UNION COUNTY BOARD OF EDUCATION
CONTRACT ROUTING SHEET

Contractor Name: Carolina Air Solutions, Inc.
UCPS Contract Number: 4-97347011
Address: 9224 Stockport Place
City, State, Zip: Charlotte, NC
Contact Name: Billy Garrison
Telephone Number: 704.525.2100

Purpose of Contract (location and brief description): Poplin Elementary School-Rooftop Unit Replacement

Submitting Department: Facilities Department
Date Submitted: 11.21.2023

Budget Account Number: _____
Funding Source: CIP
Contract Amount: $ 130,000
Contract Period: Completion July 2, 2024

UCPS Employee to Contact: Penny Helms/Danny McManus
Phone Number: 704-296-3160

NOTE: Individuals listed below should initial, date, and forward this form after completing their responsibilities relating to this Contract.

		INTIAL	DATE
1.	Approved by Fund Owner/Acquire Vendor Signature and proper **Insurance Certificate with UCBOE NAMED as CERTIFICATE HOLDER.**		
	A. Insurance Certificate Reviewed/Approved by Risk Management	DS SH	11/27/2023 | 9:18 AM E
2.	Approved by Appropriate Representative(s) of UCPS:		
☑	UCPS Project Coordinator	DS DS	11/21/2023 | 3:46 PM
☑	UCPS Department Head/School Principal	DS DM	11/22/2023 | 7:55 AM
☑	Asst. Supt. for Administration & Operations	DS CM	11/27/2023 | 9:53 AM
☐	Asst. Supt. for Human Resources		
☐	Asst. Supt. for Instructional Programs Asst.		
☐	Asst. Supt. of Student Support		
☐	Chief School Performance Officer		
☐	Chief Technology Officer		
FORWARD TO UCPS GENERAL COUNSEL OFFICE			
3.	Approved by Legal Counsel	DS SS DS kB DS MM	11/30/2023 | 6:24 AM
FORWARD TO SUPERINTENDENT/BOARD OF EDUCATION			
4.	Approved by Superintendent/Board of Education		
FORWARD TO FINANCE			
6.	Pre-audited by Representative of Finance Officer	DS SM	11/30/2023 | 1:01 P

Contract #:4-97347011

CONTRACT FOR SERVICES
POPLIN ELEMENTARY SCHOOL
ROOFTOP UNIT REPLACEMENT

This Contract for Services ("Contract") is made and entered into 8th day of November 2023 between The Union County Board of Education, with a mailing address of 400 North Church Street, Monroe, North Carolina 28112 ("UCBOE") and Carolina Air Solutions, Inc. ("Vendor" or "Contractor" or "Service Provider") located at 9224 Stockport Place, Charlotte, North Carolina 28273.

For and in consideration of the mutual promises set forth in this Contract, the parties do mutually agree as follows:

1. Obligations of Vendor. The Vendor agrees to provide the services, goods, materials, equipment, and/or software (the "Services" and/or "Goods," as appropriate) to fully, timely and properly complete the Poplin Elementary School Rooftop Unit Replacement Project as more particularly described in the Scope of Work document attached hereto and incorporated herein by reference as Exhibit 1.

   The UCBOE and Vendor recognize that time is of the essence to this Agreement and that the UCBOE will suffer financial loss if the work is not completed within the times specified herein. Both parties also recognize the delays, difficulties and expense involved in proving, in a legal or arbitration proceeding, the actual loss suffered by the UCBOE if the Work is not completed on time. Accordingly, in lieu of requiring such proof, the UCBOE and Vendor agree that as liquidated damages for delay (but not as penalty) the Vendor shall pay to the UCBOE for each day in excess of the term allowed for completion of the Work, the sum of $500 as liquidated damages.

   The term of this Contract shall be per Exhibit 1.

   This Contract does not grant the Vendor the right or the exclusive right to provide specified Services and/or Goods to UCBOE. Similar Services and/or Goods may be obtained from sources other than the Vendor (or not at all) at the discretion of UCBOE.

   The Vendor shall begin work immediately upon issuance of a written notice to proceed and be complete within the time identified within Exhibit 1. The Vendor agrees to perform the Services and supply the Goods or in a timely, complete, and professional manner and in accordance with the terms and conditions of this Contract. Furthermore, the Vendor represents and warrants that (i) it is duly qualified and, if required by law, licensed to provide the Services and/or Goods; (ii) it will provide the Services and/or Goods in a manner consistent with the level of care and skill ordinarily exercised by contractors providing similar Services and/or Goods under similar conditions; (iii) it possesses sufficient experience, personnel, and resources to provide the Services and/or Goods; (iv) it shall provide the Services and/or Goods in compliance with applicable laws, statutes, ordinances, codes, orders, rules and regulations; and (v) its reports, if any, shall be complete, accurate, and unambiguous.

2. Obligations of UCBOE. UCBOE hereby agrees to pay to the Vendor for the faithful performance of this Contract, and the Vendor hereby agrees to provide all of the Services and/or Goods, for the sum not to exceed $130,000 ("Contract Price") subject to adjustments as provided for in the Contract Documents.

[THE REST OF THIS PAGE HAS BEEN LEFT BLANK INTENTIONALLY]

3. Project Coordinator. Karl Todd is designated as the Project Coordinator for UCBOE. The Project Coordinator shall be UCBOE's representative in connection with the Vendor's performance under this Contract. UCBOE has complete discretion in replacing the Project Coordinator with another person of its choosing.

4. Vendor Supervisor. Billy Garrison is designated as the Vendor Supervisor for the Vendor. The Vendor Supervisor is fully authorized to act on behalf of the Vendor in connection with this Contract.

5. Terms and Methods of Payment. UCBOE will make payment after invoices are approved on a net 30-day basis. UCBOE will not pay for services or materials in advance without the prior approval of the Finance Officer. 5% Retainage will be held as allowed by NCGS.

6. Standard Terms and Conditions: Vendor agrees to the Standard Terms and Conditions set forth as Attachment A attached hereto and incorporated herein by reference.

7. Counterpart Execution. This Contract may be executed and recorded in two or more counterparts, each of which shall be deemed an original and all of which, when taken together, shall constitute one and the same instrument. Each party shall be entitled to rely upon executed copies of this Contract transmitted by facsimile or electronic "PDF" to the same and full extent as the originals.

[THE REST OF THIS PAGE HAS BEEN LEFT BLANK INTENTIONALLY]

[SIGNATURES ON NEXT PAGE]

IN WITNESS WHEREOF, UCBOE and the Vendor have executed this Contract on the day and year first written above.

Carolina Air Solutions

Vendor Name

DocuSigned by: Billy Garrison 11/30/2023 | 4:54 AM PST

Signature of Authorized Representative Date

20-2107707

Vendor's Federal Identification #
[if Contract is with Organization or Social Security Number if individual]

THE UNION COUNTY BOARD OF EDUCATION

DocuSigned by: Kathy Heintel 11/30/2023 | 4:08 PM EST

Authorized Representative Date

This instrument has been preaudited in the manner required by the School Budget and Fiscal Control Act.

DocuSigned by: Shanna McLamb 11/30/2023 | 1:01 PM PST

Finance Officer Date

DocuSigned by: Sara Hymel 11/27/2023 | 9:18 AM EST

Risk Management Date

As to form:

