODA LA ENERGÍA ELÉCTRICA, INCLUIDO LAS DESCONEXIONES REMOTAS Y SIGA LOS PROCEDIMIENTOS DE CIERRE Y ETIQUETADO ANTES DE PROCEDER AL SERVICIO. ASEGURESE DE QUE TODOS LOS CAPACITORES DEL MOTOR HAYAN DES CARGADO EL VOLTAJE ALMACENADO. PARA LAS UNIDADES CON EJE DE DIRECCIÓN DE VELOCIDAD VARIABLE, CONSULTE LAS INSTRUCCIONES PARA LA DESCARGA DEL CONDENSADOR. EL NO REALIZARLO ANTERIORMENTE INDICADO, PODRÍA OCASIONAR LA MUERTE O SERIAS LESIONES PERSONALES.



- NOTES:**
- DASHED LINES INDICATE RECOMMENDED FIELD WIRING BY OTHERS. PHANTOM LINES INDICATE CONTROL OPTION. REF. CONTROL PANEL SCHEMATIC FOR SPECIFIC DETAIL.
 - ALL FIELD WIRING MUST BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC), STATE AND LOCAL REQUIREMENTS. OTHER COUNTRIES APPLICABLE NATIONAL AND/OR LOCAL REQUIREMENTS SHALL APPLY. FIELD CONDUCTORS SHALL HAVE INSULATION RATING NOT LESS THAN 600V COPPER CONDUCTORS ONLY.
 - THE MINIMUM CIRCUIT AMPACITY, THE MAXIMUM FUSE SIZE, AND DISCONNECT SIZE ARE CALCULATED BASED ON THE INVERTER INPUT LINE CURRENTS PER ARTICLE 430-2 OF THE NATIONAL ELECTRICAL CODE.
 - PROGRAM TERMINAL 18 AS RUN.
 - PROGRAM TERMINAL 27 INV. COASTING STOP.
 - PROGRAM TERMINAL 27 INV. COASTING STOP.
 - CLOSES TO RUN AUTO MODE OR BYPASS AUTO FOR OPTION VFD OR STARTER.
 - FIELD SUPPLIED CONTACTS.
 - ATTACH GROUND OR EQUIPMENT GROUND.
 - AIRFLOW SWITCH INPUT, REFER TO LOW VOLTAGE SCHEMATIC.

AREA	DEVICE PREFIX	LOCATION CODE
1	HIGH VOLTAGE PANEL	
2	LOW VOLTAGE PANEL (UNIT SCHEMATIC)	
3	AIR HANDLER SECTION	

DEVICE DESIGNATION	DESCRIPTION
1CB11	CIRCUIT BREAKER
1F40 TO 1F42	VFD FUSES
1K3	START / STOP RELAY
1TB13	TERMINAL STRIP CONTROL CIRCUIT
1U5	VFD CONTROLLER
3B1-A1 TO 3B1-B1	MOTORS (2-FAN ARRAY)
1MP-A1 TO 1MP-B1	MOTOR BREAKERS (2-FAN ARRAY)

Accessory - Performance Climate Changer (CSAA)
Item: A1 Qty: 1 Tag(s): AHU-1

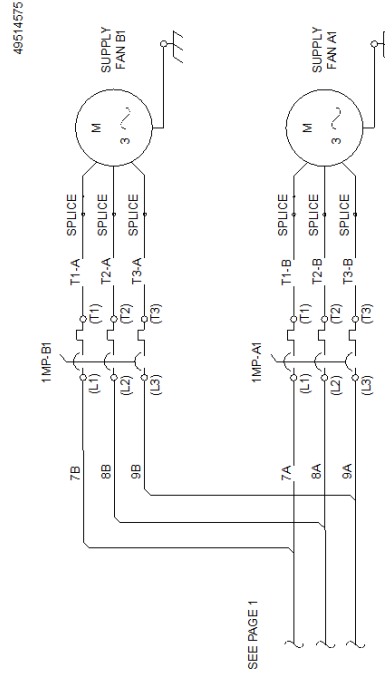
SUPPLY FAN 1 SCHEMATIC PAGE 2 OF 4

NOTES

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DEVICE DESIGNATION	DESCRIPTION
1CB1	CIRCUIT BREAKER
1F40 TO 1F42	VFD FUSES
1K3	START / STOP RELAY
1TB13	TERMINAL STRIP CONTROL CIRCUIT
1U5	VFD CONTROLLER
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1MP-A1 TO 1MP-B1	MOTOR BREAKERS (2-FAN ARRAY)



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Accessory - Performance Climate Changer (CSAA)
Item: A1 Qty: 1 Tag(s): AHU-1

SUPPLY FAN 1 SCHEMATIC PAGE 4 OF 4

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DEVICE DESIGNATION	DESCRIPTION
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1F40 TO 1F42	VFD FUSES
1K3	START/STOP RELAY
1TB13	TERMINAL STRIP CONTROL CIRCUIT
1U5	VFD CONTROLLER
3B1-A1 TO 3B1-B1	MOTORS (2-FAN ARRAY)
1MP-A1 TO 1MP-B1	MOTOR BREAKERS (2-FAN ARRAY)

VOLTAGE (VOLTS)	1MP-A1-B1			MIMP PIN (ABB)
	MOTOR HP	DRIVE HP	MIMP PIN	
200	3	7.5	MS132-10	
	5	15	MS165-16	
	7.5	20	MS165-25	
	10	20	MS165-42	
	15	25	MS165-54	
	15	30	MS132-10	
	3	7.5	MS165-16	
	5	10	MS165-20	
	7.5	15	MS165-25	
	10	20	MS165-42	
400	3	7.5	MS132-4.0	
	5	10	MS132-10	
	5	15	MS132-10	
	7.5	15	MS165-16	
	7.5	20	MS165-16	
	10	25	MS165-20	
	15	30	MS165-25	
	20	40	MS165-32	
	25	50	MS165-42	
	30	60	MS165-54	
575	3	7.5	MS132-4.0	
	5	15	MS132-6.3	
	7.5	15	MS132-10	
	10	20	MS132-10	
	15	30	MS132-16	
	15	40	MS132-20	
	20	50	MS132-25	
	25	60	MS132-32	
	30	75	MS165-42	
	40	75	MS165-54	

FUSE	VOLTAGE	VFD FUSES		CLASS
		PANEL HP (MAX)	FIN	
1F 40 1F 41 1F 42	200/220	5	LP-CC-25	CC
		7.5	JUN-50	T
		15	JUN-80	T
		20	JUN-100	T
		40	JUN-150	T
		10	JUN-50	T
		15	JUN-80	T
		25	JUN-100	T
		30	JUN-150	T
		40	JUN-150	T
1F 40 1F 41 1F 42	230	5	LP-CC-15	CC
		7.5-10	LP-CC-25	CC
		15-20	JIS-50	T
		25-30	JIS-80	T
		40	JIS-100	T
		50-60	JIS-125	T
		75-100	JIS-200	T
		5-10	LP-CC-20	CC
		30-40	JIS-80	T
		50-75	JIS-125	T
1F 40 1F 41 1F 42	460	5	LP-CC-15	CC
		7.5-10	LP-CC-25	CC
		15-20	JIS-50	T
		25-30	JIS-80	T
		40	JIS-100	T
		50-60	JIS-125	T
		75-100	JIS-200	T
		5-10	LP-CC-20	CC
		30-40	JIS-80	T
		50-75	JIS-125	T
1F 40 1F 41 1F 42	575	5	LP-CC-15	CC
		7.5-10	LP-CC-25	CC
		15-20	JIS-50	T
		25-30	JIS-80	T
		40	JIS-100	T
		50-60	JIS-125	T
		75-100	JIS-200	T
		5-10	LP-CC-20	CC
		30-40	JIS-80	T
		50-75	JIS-125	T

48614575

CAUTION

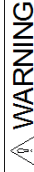
USE COPPER CONDUCTORS ONLY!
 UNIT TERMINALS ARE NOT DESIGNED TO ACCEPT OTHER TYPES OF CONDUCTORS.
 FAILURE TO DO SO MAY CAUSE DAMAGE TO THE EQUIPMENT.