DocuSigned by: Michele Morris 11/30/2023 | 6:24 AM PST

UCBOE Attorney Date

Attachment A

Standard Terms and Conditions

I. Standard Terms and Conditions for All Contracts

1. Defined Terms, "Contract" means the agreement between UCBOE and Vendor which consists of the applicable Contract Documents. "Contract Documents" means: (i) any applicable purchase order between Vendor and UCBOE specifically including all terms and conditions set forth or referenced herein and on the face of a Purchase Order, (ii) any attachments hereto, (iii) any applicable solicitation documentation related to hereto (including without limitation any request for proposals or invitation for bids and Vendor's response thereto), and (iv) any other terms and conditions of a written agreement signed by Vendor and UCBOE that deals with the same subject matter. "Goods" means any supplies, materials, products or other tangible personal property provided by Vendor to UCBOE. "Purchase Order" mean any applicable purchase order issued by UCBOE. "Services" means services, specifically including without limitation construction services, design services, professional or consulting services and software as a service, "UCBOE" means the Union County Board of Education. "Vendor" means the party contracting with UCBOE and includes individual and entities that may be referred to in Contract Documents as "vendor", "seller", "service provider", or "contractor".
2. Written Agreement Signed by Both Parties; Acceptance of Purchase Order Terms and Conditions when there is not a Separate Written Agreement Signed by Both Parties. When a Contract is signed by both UCBOE and Vendor then the Purchase Order issued by UCBOE is for administrative convenience and is not part of the Contract Documents. When there is not a separate Contract signed by both UCBOE and Vendor, then Vendor's acknowledgment of the terms of any Purchase Order, without timely objection, or Vendor's shipment or performance of any part of a Purchase Order, constitutes an agreement to all terms and conditions set forth or referenced herein and on the face of the Purchase Order, together with the terms and conditions of any other applicable Contract Documents. The terms and provisions set forth in the Contract Documents shall constitute the entire agreement between Vendor and UCBOE with respect to the purchase by UCBOE of the Services and/or Goods work performed as described in the Contract Documents. In the event of any conflict between any terms and conditions of the Contract Documents, the terms and conditions most favorable to UCBOE shall control. A Purchase Order constitutes an offer by UCBOE and expressly limits acceptance to the terms and conditions stated therein. No additional or supplemental provision or provisions in variance herewith that may appear in Vendor's quotation, acknowledgment, invoice, or in any other communication from Vendor to UCBOE shall be deemed accepted by or binding on UCBOE. UCBOE hereby expressly rejects all such provisions which supplement, modify or otherwise vary from the terms of the Contract Documents, and such provisions are superseded by the terms and conditions stated in the Contract Documents, unless and until UCBOE's authorized representatives expressly assent, in writing, to such provisions. Stenographic and clerical errors and omissions by UCBOE are subject to correction.
3. Cancellation of Purchase Order. UCPS may cancel any Purchase Order or portion thereof without liability, if: (a) Vendor fails upon request to give reasonable assurance of timely performance or UCPS otherwise determines that it has reasonable grounds for insecurity regarding Vendor's performance; (b) conforming Goods or Services (including the quantities specified for delivery) are not delivered within the time specified or, if no time is specified, within a commercially reasonable time; (c) Vendor otherwise breaches the Contract and such breach is not corrected within thirty (30) days following written notice of breach; or (d) cancellation is otherwise required or allowed by law.
4. Quantities. Shipments must equal exact amounts ordered unless otherwise agreed in writing by UCBOE. The award of a term contract neither implies nor guarantees any minimum or maximum purchases. Materials received in excess of quantity specified on the purchase order , at UCBOE option's, may be returned at the Vendor's expense.
5. Prices. If Vendor's price or the regular market price of any of the Goods covered hereunder is lower than the price stated in the Contract Documents on the date of shipment of such Goods, Vendor agrees to give UCBOE the benefit of such lower price on any such Goods. In no event shall Vendor's price be higher than the price last quoted or last charged to UCBOE unless otherwise agreed in writing. No charges for transportation, boxing, crating, etc. are allowable unless such charges are included in the Contract Documents.
6. Invoices. It is understood and agreed that orders will be shipped at the established Contract prices in effect on dates orders are placed. Invoicing at variance with this provision may subject the Contract to cancellation.

Applicable North Carolina sales tax shall be invoiced as a separate item. Invoices shall be sent to UCBOE's accounts payable department with a copy to UCBOE Project Coordinator.

7. Freight on Board. All shipments of Goods are FOB destination unless otherwise stated in the Contract Documents. Any freight charges prepaid by Vendor are to be itemized on the invoice unless stated otherwise in writing by form of quote, bid, contract. In instances where Goods are shipped against this order by parties other than those specified on the Purchase Order, the third=party shipper must be instructed to list the UCBOE purchase order number on all packages, bills of lading, etc. to insure prompt identification of order.
8. Taxes. Taxes are included in the Contract Price. Applicable taxes shall be invoiced as a separate item for UCBOE's records.
9. Payment Terms. Payment terms are Net 30 days after receipt of correct invoice or acceptance of Goods, whichever is later.
10. Condition and Packaging. Unless otherwise provided by special terms and conditions or specifications, it is understood and agreed that any item offered or shipped has not been sold or used for any purpose and shall be in first class condition. All containers/packaging shall be suitable for handling, storage or shipment.
11. Safety Data Sheets. Safety Data Sheets must be provided with shipment of all chemicals."
12. Delays in Shipment. Time and date of delivery are of the essence, except when delay is due to causes beyond Vendor's reasonable control and without Vendor's fault or negligence.
13. Risk of Loss. Vendor shall have the risk of loss of and damage to the Goods subject to the Contract Documents until such Goods are delivered to the destination and accepted by UCBOE or its nominee.
14. Rejection. All Goods shall be received subject to UCBOE's inspection. Goods that are defective in workmanship or material or otherwise not in conformity with the requirements of the Contract Documents may be rejected and returned at Vendor's expense or may be accepted at a reduced price. UCBOE may require Vendor to promptly replace or correct any rejected Goods Services and, if Vendor fails to do so, UCBOE may contract with a third party to replace such Goods Services and charge Vendor the additional cost.
15. Warranties. Vendor warrants that all Goods delivered hereunder will be free from defects in materials and workmanship and will conform strictly to the specifications, drawings, or samples specified or furnished. This warranty shall survive any inspection, delivery, acceptance or payment by UCBOE of the Goods and shall run to UCBOE and any user of the Goods. This express warranty is in addition to Vendor's implied warranties of merchantability and fitness for a particular purpose which shall not be disclaimed. In addition to any other rights available at law or equity, UCBOE shall be entitled to all rights and remedies provided by the Uniform Commercial Code, Chapter 25 of the North Carolina General Statutes, for breach of express warranties and implied warranties of merchantability or fitness for a particular purpose, including but not limited to consequential and incidental damages.
16. Compliance with All Laws. Vendor warrants that all performance hereunder shall be in accordance with all applicable federal, state and local laws, regulations and orders. The right of Vendor to proceed may be terminated immediately by written notice if UCBOE determines that Vendor, its agent or another representative, has violated any provision of law.
17. Use of Federal Funds. If the source of funds for this Contract is federal funds, the following federal provisions apply pursuant to 2 C.F.R. § 200.326 and 2 C.F.R. Part 200, Appendix II (as applicable):Equal Employment Opportunity (41 C.F.R. Part 60); Davis-Bacon Act (40 U.S.C. 3141-3148); Copeland "Anti-Kickback" Act (40 U.S.C. 3145); Contract Work Hours and Safety Standards Act (40 U.S.C. 3701-3708); Clean Air Act (42 U.S.C. 7401-7671q.) and the Federal Water Pollution Control Act (33 U.S.C. 1251-1387); Debarment and Suspension (Executive Orders 12549 and 12689); Byrd Anti-Lobbying Amendment (31 U.S.C. 1352); Procurement of Recovered Materials (2 C.F.R. § 200.322); and Record Retention Requirements (2 CFR § 200.324).
18. Registered Sex Offenders; Jessica Lunsford Act. Under North Carolina law, certain sex offenders are prohibited from coming onto school campuses. Vendor agrees to conduct an annual check of the N.C. Sex Offender and Public Protection Registration Program, the N.C. Sexually Violent Predator Registration Program and the National Sex Offender Registry for all of its employees whose job involves direct interaction with students as part of the job. UCBOE prohibits any personnel listed on such registries from being on any property owned or operated by UCBOE and from having any direct interaction with students. As a term of the Agreement, said checks must be performed by the Vendor and reported to UCBOE's Superintendent or designee, if Vendor's employees will be working directly with students. Under provisions set forth in the Jessica Lunsford Act under North Carolina law, the signature below certifies that neither Vendor nor any employee or agent of Vendor is

listed as a sex offender on the N.C. Sex Offender and Public Protection Registration Program, the N.C. Sexually Violent Predator Registration Program, and/or the National Sex Offender Registry.

19. Nondiscrimination. During the performance of the Contract, Vendor shall not discriminate against or deny the Contract's benefits to any person on the basis of sexual orientation, national origin, race, ethnic background, color, religion, gender, age or disability.
20. FERPA Electronically Stored Data Compliance: Vendor is expressly prohibited from selling or trading any education records or personally identifiable information acquired under the Agreement. Furthermore, Vendor agrees not to attempt to re-identify students from aggregated data. Further, Vendor will not use any personally identifiable information or education records to advertise or market to students of UCBOE or their parents. Any personally identifiable information and education records held by Vendor pursuant to the Agreement will be made available to UCBOE upon request. Vendor will store and process all data using appropriate administrative, physical, and technical safeguards to secure personally identifiable information and education records from unauthorized access, disclosure, and use. Vendor will conduct periodic risk assessments and remediate any identified security vulnerabilities in a timely manner. Vendor will also have a written incident response plan, to include prompt notification to UCBOE in the event of a security or privacy incident, as well as procedures for responding to a breach of data. Vendor agrees to share its incident response plan upon request. Vendor shall, for all personally identifiable data and education records in its possession and in the possession of any subcontractors, or agents to which it has transferred data as permitted herein, destroy or de-identify such data when such data is no longer needed to perform the Agreement. Vendor hereby agrees to abide by all Board of Education policies and procedures governing the confidentiality of student records and the responsible use of technology and internet safety. If Vendor experiences a security breach concerning any information covered by the Agreement, and such breach is covered by N.C.G.S. §75.61(14), then Vendor will (a) fully comply with Vendor's obligations under the N.C. Identity Theft Protection Act, (b) immediately notify UCBOE with the information listed in N.C.G.S. §75-65(d)(1-4), and (c) fully cooperate with UCBOE in carrying out its obligations under said Identity Theft Protection Act. Vendor will indemnify UCBOE for any breach of confidentiality or failure of its responsibilities to protect confidential information, and for cost of notification of affected persons as a result of its accidental or negligent release of personally identifiable information or education records provided to Vendor pursuant to the Agreement.
21. North Carolina Public Records Law: Vendor acknowledges that UCBOE is subject to the requirements of North Carolina's Public Records Law ("NCPRL"), N.C.G.S. § 132-1, et. seq. The Agreement and any related documents, papers, letters, maps, books, photographs, films, sound recordings, magnetic or other tapes, electronic data-processing records, artifacts, or other documentary material, regardless of physical form or characteristics, made or received by UCBOE in connection with the transaction of the Agreement may be considered a "public record," subject to disclosure under the NCPRL. UCBOE is under no obligation to notify Vendor prior to its compliance of its duties under NCPRL.
22. Conflict of Interest. Vendor represents and warrants that no member of UCBOE or any of its employees or officers who may obtain a direct benefit, personal gain or advantage for themselves or a relative or associate as a result of the Contract, subcontract or other agreement related to the Contract is in a position to influence or has attempted to influence the making of the Contract, has been involved in making the Contract, or will be involved in administering the Contract. Vendor also represents and warrants that, if the Contract is funded by any amount of federal funds, no violation of 2 C.F.R. § 200.318(c) or any other applicable federal conflict of interest law has occurred or will occur. Vendor shall cause this paragraph to be included in all Contracts, subcontracts and other agreements related to the Contract.
23. Gratuities. Vendor represents and warrants that no member of UCBOE or any of its employees has been or will be offered or given a gratuity to an official or employee of UCBOE in violation of applicable law or policy.
24. Kickbacks to Vendor. Vendor shall not permit any kickbacks or gratuities to be provided, directly or indirectly, to itself, its employees, subcontractors or subcontractor employees for the purpose of improperly obtaining or rewarding favorable treatment in connection with a UCBOE Contract or in connection with a subcontract relating to a UCBOE Contract. When Vendor has grounds to believe that a violation of this clause may have occurred, Vendor shall promptly report to UCBOE in writing the possible violation.
25. Iran Divestment Act. Vendor certifies that, as of the date listed below, it is not on the Final Divestment List, as created by the State Treasurer pursuant to N.C.G.S. § 143-6A-4, in violation of the Iran Divestment Act. In compliance with the requirements of the Iran Divestment Act and N.C.G.S. § 143C-6A-5(b), Vendor shall not

utilize in the performance of the contract any subcontractor that is identified on the Final Divestment List. The Final Divestment List can be found on the State Treasurer's website at the address www.nctreasurer.com/Iran and should be updated every 180 days.

26. Divestment from Companies that Boycott Israel. The Vendor certifies that it has not been designated by the North Carolina State Treasurer as a company engaged in the boycott of Israel pursuant to N.C.G.S. 147-86.81. It is the responsibility of each vendor or contractor to monitor compliance with this restriction. Contracts valued at less than $1,000.00 are exempt from this restriction.
27. E-Verification. Vendor shall comply with the requirements of Article 2 of Chapter 64 of the North Carolina General Statutes
28. Indemnification. To the fullest extent permitted by law, Vendor shall indemnify and hold harmless UCBOE, its officers, agents, employees and assigns from and against all claims, losses, costs, damages, expenses, attorneys' fees and liability that any of them may sustain (a) arising out of Vendor's failure to comply with any applicable law, ordinance, regulation, or industry standard or (b) arising directly or indirectly out of Vendor's performance or lack of performance of the terms and conditions of the Contract. In the event that any Services and/or Goods sold and delivered or sold and performed under the Contract Documents shall be defective in any respect whatsoever, Vendor shall indemnify and save harmless UCBOE, its officers, agents, employees and assigns from all loss or the payment of all sums of money by reason of all accidents, injuries or damages to persons or property that shall happen or occur in connection with the use or sale of such Services and/or Goods and are contributed to by said condition. In the event Vendor, its employees, agents, subcontractors and or lower-tier subcontractors enter premises occupied by or under the control of UCBOE in the performance of the Contract Documents, Vendor agrees that it will indemnify and hold harmless UCBOE, its officers, agents, employees and assigns, from any loss, costs, damage, expense or liability by reason of property damage or personal injury of whatsoever nature or kind arising out of, as a result of, or in connection with such entry.
29. Insurance. Unless such insurance requirements are waived or modified by UCBOE or risk management ("DIRM"), Vendor certifies that it currently has and agrees to purchase and maintain during its performance under the Contract the following insurance from one or more insurance companies acceptable to UCBOE and authorized to do business in the State of North Carolina: Automobile - Vendor shall maintain bodily injury and property damage liability insurance covering all owned, non-owned and hired automobiles. The policy limits of such insurance shall not be less than $1,000,000 combined single limit each person/each occurrence. Commercial General Liability - Vendor shall maintain commercial general liability insurance that shall protect Vendor from claims of bodily injury or property damage which arise from performance under the Contract. This insurance shall include coverage for contractual liability. The policy limits of such insurance shall not be less than $1,000,000 combined single limit each occurrence/annual aggregate. Worker's Compensation and Employers' Liability Insurance - If applicable to Vendor, Vendor shall meet the statutory requirements of the State of North Carolina for worker's compensation coverage and employers' liability insurance. Vendor shall also provide any other insurance or bonding specifically recommended in writing by the DIRM or required by applicable law. Certificates of such insurance shall be furnished by Vendor to UCBOE and shall contain the provision that UCBOE be given 30 days' written notice of any intent to amend or terminate by either Vendor or the insuring company. Failure to furnish insurance certificates or to maintain such insurance shall be a default under the Contract and shall be grounds for immediate termination of the Contract.
30. Termination for Convenience. In addition to all of the other rights which UCBOE may have to cancel this Contract or an applicable Purchase Order, UCBOE shall have the further right, without assigning any reason therefore, to terminate the Contract (or applicable Purchase Order), in whole or in part, at any time at its complete discretion by providing 10 days' notice in writing from UCBOE to Vendor. If the Contract is terminated by UCBOE in accordance with this paragraph, Vendor will be paid in an amount which bears the same ratio to the total compensation as does the Services and/or Goods actually delivered or performed to the total originally contemplated in the Contract. UCBOE will not be liable to Vendor for any costs for completed Goods, Goods in process or materials acquired or contracted for if such costs were incurred prior to the date of this Contract or an applicable Purchase Order.
31. Termination for Default. UCBOE may terminate the Contract, in whole or in part, immediately and without prior notice upon breach of the Contract by Vendor. In addition to any other remedies available to UCBOE law or equity, UCBOE may procure upon such terms as UCBOE shall deem appropriate, Services and/or Goods

substantially similar to those so terminated, in which case Vendor shall be liable to UCBOE for any excess costs for such similar goods, supplies, or services and any expenses incurred in connection therewith.