ATTENTION

N'UTILISER QUE DES CONDUCTEURS EN CUIVRE!
 LES BORNES DE L'UNITÉ NE SONT PAS CONÇUES POUR RECEVOIR D'AUTRES TYPES DE CONDUCTEURS.
 L'UTILISATION DE TOUT AUTRE CONDUCTEUR PEUT ENDOMMAGER L'ÉQUIPEMENT.

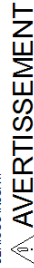
PRECAUCIÓN

UTILICE ÚNICAMENTE CONDUCTORES DE COBRE!
 LAS TERMINALES DE LA UNIDAD NO ESTÁN DISEÑADAS PARA ACEPTAR OTROS TIPOS DE CONDUCTORES.
 SI NO LO HACE, PUEDE OCASIONAR DAÑO AL EQUIPO.



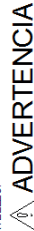
WARNING

HAZARDOUS VOLTAGE!
 DISCONNECT ALL ELECTRIC POWER INCLUDING REMOTE DISCONNECTS AND FOLLOW LOCK OUT AND TAG PROCEDURES BEFORE SERVICING. INSURE THAT ALL STORED VOLTAGE UNITS WITH VARIABLE SPEED DRIVE REFER TO DRIVE INSTRUCTIONS FOR CAPACITOR DISCHARGE FAILURE TO DO THE ABOVE BEFORE SERVICING COULD RESULT IN DEATH OR SERIOUS INJURY.



AVERTISSEMENT

TENSION DANGEREUSE!
 COUPER TOUTES LES TENSIONS ET Y COMPRIS LES DÉCONNECTS À DISTANCE. SUIVRE LES PROCÉDURES DE VERROUILLAGE ET DES ÉTIQUETTES AVANT TOUTE INTERVENTION. VÉRIFIER QUE TOUTS LES CONDENSATEURS DES MOTEURS SONT DÉCHARGÉS. DANS LE CAS D'UNITES COMPORTANT DES ENTRAÎNEMENTS À VITESSE VARIABLE, SE RÉFÉRER AUX INSTRUCTIONS POUR LE DÉCHARGEMENT DES CONDENSATEURS.
 NE PAS RESPECTER CES MESURES DE PRÉCAUTION PEUT ENTRAÎNER DES MORTS ET/OU DES BLESSURES GRAVES POUVANT ÊTRE MORTELLES.



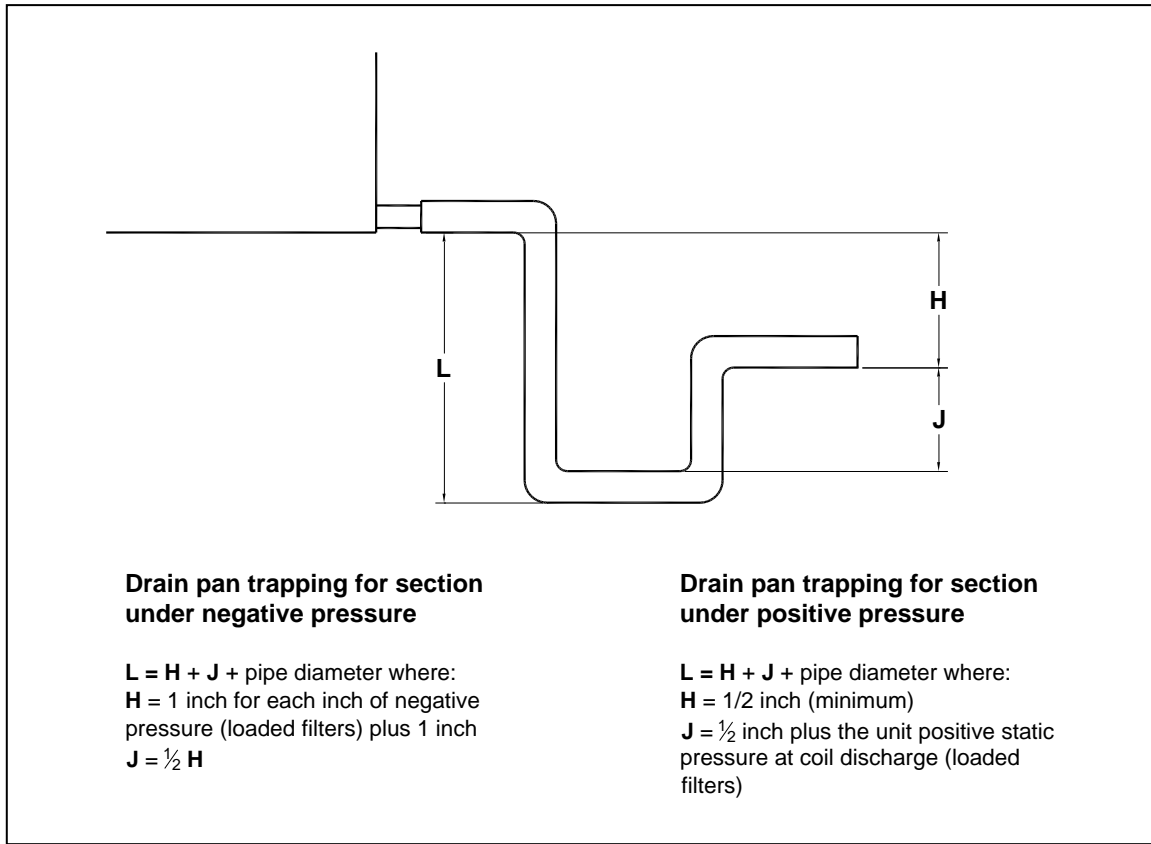
ADVERTENCIA

VOLTAJE PELIGROSO!
 DESCONECTE TODA LA ENERGÍA ELÉCTRICA, INCLUIDAS LAS DESCONEXIONES REMOTAS Y SIGA LOS PROCEDIMIENTOS DE BLOQUEO Y ETIQUETADO ANTES DE PROCEDER AL SERVICIO. ASEGURESE DE QUE TODOS LOS CAPACITORES DEL MOTOR HAYAN SIDO DESCARGADOS. EN EL CASO DE UNIDADES CON VELOCIDAD VARIABLE, REFERIRSE A LAS INSTRUCCIONES PARA LA DESCARGA DE LOS CONDENSADORES.
 EL NO REALIZAR LO ANTERIORMENTE MENCIONADO PUEDE OCASIONAR LA MUERTE O SERIAS LESIONES PERSONALES.