32. Contract Funding. It is understood and agreed between Vendor and UCBOE that UCBOE's obligation under the Contract is contingent upon the availability of appropriated funds from which payment for Contract purposes can be made. No legal liability on the part of UCBOE for any payment may arise until funds are made available to UCBOE's Finance Officer and until Vendor receives notice of such availability. Should such funds not be appropriated or allocated, the Contract shall immediately be terminated. UCBOE shall not be liable to Vendor for damages of any kind (general, special, consequential or exemplary) as a result of such termination.
33. Accounting Procedures. Vendor shall comply with any accounting and fiscal management procedures prescribed by UCBOE to apply to the Contract and shall assure such fiscal control and accounting procedures as may be necessary for proper disbursement of and accounting for all project funds.
34. Improper Payments. Vendor shall assume all risks attendant to any improper expenditure of funds under the Contract. Vendor shall refund to UCBOE any payment made pursuant to the Contract if it is subsequently determined by audit that such payment was improper under any applicable law, regulation or procedure. Vendor shall make such refunds within thirty (30) days after UCBOE notifies Vendor in writing that a payment has been determined to be improper.
35. Contract Transfer. Vendor shall not assign, subcontract or otherwise transfer any interest in the Contract without the prior written approval of UCBOE.
36. Contract Personnel. Vendor agrees that it has, or will secure at its own expense, all personnel required to provide the Services and/or Goods set forth in the Contract.
37. Key Personnel. Vendor shall not substitute for key personnel (defined as those individuals identified by name or title in the Contract Documents or in written communication from Vendor) assigned to the performance of the Contract without prior written approval from UCBOE Project Coordinator (the individual at UCBOE responsible for administering the Contract).
38. Contract Modifications. The Contract may be amended only by written amendment duly executed by both UCBOE and Vendor.
39. Relationship of Parties. Vendor is an independent contractor and not an employee of UCBOE. The conduct and control of the work will lie solely with Vendor. The Contract shall not be construed as establishing a joint venture, partnership or any principal-agent relationship for any purpose between Vendor and UCBOE. Employees of Vendor shall remain subject to the exclusive control and supervision of Vendor, which is solely responsible for their compensation.
40. Advertisement. The Contract will not be used in connection with any advertising by Vendor without prior written approval by UCBOE.
41. Monitoring and Evaluation. Vendor shall cooperate with UCBOE, or with any other person or agency as directed by UCBOE, in monitoring, inspecting, auditing or investigating activities related to the Contract. Vendor shall permit UCBOE to evaluate all activities conducted under the Contract. UCBOE has the right at its sole discretion to require that Vendor remove any employee of Vendor from UCBOE Property and from providing Services and/or Goods under the Contract following provision of notice to Vendor of the reasons for UCBOE's dissatisfaction with the Services and/or Goods of Vendor's employee.
42. Financial Responsibility. Vendor is financially solvent and able to perform under the Contract. If requested by UCBOE, Vendor agrees to provide a copy of its latest audited annual financial statements or other financial statements as deemed acceptable by UCBOE's Finance Officer. In the event of any proceedings, voluntary or involuntary, in bankruptcy or insolvency by or against Vendor, the inability of Vendor to meet its debts as they become due or in the event of the appointment, with or without Vendor's consent, of an assignee for the benefit of creditors or of a receiver, then UCBOE shall be entitled, at its sole option, to cancel any unfilled part of the Contract without any liability whatsoever.
43. Governmental Restrictions. In the event any governmental restrictions are imposed which necessitate alteration of the material, quality, workmanship or performance of the items offered prior to their delivery, it shall be the responsibility of the Vendor to notify, in writing, the issuing purchasing office at once, indicating the specific regulation which required such alterations. UCBOE reserves the right to accept any such alterations, including any price adjustments occasioned thereby, or to cancel the Contract.
44. Inspection at Vendor's Site. UCBOE reserves the right to inspect, at a reasonable time, the equipment/item, plant or other facilities of a prospective contractor prior to Contract award, and during the Contract term as

necessary for UCBOE determination that such equipment/item, plant or other facilities conform with the specifications/requirements and are adequate and suitable for the proper and effective performance of the Contract.

45. Confidential Information. All information about UCBOE provided to the Vendor or its officers, employees, agents, representatives and advisors (the "Vendor Representatives"), and all copies or other full or partial reproductions thereof and notes, memoranda or other writings related thereto created by Vendor or any Vendor Representative, regardless of whether provided before or after the date of the Contract and regardless of the manner or medium in which it is furnished, is referred to as "Confidential Information". Confidential Information does not include any information that (a) is or becomes generally available to the public other than as a result of an impermissible disclosure by Vendor, (b) was known by or available on a nonconfidential basis to Vendor before it was disclosed by UCBOE or (c) becomes available to Vendor on a nonconfidential basis from a third party whom Vendor does not know to be bound by a confidentiality agreement with, or have an obligation of secrecy to, UCBOE. Except as and to the extent required by law or order or demand of any governmental or regulatory authority, Vendor and Vendor Representatives will (x) keep all Confidential Information confidential and (y) will only disclose or reveal any Confidential Information to Vendor Representatives who must have the information to fulfill Vendor's obligations under the Contract and who agree to observe the terms of this Section. Vendor and Vendor Representatives will not use the Confidential Information for any purpose other than fulfilling Vendor's obligations under the Contract. By way of example and not limitation, Vendor shall not sell, market, or commercialize Confidential Information, create derivative products or applications based on Confidential Information. If Vendor is requested or required, pursuant to applicable law or regulation or by legal process, to disclose any Confidential Information, Vendor will provide UCBOE with prompt and timely notice of the requests or requirements so that UCBOE can seek an appropriate protective order or other remedy and will not be prejudiced by delay. If UCBOE does not obtain a protective order or other remedy, Vendor will only disclose that portion of the Confidential Information which Vendor's legal counsel determines Vendor is required to disclose. Upon termination of the Contract or otherwise upon UCBOE's request, Vendor will promptly deliver to UCBOE all Confidential Information in the possession of Vendor or the Vendor Representatives.
    Student Information: If, during the course of Vendor's performance of the Contract, Vendor should obtain any information pertaining to students or students' official records, Vendor agrees to keep any such information confidential and to not disclose or permit it to be disclosed, directly or indirectly, to any person or entity. The Contract shall not be construed by either party to constitute a waiver of or to in any manner diminish the provisions for confidentiality of students' records. Additionally, pursuant to N.C.G.S. 115C-401.1, it is unlawful for a person who enters into a contract with a local board of education to sell personally identifiable information that is obtained from a student as a result of that person's performance under the Contract.
    Employee Personnel Information: If, during the course of Vendor's performance of the Contract, Vendor should obtain any information pertaining to employees of UCBOE's personnel records, Vendor agrees to keep any such information confidential and to not disclose or permit it to be disclosed, directly or indirectly, to any person or entity. This section will survive the termination of this Contract.
46. Intellectual Property. Vendor agrees, at its own expense, to indemnify, defend and save UCBOE harmless from all liability, loss or expense, including costs of settlement and attorney's fees, resulting from any claim that UCBOE's use, possession or sale of the Services and/or Goods infringes any copyright, patent or trademark or is a misappropriation of any trade secret.
47. No Pre-Judgment or Post-Judgment Interest. In the event of any action by Vendor for breach of contract in connection with the Contract, any amount awarded shall not bear interest either before or after any judgment, and Vendor specifically waives any claim for interest.
48. Background Checks. At the request of UCBOE's Project Coordinator, Vendor (if an individual) or any individual employees of Vendor shall submit to UCBOE criminal background check and drug testing procedures.
49. Mediation. If a dispute arises out of or relates to the Contract, or the breach of the Contract, and if the dispute cannot be settled through negotiation, the parties agree to try in good faith to settle the dispute by mediation administered by the American Arbitration Association under its Commercial Mediation Rules before resorting to litigation.