Accessory - Performance Climate Changer (CSAA)

Trap Schedule

Item: A1 Qty: 1 Tag(s): AHU-1



Unit Tag(s)	Unit Size	Entering Ext. Static Pressure (in H2O)	Discharge Ext. Static Pressure (in H2O)	Drain pan Section Location	Recommended Trap Dimensions ¹			Selected Baserail Height (in) ¹
					H (in)	J (in)	L (in)	
AHU-1 ²	Unit size 50	1.500	1.500	Coil section [3]	5.974	2.987	10.211	6.000

¹ To ensure proper condensate trapping the field installed housekeeping pad height is the responsibility of the contractor.

² The external static pressure used for fan selection was assumed to be divided 50% to entering duct external static pressure and 50% discharge external static pressure.

Accessory - Performance Climate Changer (CSAA)**Filter Schedule****Item: A1 Qty: 1 Tag(s): AHU-1**

Unit Tag(s)	Filter Location	Filter Arrangement	Filter Depth	Filter Type	MERV Rating	Filter Quantity	Filter Size
AHU-1	Filter section [2]	Cartridge filter	Bag/cartridge filter frame	2" Pleated media	MERV 8	5 10	12 x 24 24 x 24
				12in. cartridge - 95% eff	MERV 15	5 10	12 x 24 24 x 24

Field Wiring - Performance Climate Changer (CSAA)**MCA MOP Schedule****Item: A1 Qty: 1 Tag(s): AHU-1**

Unit Tag(s)	Circuit	Circuit Description	Voltage/Phase/Hz	MCA (A)	MOP (A)
AHU-1	1	Supply fan motor(s)	460/3/60	65.00	110.00

Tag Data - Air-Cooled Condensing Units (Commercial) (Qty: 1)

Item	Tag(s)	Qty	Description	Model Number
B1	CU-1	1	20-60 Ton Air-Cooled Condensing Unit (RA	RAUJC604B_ 3A*D***02

Product Data - Air-Cooled Condensing Units (Commercial)**Item: B1 Qty: 1 Tag(s): CU-1**

Standard Unit
 Condenser: Air-cooled
 R-410A refrigerant
 60 ton unit
 460 Volt 60 Hertz 3 Phase
 No controls
 Low ambient damper(s) control
 cULus approval
 Non-fused disconnect switch
 Suction service valve
 Neoprene isolators (unit) (Field Installed)
 Refrigerant specialties
 Year 2-5 Parts warranty whole unit (less compressor)
 2-10th Year compressor parts warranty
 1st Year Labor warranty whole unit
 2-5th Year Labor warranty whole unit
 Refrigerant warranty 1st year only
 Refrigerant warranty 2nd thru 5th year

Performance Data - Air-Cooled Condensing Units (Commercial)

Tags	CU-1
Net total capacity (MBh)	734.25
Ambient (F)	100.00
Elevation (ft)	0.00
Compressor power (kW)	66.85
Cond fan motor power (kW)	5.40
Total power (Cond only) (kW)	72.26
EER @ AHRI (Cond only) (EER)	11.2
Min circuit ampacity (A)	120.00
Max overcurrent protection (A)	125.00
Recommended dual element (A)	125.00
Compressor 1 RLA (A)	25.50
Compressor 1 count (Each)	4.00
Compressor 2 RLA (A)	0.00
Compressor 2 count (Each)	0.00
Condenser motor FLA (A)	1.80
Condenser motor count (Each)	6.00
Suction line size-horizontal	2-1/8 in.
Suction line size - vertical	2-1/8 in.
Liquid line size	7/8 in.
Est refrigerant charge per ckt. (lb)	23.8
Refrigerant type	R410a
Refrigerant charge(no evap) - 50 ft (lb)	24.0
Refrigerant charge(no evap) - 100 ft (lb)	36.0
Refrigerant charge(no evap) - 150 ft (lb)	48.0
Liquid temp ent expansion device (F)	108.48
Min operating weight (lb)	2803.0
Max operating weight (lb)	3462.0
Application type	Standalone RAUJ Condenser
Saturated Suction Temperature (F)	43.00

Mechanical Specifications - Air-Cooled Condensing Units (Commercial)

Item: B1 Qty: 1 Tag(s): CU-1

General - R410A

All air-cooled condensing units shall have scroll compressors and are factory assembled and wired. Each unit shall ship from the factory with a nitrogen holding charge. Units shall be constructed of 14-gauge welded galvanized steel frame with 14 and 16-gauge galvanized steel panels and access doors. Units shall have factory mounted, louvered, full-length steel grilles to protect the condenser coils and piping. Unit surface shall be phosphatized and finished with an air-dry paint. This air-dry paint finish shall be durable enough to withstand a minimum of 672-consecutive-hour salt spray application in accordance with standard ASTM B117.

Compressors - R-410A

Trane 3-D Scroll compressors have simple mechanical design with only three (3) major moving parts. Scroll type compression provides inherently low vibration. 3-D compressors provide a completely enclosed compression chamber with no leakage paths. The compressor is suction gas cooled, direct drive, 3600 RPM hermetic motors. The Scroll compressor includes a centrifugal oil pump, oil level sight glass, and an oil charging valve.

Refrigerant Management - R-410A

Split systems can have significantly more refrigerant than packaged systems and thus require controls to reliably manage this excess refrigerant. Each compressor shall have crankcase heaters installed, properly sized to minimize the amount of liquid refrigerant present in the oil sump during off cycles. Additionally, the condensing unit shall have controls to initiate refrigerant isolation at system shut down on each refrigerant circuit. To be operational, the refrigerant isolation cycle requires a field-installed isolation solenoid valve on the common liquid line near the evaporator.

Note: Under extreme conditions, R410a refrigerant can present special challenges with piping and system design. Whenever refrigerant line set lengths approach 150 equivalent feet and/or design ambient temperature exceeds 115 degrees F, contact your Trane Account Executive to review application requirements.

Unit Control - R410A

Factory provided 115-volt control circuit includes fusing and control power transformer. The unit is wired with magnetic contactors for compressor and condenser motors, three-leg solid-state compressor overload protection, and high/low pressure cutouts. Charge isolation, reset relay and anti-recycle compressor timer is provided. Across-the-line start is standard.

Dual Circuit, Condenser Coils for 40-60 Ton Units - R-410A

Condenser coils are dual circuited having an Aluminum Microchannel design. The coils are burst tested and leak tested. Factory installed liquid line service valves are standard.

Dual Refrigerant Circuit w/Four Capacity Stages for 40-60 Ton Units - R410A

Each unit has dual refrigeration circuits. Each circuit has two (2) compressors manifolded together utilizing a passive oil system. Each unit has four capacity stages. Capacity modulation is accomplished by turning compressors on and off.

Condenser Fans - R-410A

Condenser fans are direct driven with motors having thermal overload protection and permanently lubricated ball bearings.

No System Control - R-410A

No System Control provides a terminal strip for step control provided by others. The system provides internal 3 minute fixed on and 5 minute fixed off time delays and compressor contactors. Each unit is equipped with a phase loss/reversal/low voltage monitor which protects 3-phase equipment from phase loss, phase reversal, and low voltage. Any fault condition will produce a Failure Indicator LED, and send the unit into an emergency stop condition. The system temperature ?step? controller must be field provided and installed.

Note: For No Controls units with system temperature ?step? controllers provided by others, the controller must include 5 minute on/off interstage timers to coordinate with the units fixed on/off time delay relays.

Low Ambient Control R-410A

Low ambient option extends unit operation from 40 F to 0 F [4.5 to -17.8 C] by utilizing an external damper assembly for head pressure control.

Non-Fused Unit Disconnect Switch - R-410A

A non-fused disconnect switch is mounted in the control box and provides for interruption of power for servicing the unit. Lugs are suitable for copper wires only. No overcurrent or short circuit protection is provided for unit by this switch.

Neoprene Vibration Isolators - R-410A

Neoprene-in shear isolators are supplied for field installation under the unit base to minimize transmission of unit vibration. The isolators consist of a steel top plate and base completely imbedded in color coded oil-resistant neoprene stock. Mountings have deflection of 1/4".

Field Installed; 30% Bleed Valve TXV

Installation shall require use of 30% bleed, Thermal Expansion Valves. Valves shall be field supplied and field installed. Quantity and size shall be determined by the application.

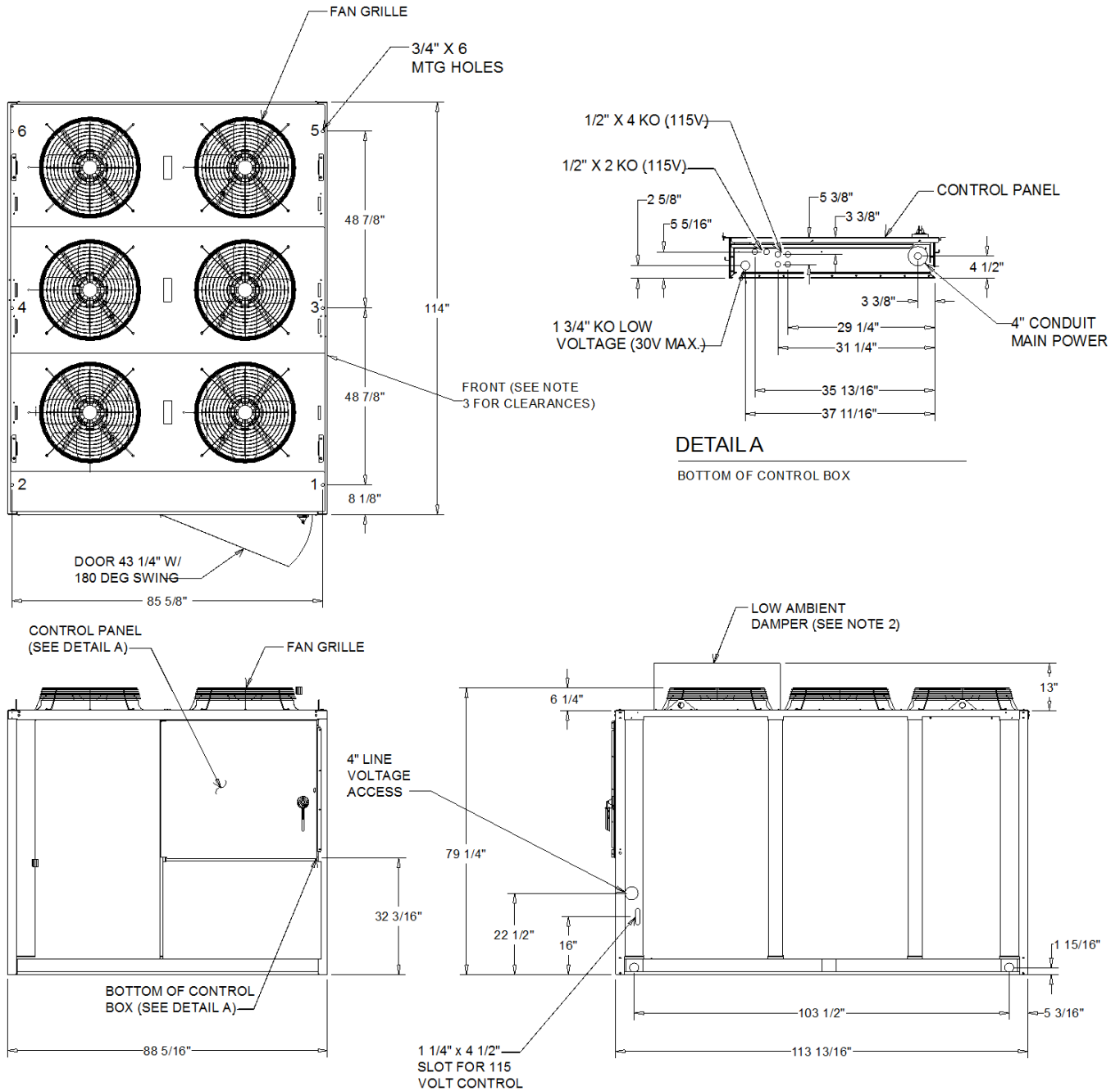
Note: Liquid line solenoids are required for all applications. Trim solenoids cannot be used.

Dimensional Drawings - Air-Cooled Condensing Units (Commercial)

Item: B1 Qty: 1 Tag(s): CU-1

NOTES:

1. SEE CONNECTION DRAWING FOR CONNECTION LOCATION AND SIZES.
2. LOW AMBIENT DAMPER ONLY COMES WITH SELECTED UNIT .
3. FRONT & BACK OF UNIT CLEARANCE 72". LEFT & RIGHT SIDE OF UNIT CLEARANCE 42"