50. No Third-Party Benefits. The Contract shall not be considered by Vendor to create any benefits on behalf of any third party. Vendor shall include in all contracts, subcontracts or other agreements relating to the Contract an acknowledgment by the contracting parties that the Contract creates no third-party benefits.
51. Force Majeure. Neither party shall be responsible to the other for any losses resulting from the failure to perform any terms or provisions of the Agreement if the party's failure to perform is attributable to war, riot or other disorder, strike or other work stoppage; fire; flood; storm; illness; pandemic, communicable disease, or any other act not within the control of the party whose performance is interfered with, and which, by reasonable diligence, such party is unable to prevent. However, UCBOE will be entitled to a refund for fees paid on account of services not rendered by Vendor including any and all deposits.
52. Ownership of Documents; Work Product. All documents created pursuant to the Contract shall, unless expressly provided otherwise in writing, be owned by UCBOE. Upon the termination or expiration of the Contract, any and all finished or unfinished documents and other materials produced by Vendor pursuant to the Contract shall, at the request of UCBOE, be turned over to UCBOE. Any technical knowledge or information of Vendor which Vendor shall have disclosed or may hereafter disclose to UCBOE shall not, unless otherwise specifically agreed upon in writing by UCBOE, be deemed to be confidential or proprietary information and shall be acquired by UCBOE free from any restrictions as part of the consideration of the Contract.
53. Strict Compliance. UCBOE may at any time insist upon strict compliance with these terms and conditions notwithstanding any previous course of dealing or course of performance between the parties to the contrary.
54. General Provisions. UCBOE's remedies as set forth herein are not exclusive. Any delay or omission in exercising any right hereunder, or any waiver of any single breach or default hereunder, shall not be deemed to be a waiver of such right or of any other right, breach, or default. If action be instituted by Vendor hereunder, UCBOE shall be entitled to recover costs and reasonable attorney's fees. Vendor may not assign, pledge, or in any manner encumber Vendor's rights under this Contract or applicable Purchase Order or delegate the performance of any of its obligations hereunder, without UCBOE's prior, express written consent.
55. Contract Situs. All matters, whether sounding in contract or tort relating to the validity, construction, interpretation and enforcement of the Contract, will be determined in Union County, North Carolina. North Carolina law will govern the interpretation and construction of the Contract.
56. Severability. Any provision of this Contract that is determined by any court of competent jurisdiction to be invalid or unenforceable will not affect the validity or enforceability of any other provision. Any provision of the Contract held invalid or unenforceable only in part or degree will remain in full force and effect to the extent not held invalid or unenforceable.

II. Additional Standard Terms and Conditions for Construction Contracts

1. Supervision and Provision for Labor and Supplies. The Vendor will supervise and direct the construction work (the "Work") and shall furnish, provide, and pay for all labor, materials, equipment, machinery, utilities, and services reasonably necessary for the execution and completion of the Work.
2. Coordination of Work and Notification of Progress. The Vendor agrees to coordinate its Work with the work of any other separate contractors or with the work of UCBOE's own forces to avoid delaying or interfering with their work. Vendor shall enforce good order and discipline among his employees and subcontractors on the Project. The Vendor further agrees to inform UCBOE on a regular basis or at UCBOE's request of the progress of the Work.
3. Provision for all Permits, Licenses, and Inspections. Unless otherwise provided, the Vendor shall secure and pay for all permits, licenses, and inspections necessary for the proper execution and completion of the Work.
4. Cleanliness. Vendor shall keep the Project reasonably free from waste materials or rubbish resulting from the Vendor's operations.
5. Additional Warranties. The Vendor warrants that the Vendor has visited the location of the Project and is familiar with all field conditions bearing upon the Vendor's performance of the Work; that the materials and equipment furnished under the Contract are of good quality and new (unless otherwise permitted); that the Work is non-negligent and meets or exceeds the standards ordinarily observed in the industry; and that the Work conforms to the requirements of the Contract and to all applicable codes, ordinances, laws, or regulations. The Vendor further warrants and promises that the Work shall be free from defects

and nonconformities in materials and workmanship for a period of one year from the later of the Date of Completion, which is the date UCBOE accepts the Work or such date as the Vendor actually completes all the Work (the "Date of Completion"). During such period, the Vendor will remedy at Vendor's expense nonconformities or defects in the Work within a reasonable time after receiving notice thereof from UCBOE.

6. Indemnity for Subcontractor Payment. In addition to the indemnification obligations contained in the attached terms and conditions to this Contract, the Vendor further agrees to defend and indemnify UCBOE from and against all claims, damages, losses, and expenses, including reasonable attorneys' fees, arising out of the Vendor's failure to pay subcontractors or materials suppliers.
7. Change Orders. The Vendor agrees that UCBOE may order changes in the general scope of the Work, including additions, deletions, and similar revisions. The parties agree to adjust the Contract Price and Date of Completion to reflect the effects of such changes, which adjustments shall be authorized only upon execution of a written change order (a "Change Order"). In case of emergency or extenuating circumstances or if a construction contingency is provided as stated below, approval of changes may be obtained verbally by telephone or field orders approved by UCBOE Project Coordinator and promptly thereafter substantiated in writing as outlined under normal procedures. The amount of any increase or decrease in the Contract Price shall be by mutual acceptance of a total amount supported by sufficient data and information to substantiate the change. Any decrease in Contract Price for a decrease in the Work will be the reasonable costs of the Work deleted, including a reasonable amount for the decrease in the Vendor's overhead.
8. Performance/Payment Bond. If required by law and/or the bidding documentation, the Vendor agrees to provide a Performance Bond and Labor and Material Payment Bond for its faithful performance in a form reasonably satisfying to UCBOE.
9. Payments Withheld. The UCBOE may withhold payment for the following reasons to the extent permitted under N.C. Gen. Stat. § 143-134.1(e): (1) defective Work not remedied; (2) third party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to UCBOE is provided by the Vendor; (3) failure of the Vendor to make payments properly to subcontractors or for labor, materials or equipment; (4) reasonable evidence that the Work will not be completed with the time specified, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; (5) failure to carry out the Work in accordance with the Contract Documents; (6) failure to provide sales tax documentation in accordance with subparagraph 9.3.5; (7) failure or refusal of the Vendor to submit the required information on minority business enterprises; and (8) failure of the Vendor to comply with (a) the provisions of the Sedimentation and Pollution Control Act (N.C. Gen. Stat. § 113A-50 *et seq*.), and/or (b) any Notice of Violation issued by the North Carolina Department of Natural Resources.
10. Retainage. For public construction contracts costing an amount equal to or greater than $100,000, the UCBOE will retain five percent of the amount of each progress payment on the project for as long as is authorized by N.C. Gen. Stat. § 143-134.1. At all times during the Project, the UCBOE may retain the maximum funds allowed by N.C. Gen. Stat. § 143-134.1. The UCBOE specifically reserves the right to withhold additional funds as authorized by this Contract and N.C. Gen. Stat. § 143-134.1. The Vendor may pay each subcontractor no later than seven days after receipt of payment from the UCBOE and in accordance with N.C. Gen. Stat. § 143-134.1 the amount to which the subcontractor is entitled, reflecting percentages actually retained from payments to the Vendor on account of the subcontractor's portion of the Work. The Vendor shall, by appropriate agreement with each subcontractor, require each subcontractor to make payments to sub-subcontractors in a similar manner and in accordance with N.C. Gen. Stat. § 143-134.1.
11. The Vendor shall use and submit applications for payment using a form reasonably satisfactory to UCBOE ("Application for Payment"). The Contractor shall submit with each Application for Payment a completed "Statement of Sales Tax Paid" and "Minority Business Enterprise" documentation in a form acceptable to UCBOE.

III. Additional Standard Term and Condition for Designer Contracts (which include Architectural, Engineering, Surveying, and Technical Services)

Additional Insurance. In addition to the insurance required pursuant to Section 22 of the Standard Terms and Conditions for All Contracts, the Vendor certifies that it currently has and agrees to purchase and maintain during its performance under the Contract the following insurance from one or more insurance companies acceptable to UCBOE and authorized to do business in the State of North Carolina: Professional liability insurance in commercially reasonable amounts as reasonably determined by UCBOE.