60 TON UNIT

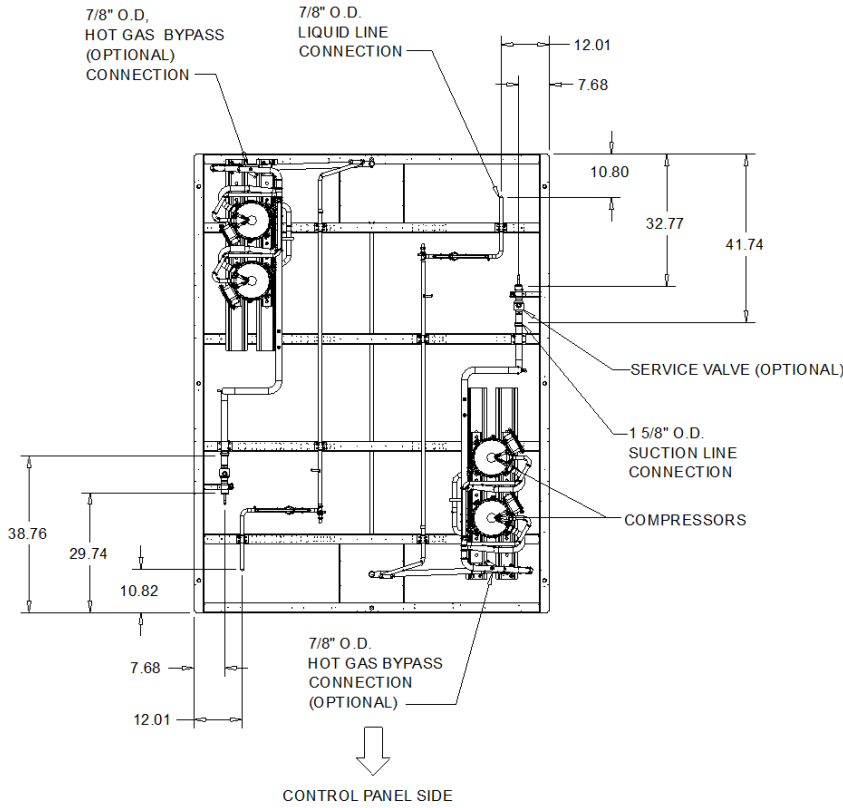
DIMENSIONAL DRAWING

Dimensional Drawings - Air-Cooled Condensing Units (Commercial)

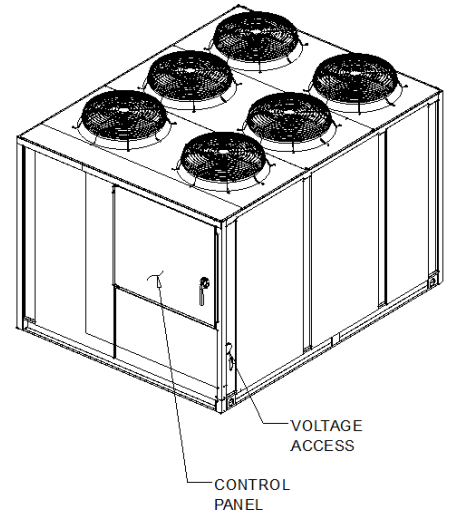
Item: B1 Qty: 1 Tag(s): CU-1

NOTES:

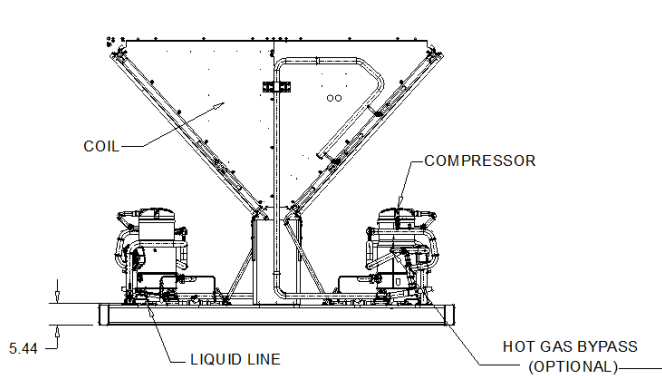
1. VERIFY WEIGHTS, CONNECTIONS, AND ALL DIMENSIONS WITH TRANE INSTALLATION OPERATION MAINTENANCE (IOM) DOCUMENTS BEFORE INSTALLATION.



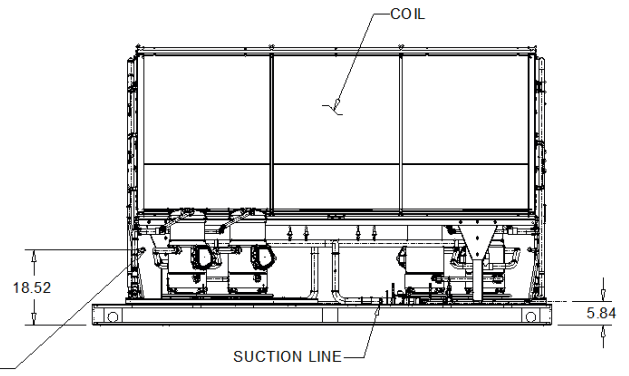
PLAN VIEW OF UNIT
CONNECTION DRAWING



ORIENTATION VIEW OF UNIT
ISOMETRIC DRAWING



CONTROL PANEL (LEFT) SIDE VIEW OF UNIT
CONNECTION DRAWING



BACK VIEW OF UNIT
CONNECTION DRAWING

60 TON UNIT

DIMENSIONAL CONNECTION DRAWING

Dimensional Drawings - Air-Cooled Condensing Units (Commercial)
Item: B1 Qty: 1 Tag(s): CU-1

GENERAL ELECTRICAL DATA

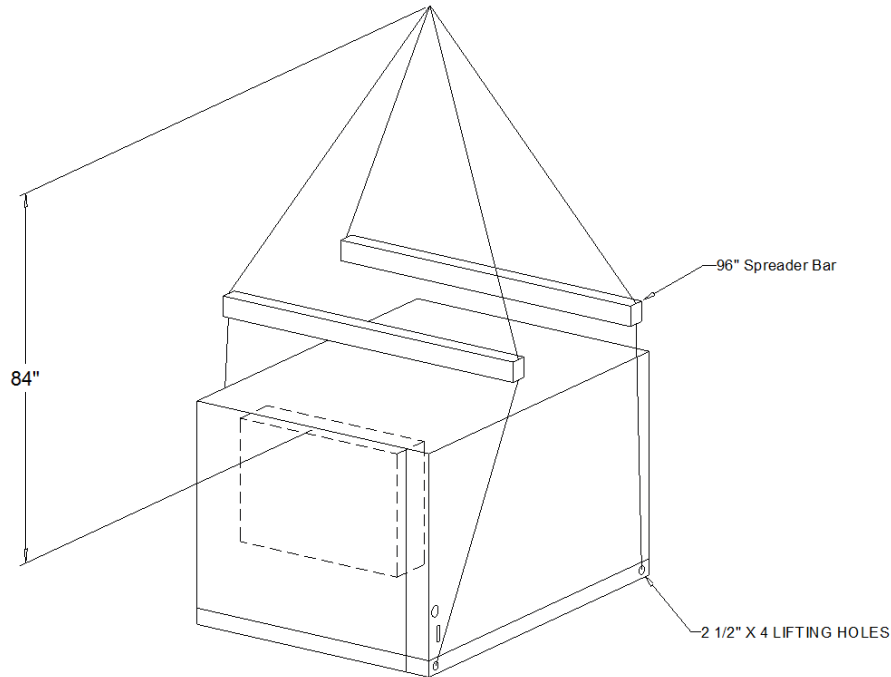
<p>GENERAL</p> <p>Tonnage / kW: 60 [211.2 kW] Unit Operating Voltage Range: 414-506 Unit Primary Voltage: 460 Unit Hertz: 60 Unit Phase: 3 Minimum Circuit Ampacity: (3) 120.00 A Maximum Overcurrent Protection Device: (2) 125.00 A Recommended Dual Element Fuse: (4) 125.00 A</p>	<p>OUTDOOR MOTOR</p> <p>Number: 6 Horsepower: 1.0 Motor Speed (rpm): 1,140 Outdoor Motor Full Load amps: 1.8 Outdoor Motor Locked Rotor amps: 9.0</p>
<p>COMPRESSOR</p> <p>Circuit A1/A2 - Circuit B1/B2</p> <p>Tons (ea): 15.0 / 15.0 - 15.0 / 15.0 Compressor Rated Load Amps (ea): 25.5 / 25.5 - 25.5 / 25.5 Locked Rotor Amps (ea): 197.0 / 197.0 - 197.0 / 197.0</p>	<p>REFRIGERANT OPERATING CHARGE (Cond Only, per Circuit)</p> <p>Type: R-410A Number of Circuits: 2 Condenser Storage Capacity: 25.0 lb Refrigerant Operating Charge (Condenser Only) : 23.8 lb</p>

Notes:

1. Electrical data is for each individual motor.
2. Maximum overcurrent protection permitted by nec 440-22 is 225 percent of largest compressor motor RLA plus the remaining motor RLA and FLA values.
3. Minimum circuit ampacity is 125 percent of the largest compressor motor RLA plus the remaining motor RLA and FLA values.
4. Recommended dual element fuse size is 150 percent of the largest compressor motor RLA plus the remaining motor RLA and FLA values.
5. Local codes may take precedence.
6. Electrical data is pulled from TOPSS (performance engine). If data is missing please check TOPSS.

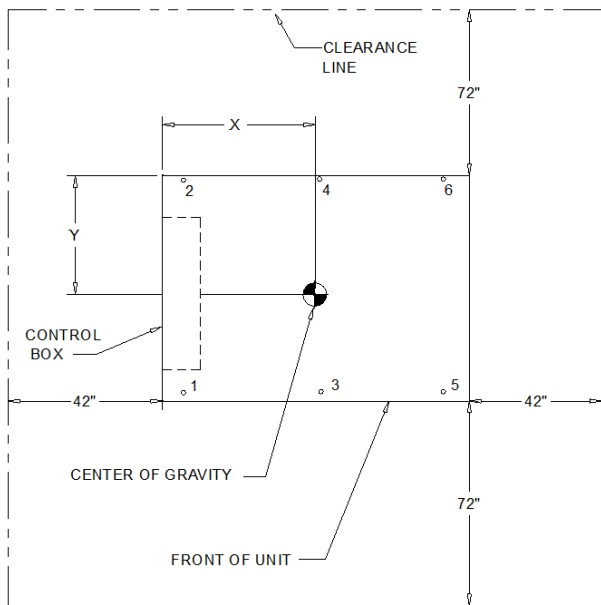
Weight, Clearance & Rigging - Air-Cooled Condensing Units (Commercial)

Item: B1 Qty: 1 Tag(s): CU-1



60 TON RIGGING

WEIGHT AND RIGGING



60 TON CENTER OF GRAVITY AND CLEARANCES

WEIGHT AND RIGGING

WEIGHTS AND LOAD POINTS

OPERATING:	2853.0 lb
SHIPPING:	2803.0 lb
LOAD POINTS 1 :	367.2 lb
LOAD POINTS 2 :	332.8 lb
LOAD POINTS 3 :	426.0 lb
LOAD POINTS 4 :	391.6 lb
LOAD POINTS 5 :	692.5 lb
LOAD POINTS 6 :	642.9 lb

*ALL WEIGHTS ARE APPROXIMATE

CENTER OF GRAVITY

X:	52 1/8"
Y:	45 7/8"

ADD WEIGHTS

SHIPPING:	(4)
OPERATING:	(4)

NOTES:

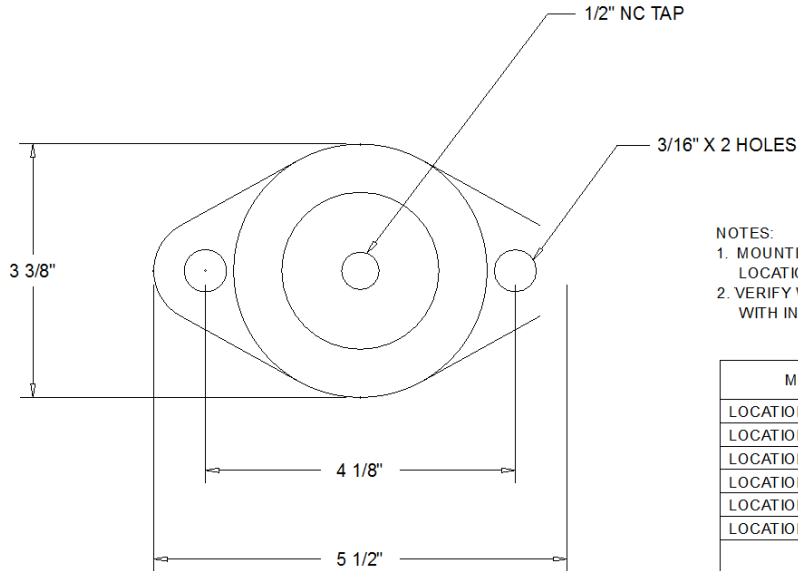
1. OPERATING WEIGHT INCLUDES REFRIGERANT, OIL AND WATER.
2. SHIPPING WEIGHT INCLUDES REFRIGERANT AND OIL CHARGES
3. THE ACTUAL WEIGHT IS SHOWN ON THE NAMEPLATE. WEIGHT SHOWN REPRESENT TYPICAL SHIPPING AND OPERATING WEIGHTS FOR THE UNIT SELECTED.
4. ADD WEIGHT TO TOTAL WEIGHT OF UNIT
5. IF UNITS IS INSTALLED IN A WELL, THE DEPTH OF THE WELL MUST NOT EXCEED THE TOP HEIGHT OF THE UNIT. THE TOP OF THE UNIT MUST HAVE UNRESTRICTED AIRFLOW. PLEASE REFERENCE RECOMMENDED CLEARANCES.

WARNING!

TO PREVENT INJURY OR DEATH AND POSSIBLE EQUIPMENT DAMAGE, DO NOT USE CHAIN (CABLES) OR SLINGS EXCEPT AS SHOWN AND USE CABLES STRONG ENOUGH TO SUPPORT UNIT WEIGHT. TEST LIFT UNIT TO ENSURE PROPER BALANCE AND RIGGING.