IV. Additional Standard Terms and Conditions for Information Technology Contracts

1. Definitions.
   "Hardware" means the hardware the Vendor utilizes in the Hosted Environment for delivery and maintenance of the Hosted Software Services.
   "Hosted Environment" means the Hardware, system software, hosting support software, network connectivity, and facility used by Vendor to support the Hosted Software Services.
   "Hosted Software Services" means the application, including the Hosted Software and any applicable Third-Party Software, as run on the Hosted Environment.
   "Hosted Software" means the software owned and controlled by Vendor or Vendor's third-party contractor that supports the Hosted Software Services.
   "Support Services" means application and technical support required to maintain the performance, uptime and connectivity of the Hosted Software Services for UCBOE access and use, including without limitation, telephone support, error correction, maintenance, and installation of Updates and Upgrades to the Hosted Software.
   "Updates" means (i) modifications to or releases of the Hosted Software that (a) add new features, functionality, and/or improved performance, (b) operate on new or other databases, operating systems, or server platforms or (c) extend the Hosted Software functionality to take advantage of advances in coding language, hardware, network or wireless infrastructures; and (ii) deviation corrections, bug or error fixes, patches, workarounds, and maintenance releases.
   "Upgrades" means any new version or new release of the Hosted Software typically provided on an annual or bi-annual basis by the Vendor that includes new features, functions, support or service that were not in place with the immediately prior version.
2. Grant of License. Vendor grants to UCBOE for the term of this Contract a non-exclusive, non-transferable license to access and use over the internet the Hosted Software (the "License").
3. Updates and Upgrades. Vendor will make certain limited and applicable Hosted Software Updates and Upgrades available to UCBOE at no additional cost. All such Updates and Upgrades shall automatically become subject to the benefits and terms of this Contract and shall automatically be considered part of the License granted under this Contract.
4. Security. Vendor's Hosted Environment shall maintain security measures in place to help protect against the loss, misuse, and alteration of the Hosted Software Services, and specifically the Confidential Information provided to Vendor by UCBOE.
5. Warranties. Vendor warrants the following: (a) Vendor has the full authority to grant the License; (b) the Hosted Software is free from material defects or viruses; (c) the Hosted Software contains no disabling devices; and (d) the Hosted Software conforms to all material specifications set forth in the documentation and any other written material provided to UCBOE for any purpose. Without limiting any other remedies available to UCBOE under this Contract, at law or in equity, in the event that any Hosted Software does not conform to the warranties set forth for the Hosted Software herein, Vendor shall, at UCBOE's option, promptly correct or replace such Hosted Software and, in either case, Vendor shall perform any Support Services or other work required to restore the Hosted Software to the state that existed prior to any such breach, all at Vendor's expense. UCBOE reserves the right to reject the Hosted Software and to hold Vendor responsible for any loss, direct or indirect, caused by any such breach of warranty. In the event Vendor is or becomes aware of a problem with any item of Hosted Software, Vendor shall notify UCBOE upon such determination. Acceptance or use of the Hosted Software shall not constitute a waiver of any claim under any warranty.
6. Effect of Termination and Orderly Transition. Upon termination or expiration of this Contract for any reason, Vendor will cooperate in good faith with UCBOE to provide for an orderly transfer of the Goods and Services

and Confidential Information to UCBOE or UCBOE's successor vendor ("Orderly Transition") and according to the terms of this section.

a. Scope of Work for Orderly Transition. Within thirty (30) days of notification by UCBOE that it will transfer Goods and Services to itself or a successor vendor, the parties will create and execute a scope of work document detailing tasks, the responsible parties for individual tasks, and timeframes for completion of tasks necessary to complete an Orderly Transition. The final, executed Orderly Transition scope of work shall be incorporated into this Contract and become subject to its terms. Vendor's failure to (a) cooperate in developing the Orderly Transition scope of work, (b) execute an Orderly Transition scope of work, or (c) abide by the executed Orderly Transition scope of work shall be deemed a material breach of this Contract.
b. Time Frame. Unless otherwise mutually agreed in an executed Orderly Transition scope of work, Vendor shall continue to provide Goods and Services while UCBOE migrates its Confidential Information from Vendor's Hosted Software Services in the Orderly Transition process. Vendor agrees that, as part of the Orderly Transition process and within the specified time frame, it will transfer to UCBOE all of the Confidential Information provided to Vendor by UCBOE pursuant to this Contract. Vendor will provide the Confidential Information in commercially reasonable electronic format as agreed in the Orderly Transition scope of work at no additional cost.
c. Time and Material Costs Only. UCBOE will be obligated to pay for time and materials at a reasonable hourly rate of no more than $75/hour for the Orderly Transition. No other fees will be assessed for the Orderly Transition. Fees shall be agreed upon in advance as part of developing the scope of work referenced in subsection (a) above.
d. Destruction of Confidential Information after Orderly Transition. Unless otherwise mutually agreed in an executed Orderly Transition scope of work, Vendor agrees that after returning all Confidential Information to UCBOE pursuant to subsection (b) above it will destroy all remaining copies of Confidential Information and back-up Confidential Information in its possession, contained in or on any medium (such as a storage area network or "SAN") or as may be stored offsite, within thirty (30) days of completion of Orderly Transition. Vendor shall provide UCBOE with a detailed summary of the destruction process and standards to be utilized by Vendor with respect to the Confidential Information, and UCBOE shall approve such process and standards prior to Vendor commencing such destruction.

7. Intellectual Property Warranty. In addition to the warranties set forth elsewhere in this Contract with respect to the Goods and Services, Vendor expressly represents, warrants and covenants that neither the furnishing of Hosted Services to UCBOE hereunder, nor does the Hosted Software, violate, in whole or in part, any provision of any law, common law or regulation concerning copyrights, trade secrets, trademarks, tradenames, service marks, patents or other provisions regulating or concerning intellectual property rights.
8. Additional Indemnification. To the fullest extent permitted by law, Vendor shall indemnify, defend and hold harmless UCBOE, its and directors, officers, managers, employees and agents, from all suits, claims, costs, damages and other liabilities, including reasonable attorneys' fees as incurred by counsel of UCBOE's choice, relating to or arising from (a) Vendor's failure to maintain the security and integrity of Confidential Information, the Hosted Software Services and the Hosted Environment; (b) any claim for infringement of any copyright, trade secret, trademark, tradename, service mark, patent, or other law or regulation concerning intellectual and/or proprietary property rights; and (c) any claims by third party interests in the Hosted Software.
9. Data Use. Notwithstanding the foregoing, Vendor acknowledges and agrees that all Confidential Information is proprietary to and owned exclusively by UCBOE, whether provided in tangible or electronic form and whether entered into any software or Hosted Software Services owned or licensed by Vendor (including without limitation the Hosted Software and Hosted Software Services) or otherwise provided in connection with any products provided and services performed by Vendor (including without limitation the Goods and Services) and whether to, by or through a Vendor-affiliated ASP or other Hosted Software Services. Furthermore, Vendor shall not sell, market, or commercialize Confidential Information, create derivative products or applications based on Confidential Information or otherwise use Confidential Information in any manner unrelated to the performance of Vendor's obligations under the Contract. Vendor shall not share Confidential Information with any parent or subsidiary company of Vendor or any other Vendor-affiliated entity without the express prior written consent of UCBOE detailing the scope of allowable disclosure. Vendor agrees that if it breaches this

section, UCBOE may, at its option, pursue any or all of the following remedies: (a) immediately terminate this Contract without liability to Vendor; (b) seek an injunction without posting a bond; and (c) pursue whatever other remedies may be available to it at law, in equity or pursuant to this Contract.

EXHIBIT 1

SCOPE OF WORK

GENERAL:

Union County Public Schools is obtaining bids for the replacement of one (1) Roof-top Package Unit at Poplin Elementary School.

Contractor shall field verify all aspects of project to ensure a fully operational system is included in bid proposal. Contractor is to provide all equipment, labor, materials, permits, fees, inspections, etc. to provide a turnkey project. Permits and Inspections shall be provided to the assigned UCPS Project Coordinator.

Note: Specifications are provided in order to give a general description of the Work. Contractor is to visit the site and field verify all existing conditions that affect the design and layout of this project prior to preparation of submittals. Contractor is responsible for all measurements and material lists.

Contractor shall comply with all current local, state, and national codes and regulations. This includes, but not limited to, complying with all ADA requirements. In the event of a conflict between the Scope of Work and code regulations, the Contractor shall notify the assigned UCPS Project Coordinator for direction.

Contractor shall be properly licensed within the state of North Carolina to perform all work listed within the bid documents. A copy of this license shall be included in the bid submittal.

Contractor shall have successfully completed projects of this type and size for a minimum of 5 years. References are to be provided within 24 hours of request.

EXPECTATIONS:

Contractor shall replace one (1) York Rooftop Unit, Model No. Y33AC04Q50DVBK0001A, Serial No. NOA9558492 with new Trane unit or approved equal (refer to Communications section on page 2). Electrical is 480 Volt, 3-Phase. Contractor shall make necessary modifications (i.e. curb adapter, electrical, piping, etc.) for a fully functional system. Perform startup and testing on the units for proper operation. Report findings to the assigned UCPS Project Coordinator.

All equipment, materials are to be new with full manufacturer's warranty. Compressor shall have a 5 year Warranty. Contractor shall provide a minimum of 1 year warranty on workmanship.

Contractor shall provide a start and stop. Any control work beyond start and stop will be handled by UCPS.

Tentative Schedule:

October 17, 2023	Notice to Proceed Released (contact UCPS Procurement Lead if not received by this date.)
February 19, 2023	Substantial Completion
February 26, 2023	Final Completion

All work must be closely coordinated with the assigned UCPS Project Coordinator to ensure no disruption to school activities. If the above dates cannot be met, Contractor shall provide the number of consecutive calendar days required for final completion from issuance of Notice to Proceed.