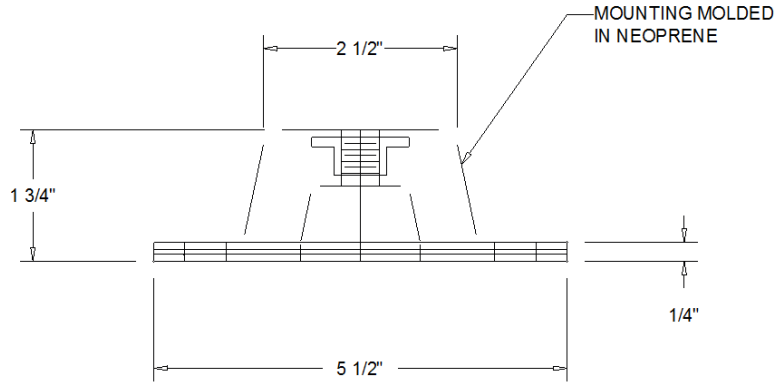
Accessory - Air-Cooled Condensing Units (Commercial)

Item: B1 Qty: 1 Tag(s): CU-1



- NOTES:
1. MOUNTING LOCATIONS CORRELATE WITH MOUNTING LOCATIONS SHOWN IN CLEARANCE DRAWING.
 2. VERIFY WEIGHT, CONNECTION, AND ALL DIMENSION WITH INSTALLER DOCUMENTS BEFORE INSTALLATION

MOUNTING LOCATIONS	
LOCATION 1	R-3-RED
LOCATION 2	R-3-RED
LOCATION 3	R-3-RED
LOCATION 4	R-3-RED
LOCATION 5	R-3-GREEN
LOCATION 6	R-3-GREEN



MOUNTING ISOLATOR (NEOPRENE)

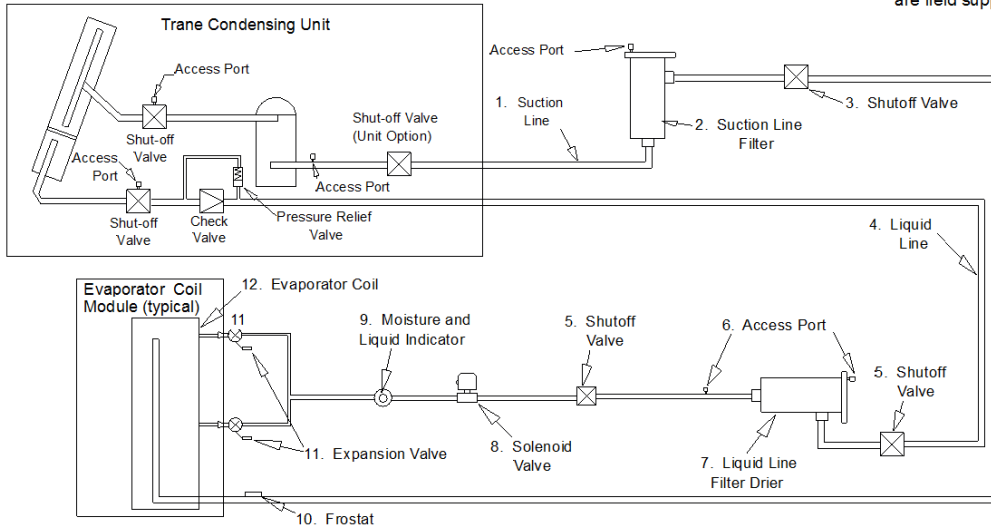
DIMENSIONAL ACCESSORIES DRAWING

Field Wiring - Air-Cooled Condensing Units (Commercial)

Item: B1 Qty: 1 Tag(s): CU-1

Required Components for Refrigerant Circuits

All items numbered are field supplied.



SUCTION LINE

- 1. Interconnected Tubing (Suction line)
Maximum of 50 feet if condenser is above evaporator (If risers are more than 50 feet, the application must be viewed by Trane) Refer to SS-APG012-EN for more details
- 2. Suction Line
Filter Drier 1 / ckt suction filter should be the replaceable-core type, and a clean core should be installed after the system is cleaned up
- 3. Shut-Off Valve
Manual ball valves for 1 5/8" tubing.

LIQUID LINE

- 4. Interconnected Tubing (Liquid Line)
Refer to applications guide SS-APG012 - EN for vertical & horizontal piping limitations.
- 5. Shut-Off Valve
2 Manual ball valves
- 6. Access Port
Port used to determine suction pressure. This port is usually a Schraeder valve with a core.
- 7. Liquid Line
Filter Drier 1 / ckt liquid filter should be the replaceable-core type, and a clean core should be installed after the system is cleaned up.
- 8. Solenoid Valves
Liquid line requires a field supplied and installed isolation solenoid valve within 10 feet of the evaporator. The suggested solenoid uses a 120-volt service and requires code-compliant wiring to the RAUJ condensing unit.

Note: Trim solenoids cannot be used. They are not compatible with Microchannel condenser coils
- 9. Moisture and Liquid Indicator
One moisture-indicating sight glass is to be installed in the main liquid line.

Field Wiring - Air-Cooled Condensing Units (Commercial)

Item: B1 Qty: 1 Tag(s): CU-1

EVAPORATOR

10. Froststat (not required) - The control is mechanically attached to the outside of the refrigerant line, near the evaporator, and wired to the unit control panel See application guide SS-APG012-EN for selection information.

11. Expansion Valves - See application guide SS-APG012-EN for selecting valve quantity and size.

Note: Units with Microchannel condenser coils applied with DX systems will require 30 percent bleed valves.

Expansion Valves for 20-60T MCH (30 percent Bleed) Evap Circuit Tonnage

REFRIGERANT	MIN.	MAX.	SPORLAN MODEL NUMBER	TRANE PART
R-410A	2.0	3.0	BBIZE-1-1/2-GA (BP/30)	VAL10487
R-410A	2.5	3.5	BBIZE-2-GA (BP/30)	VAL10488
R-410A	3.5	5.0	BBIZE-3-GA (BP/30)	VAL10489
R-410A	4.5	7.0	BBIZE-4-GA (BP/30)	VAL10490
R-410A	6.0	8.5	BBIZE-5-GA (BP/30)	VAL10491
R-410A	7.0	10.0	BBIZE-6-GA (BP/30)	VAL10492
R-410A	8.0	13.5	BBIZE-8-GA (BP/30)	VAL10493
R-410A	11.0	17.5	BBIZE-12-1/2-GA (BP/30)	VAL10494
R-410A	14.0	21.5	BBIZE-15-GA (BP/30)	VAL10495
R-410A	17.0	28.5	OZE-20-GA (BP/30)	VAL10496
R-410A	22.0	30.0	OZE-25-GA (BP/30)	VAL10497

(1) Ton per distributor, choose the valve that matches the evap coil circuit capacity that it serves.

(2) Provide and install one expansion valve per distributor.

Refrigerant Charge and Maximum Line Length

Total interconnecting line length (per circuit)	50 ft	100 ft	150 ft
Condenser and line set approx. refrigerant charge (per circuit) - evaporator charge not included	24.0 lb	36.0 lb	48.0 lb

If total interconnecting line length is more than 150 feet, the application must be reviewed by Trane.

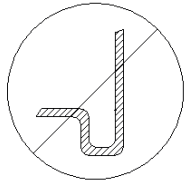
**Contact product support for information on refrigeration components and piping applications assistance

***Data in table is pulled from TOPSS selection. If N/A is present, please refer to unit IOM.

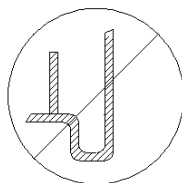
Installation Guidelines

Suction Line Piping

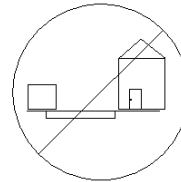
1. Do not use suction line traps.