Space Purposely Left Blank

Poplin Elementary School

Rooftop Packaged Unit Replacement

BID NO. 4-97347011

COST PROPOSAL FORM

By submitting this proposal, the potential contractor certifies the following:

This proposal is signed by an authorized representative of the firm.

The cost and availability of all equipment, materials, and supplies associated with performing the services described herein have been determined and included in the proposed cost.

The potential contractor has read and understands the conditions set forth in this bid and agrees to them with no exceptions.

Therefore, in compliance with this Request for Proposals, and subject to all conditions herein, the undersigned offers and agrees, if this proposal is accepted within **60** days from the date of the opening, to furnish the subject services for a cost not to exceed:

ALL INCLUSIVE COST: $ 130000.00 **Completion:** 225 **Consecutive Calendar Days**

Manufacturer & Model Number: TRANE RXU30

Warranty: 1 YEAR WARRANTY

Unit 24-26 weeks plus delivery

Acknowledge Receipt: Addendum 1: _____ Addendum 2: _____ Addendum 3: _____

Execute:

OFFEROR: Carolina Air Solutions FEDERAL ID NO. 20-2107707

ADDRESS: 9224 Stockport Pl CITY, STATE, ZIP Charlotte, NC 28273

TELEPHONE NUMBER: 704-525-2400 FAX: 704-525-6800 EMAIL: billy@carolinaairsolutions.com

BY: Billy Garrison TITLE: Operations Manager DATE: 9-26-23
(Signature)

Billy Garrison
(Typed or printed name)

IPAK 3 20-75 ton Packaged Rooftop

Unit Overview - RX0300041**AA3E1C231000B0A4C1000000A000A0A41A1000

Unit Function	Tonnage	EER @ AHRI	IEER @ AHRI	Net Capacity @ AHRI	System Power	Elevation
DX Cooling, No Heat/Extended Casing	30 Tons	10.7 EER	13.9 EER	338.00 MBh	35.17 kW	0.00 ft

Dimensions				Installed Weight
Height	Width	Overall Length	Footprint Length	
81.590 in	90.630 in	270.610 in	262.720 in	6533.1 lb

Unit Features

Panel	Double-wall foam injected panels (doors, base, and roof) with thermal resistance of R-9
Hinged Access Doors	Hinged Access Doors - Single Side
Agency Approval	cULus Certification

Unit Electrical

Power Supply/Circuit	Voltage/Phase/Frequency	Unit Mounted Power Connection	SCCR Rating
Power Supply - Single Point	460/60/3	Terminal Block	5000.00 A

Circuit 1		
MCA	MOP	DSS
93.27 A	110.00 A	101.00 A

Condenser Fan 1 FLA	2.70 A	**Supply Fan 1 FLA**	8.30 A	**Compressor 1 RLA**	14.50 A
Condenser Fan 2 FLA	2.70 A	**Supply Fan 2 FLA**	8.30 A	**Compressor 2 RLA**	19.10 A
		Relief Fan 1 FLA	9.30 A	**Compressor 3 RLA**	19.10 A
		Other FLA	4.50 A		

Note: DSS value reflects factory installed Disconnect Switch Size

Note: Connect properly sized and protected power supply wiring to the unit (copper wiring only to the unit)

Condensing Section

Refrigeration System	Standard Efficiency and Capacity	**Refrigerant Charge Circuit 1**	38.0 lb
Compressor Count	3	**Service Valves**	Service Valves - Discharge
Compressor Stages	3	**Design Ambient Temperature**	95.00 F
Unit Capacity Steps (%)	100/62/24	**Ambient Control**	Ambient Control - Standard
Condenser Coil Type	Microchannel	**Condenser Fan Count**	2
Condenser Coil Face Area	58.00 sq ft	**Condenser Fan VFD Count**	0
Condenser Coil Rows	1	**Condenser Fan Size**	30.000 in
		Condenser Fan HP (each)	1.500 hp

Heating Section

Function	DX Cooling, No Heat/Extended Casing

Cooling Coil (DX) Section

Type	Cu-Al
Rows	4
Face Area	30.20 sq ft
Evaporator Coil Drain Pan	Stainless Steel/Condensate overflow swt
Face Velocity	331 ft/min

Inputs	
Design Airflow	10000 cfm
Entering Dry Bulb	80.00 F
Entering Wet Bulb	67.00 F

Cooling Performance	
Leaving Coil Dry Bulb	55.22 F
Leaving Coil Wet Bulb	55.15 F
Leaving Unit Dry Bulb	58.57 F
Leaving Unit Wet Bulb	56.51 F
Gross Total Capacity	349.31 MBh
Gross Sensible Capacity	256.23 MBh
Gross Latent Capacity	93.08 MBh
Net Total Capacity	330.86 MBh
Net Sensible Capacity	237.78 MBh
Net Sensible Heat Ratio	71.87 %

Dual Supply Fan - Direct Drive & Variable Speed

Supply Fan	Supply Fan - 20.0 inch, 80% width
Supply Fan Count	2
Discharge Airflow Direction	Downflow Supply & Upflow Return
Supply Fan Motor HP	Supply Fan Motor - 10HP (5HP per motor)
Supply Motor Count	2
Supply Fan Motor Type	ODP w RPM greater than or equal to 1600
System Control	Multi Zone VAV (Discharge Air Temp)
VFD Count	2
Shaft Grounding Ring	Standard

Performance	
Design Airflow	10000 cfm
Supply Duct Static Pressure	1.500 in H2O
Total Static Pressure	2.955 in H2O
Total Supply BHP	6.455 hp
Operating Speed	2001 rpm
Supply Fan Efficiency Grade	80
Supply Fan Motor Heat	3.78 MBh

Filter Sections

Pre-Evap Coil	
Type	Pre-Evap - 2" MERV 8 Panel
Quantity/Size - #1	4 - 16 x 20 x 2
Quantity/Size - #2	6 - 20 x 20 x 2
Quantity/Size - #3	2 - 20 x 24 x 2
Face Area (sq ft.)	32.20 sq ft
Face Velocity (ft/min)	311 ft/min

Filter Monitoring	Filter Monitoring -Pre-Evaporator Filter

Outside Air & Relief Sections

Outside Air Section	
Outside Air Option	0-100% Economizer with Traq and DCV
Outside Air Control	Economizer with Comparative Enthalpy
Damper with FDD	Low Leak Damper
Leakage Rate	10.00 cfm/sq ft

Relief Section	
Relief Option	Relief Fan
Fan Motor	Relief Fan - 8 HP
Fan Type	Motorized Impeller
Fan Count	1
Fan Size	25.500 in
Airflow	9200 cfm
Airflow Direction	Downflow Supply & Upflow Return
Return Duct Static Pressure	0.750 in H2O
Brake Horsepower	4.000 hp
Operating Speed	1636 rpm
Relief Fan Efficiency Grade	85
Space Pressure Management	Statitrac

COMcheck Inputs

Fan ID	Fan Type	Design Air Volume	BHP at System Design Conditions
Supply Fan 1	Supply	5000 cfm	3.23 bhp
Supply Fan 2	Supply	5000 cfm	3.23 bhp
Relief Fan 1	Relief	9200 cfm	4.00 bhp

Fan ID	Maximum BHP	Motor Nameplate HP	Maximum Motor Nameplate HP
Supply Fan 1		5.000 hp	3.227 hp
Supply Fan 2		5.000 hp	3.227 hp
Relief Fan 1	4.00 bhp	8.000 hp	12.000 hp

Pressure Drop Credits	
Application	**Flow Through Device**
Particulate filtration credit: MERV 9 through 12	10000 cfm
Particulate filtration credit: MERV 13 through 15	10000 cfm

Expected Output		
Method	**Proposed**	**Max. Allowed**
Motor Nameplate HP	18.000 hp	15.000 hp
Brake HP (BHP) - Recommended	10.455 hp	12.274 hp

Notes:

1. Trane recommends using Brake HP method for ASHRAE 90.1 compliance. Motor Nameplate HP method is not intended for large multi-fan systems that are available in IntelliPak rooftop units.
2. Select pressure drop credit when applicable (Ex. unit has high efficiency filters or sound attenuation section)
3. Is the relief fan running when the supply is delivering its highest supply airflow rate (ex. at Fan System Design Condition)?
. * If yes, input into COMcheck the relief fan airflow and BHP when it is operating at the Fan System Design Condition.
. * If not, do not input the relief fan into the COMcheck calculation.
4. Applies to fans internal to the unit only. Other fans in the system must be accounted for separately.
5. IntelliPak relief fans are EC motors. COMcheck will only give maximum nameplate Hp requirements for integral horsepower motors. To check for compliance with ASHRAE 90.1-2016, use two available nameplate motors per fan (6 Hp and 8 Hp).