2. Do not use double risers.



3. Avoid putting suction lines underground.



4. Route suction lines as short and direct as possible.

5. Slope suction line away from the condensing unit 1 inch for every 10 feet.

6. Insulate suction line.

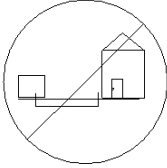
7. The suction filter should be located as close to the compressors as possible.

Field Wiring - Air-Cooled Condensing Units (Commercial)
Item: B1 Qty: 1 Tag(s): CU-1

Required Components for Refrigerant Circuits Continued

Liquid Line Piping

1. Avoid putting liquid lines underground.



2. Route liquid lines as short and direct as possible.
3. Slope liquid line away from the condensing unit 1 inch for every 10 feet.
4. Only insulate liquid lines that pass through heated areas.
5. Wire solenoid valve per field connection diagram.
6. The liquid line filter drier should be as close to the solenoid valve as possible.

Evaporator Piping

1. Install TXV directly to unit liquid connection.
2. Locate TXV bulb midway between 90F bends on top of suction tube as shown.
3. Secure bulb to tube with the two clamps provided by the manufacturer and insulate bulb.
4. Install the TXV equalizer line close to & downstream of the bulb, on top of the horizontal suction line.
5. Install frostat per kit instructions on the common suction line as close to the evaporator as possible.

See SS-APG012-EN for DX evaporator piping details.

Field Wiring - Air-Cooled Condensing Units (Commercial)
Item: B1 Qty: 1 Tag(s): CU-1

CUSTOMER WIRE SELECTION TABLE	
POWER WIRE SELECTION TO DISCONNECT SWITCH (IS1)	CONNECT OR WIRE RANGE
FACTORY INSTALLED DISCONNECT SWITCH SIZE 250 AMP	(1) #4 -- 350 kcmil
POWER WIRE SELECTION TO MAIN TERMINAL BLOCK (1TB1)	CONNECT OR WIRE RANGE
TERMINAL BLOCK SIZE 335 AMP	(1) #6 -- 350 MCM
CONTROL WIRE SELECTION	
WIRE GAUGE	OHMS PER: 12000"
18 AWG	8
16 AWG	5
14 AWG	3
SHIELDED WIRE TABLE	
WIRE GAUGE	MAX WIRE LENGTH
16 AWG	6000"
14 AWG	12000"

WARNING
HAZARDOUS VOLTAGE!

DISCONNECT ALL ELECTRIC POWER INCLUDING REMOTE DISCONNECTS BEFORE SERVICING. FAILURE TO DISCONNECT POWER BEFORE SERVICING CAN CAUSE SEVERE PERSONAL INJURY OR DEATH.

AVERTISSEMENT
VOLTAGE HASARDEUX!

DECONNECTEZ TOUTES LES SOURCES ELECTRIQUES INCLANT LES DISJONCTEURS SITUES A DISTANCE AVANT D'EFFECTUER L'ENTRETIEN. FAUTE DE DECONNECTER LA SOURCE ELECTRIQUE AVANT D'EFFECTUER L'ENTRETIEN PEUT ENTRAÎNER DES BLESSURES CORPORELLES SEVERES OU LA MORT.

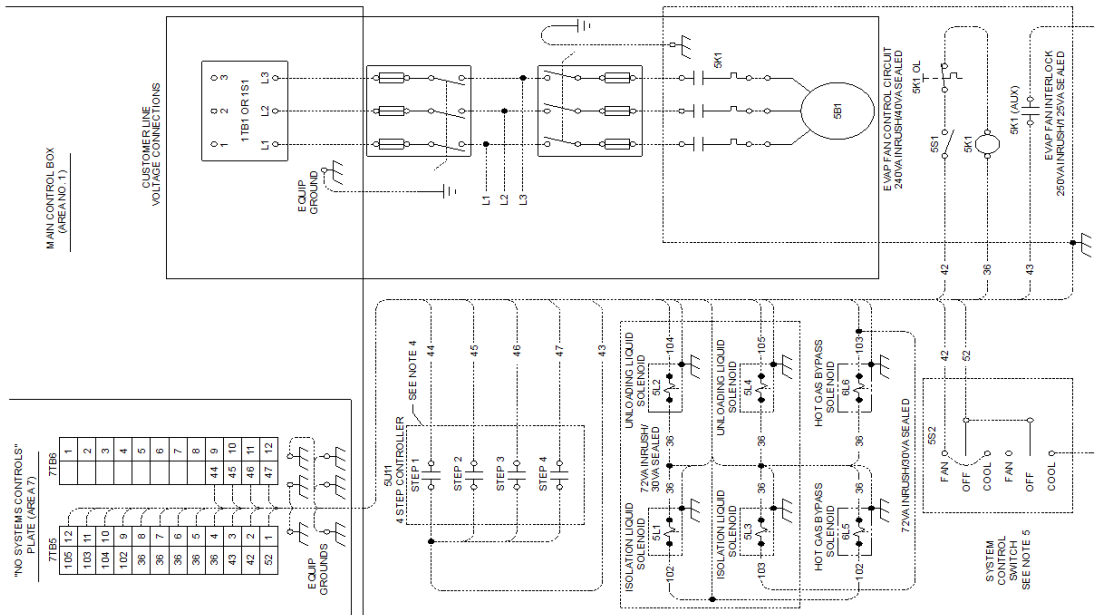
CAUTION

USE COPPER CONDUCTORS ONLY! UNIT TERMINALS ARE NOT DESIGNED TO ACCEPT OTHER TYPES OF CONDUCTORS.

FAILURE TO DO SO MAY CAUSE DAMAGE TO THE EQUIPMENT.

IMPORTANT!

DO NOT ENERGIZE UNIT UNTIL CHECK-OUT AND START-UP PROCEDURE HAS BEEN COMPLETED



- NOTES:**
1. All wiring and components shown dashed to be supplied and installed by customer in accordance with local and national electrical codes.
 2. All wiring to be NEC Class 1 based on 60 degree C wire unless specified.
 3. **CAUTION** - Do not run low voltage wire (30 volts maximum) in conduit or raceway with higher voltage wire.
 4. Step controller min rating - NO contacts = 150 VA Inrush/75 VA sealed; NC contacts = 80 VA Inrush/40 VA sealed.
 5. Suggested system control switch is Cutler Hammer 7562K5 2-pdt toggle switch.

Field Installed Options - Part/Order Number Summary

This is a report to help you locate field installed options that arrive at the jobsite. This report provides part or order numbers for each field installed option, and references it to a specific product tag. It is NOT intended as a bill of material for the job.

Product Family - Performance Climate Changer (CSAA)

Item	Tag(s)	Qty	Description	Model Number
A1	AHU-1	1	Performance Climate Changer (CSAA)	CSAA050UB

Field Installed Option Description	Part/Ordering Number
12in. cartridge - 95% eff	
2" Pleated media	

Product Family - Air-Cooled Condensing Units (Commercial)

Item	Tag(s)	Qty	Description	Model Number
B1	CU-1	1	20-60 Ton Air-Cooled Condensing Unit (RA	RAUJC604B_3A*D***02

Field Installed Option Description	Part/Ordering Number
Neoprene isolators (unit)	

Unit #1 Replacement