Total Static Pressure

Final Filters	-1.000 in H2O
Heat	-1.000 in H2O
HGRH Coil	0.000 in H2O
DX Coil	0.350 in H2O
Filters	0.303 in H2O
Economizer	0.052 in H2O
Supply Duct	1.500 in H2O
Return Duct	0.750 in H2O
Total Static Pressure	2.955 in H2O

Filter Status	Clean

Acoustics

	63	125	250	500	1K	2K	4K	8K
Ducted Discharge (Supply)	94 dB	89 dB	91 dB	88 dB	83 dB	79 dB	79 dB	70 dB
Ducted Inlet (Return)	96 dB	86 dB	89 dB	86 dB	78 dB	72 dB	72 dB	60 dB
Outdoor Noise	105 dB	103 dB	92 dB	89 dB	87 dB	86 dB	78 dB	73 dB

Weights

Center of Gravity - X	126.670 in	**Installed Point Load Weight 1**	766.6 lb
Center of Gravity - Y	41.280 in	**Installed Point Load Weight 2**	635.1 lb
Installed Point Load X1 Location	4.000 in	**Installed Point Load Weight 3**	742.8 lb
Installed Point Load X2 Location	67.650 in	**Installed Point Load Weight 4**	611.4 lb
Installed Point Load X3 Location	131.300 in	**Installed Point Load Weight 5**	719.0 lb
Installed Point Load X4 Location	194.950 in	**Installed Point Load Weight 6**	587.6 lb
Installed Point Load X5 Location	258.600 in	**Installed Point Load Weight 7**	695.3 lb
Total Installed Weight	6533.1 lb	**Installed Point Load Weight 8**	563.8 lb
		Installed Point Load Weight 9	671.5 lb
		Installed Point Load Weight 10	540.1 lb

Controls

Communication Protocol	BACnet
Unit Tag	RTU-1
Address	0
Baud Rate	76800

Accessories/Misc.

Demand Control Ventilation	Wall Mounted CO2 Sensor	**Start Up**	Start up
Zone Sensor	Remote Zone Temp Sensor w Timed Override	**Ship Cycle**	Standard Ship Cycle

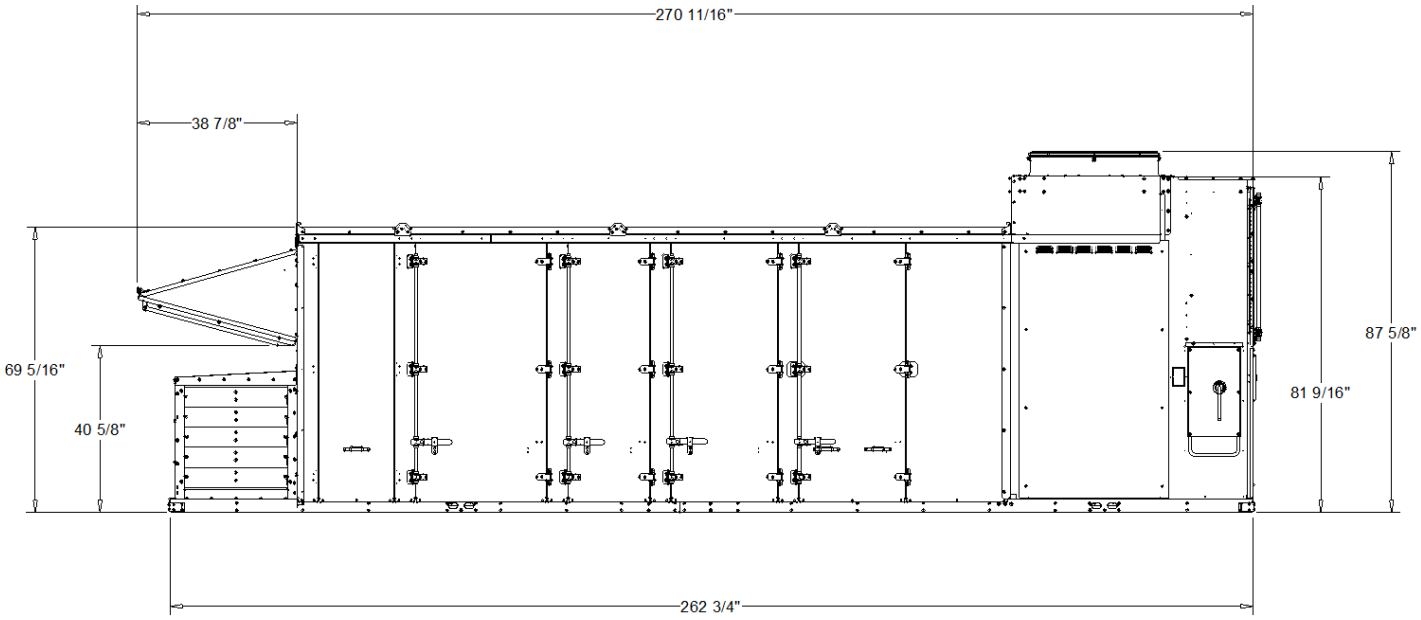
Warranty

Compressor Warranty	2nd-5th Year Compressor Warranty	**Refrigerant Warranty (First Year)**	1st Year Refrigerant Warranty
Labor Warranty (First Year)	1st Year Labor Warranty		

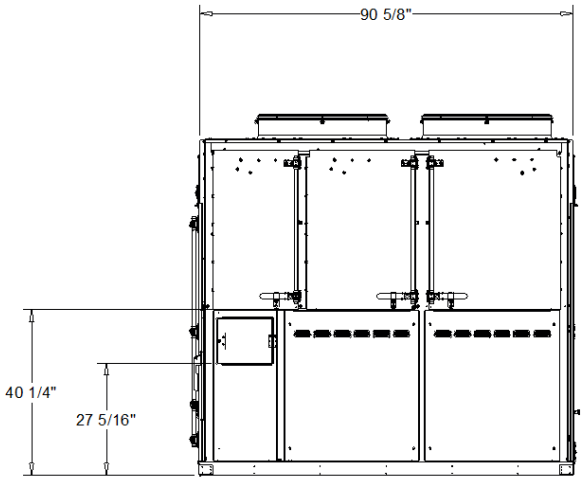
AHRI Certification

Packaged Rooftop units cooling, heating capacities and efficiencies are rated within the scope of the Air-Conditioning, Heating & Refrigeration Institute (AHRI) Certification Program and display the AHRI Certified® mark as a visual confirmation of conformance to the certification sections of AHRI Standard 340-360 (I-P) and ANSIZ21.47 and 10 CFR Part 431 pertaining to Commercial Warm Air Furnaces. Certified units may be found in the AHRI directory at www.ahridirectory.org

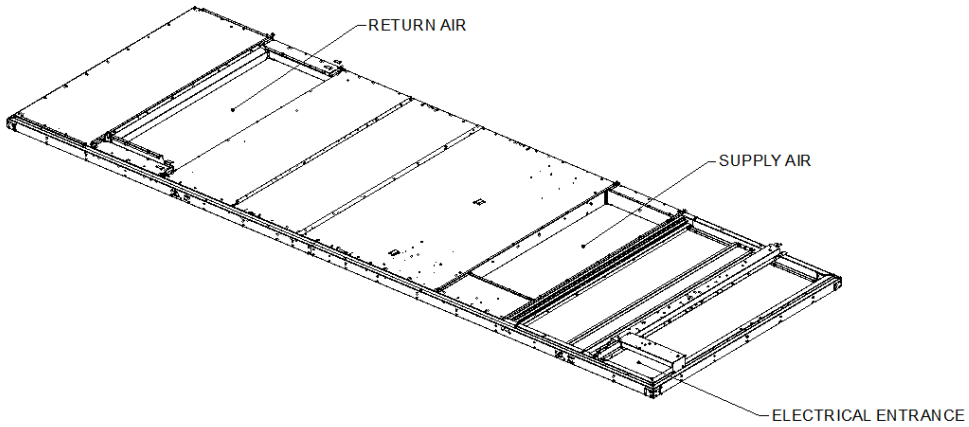
NOTES:
1. VERIFY WEIGHT, CONNECTION, AND ALL DIMENSION WITH INSTALLER DOCUMENTS BEFORE INSTALLATION

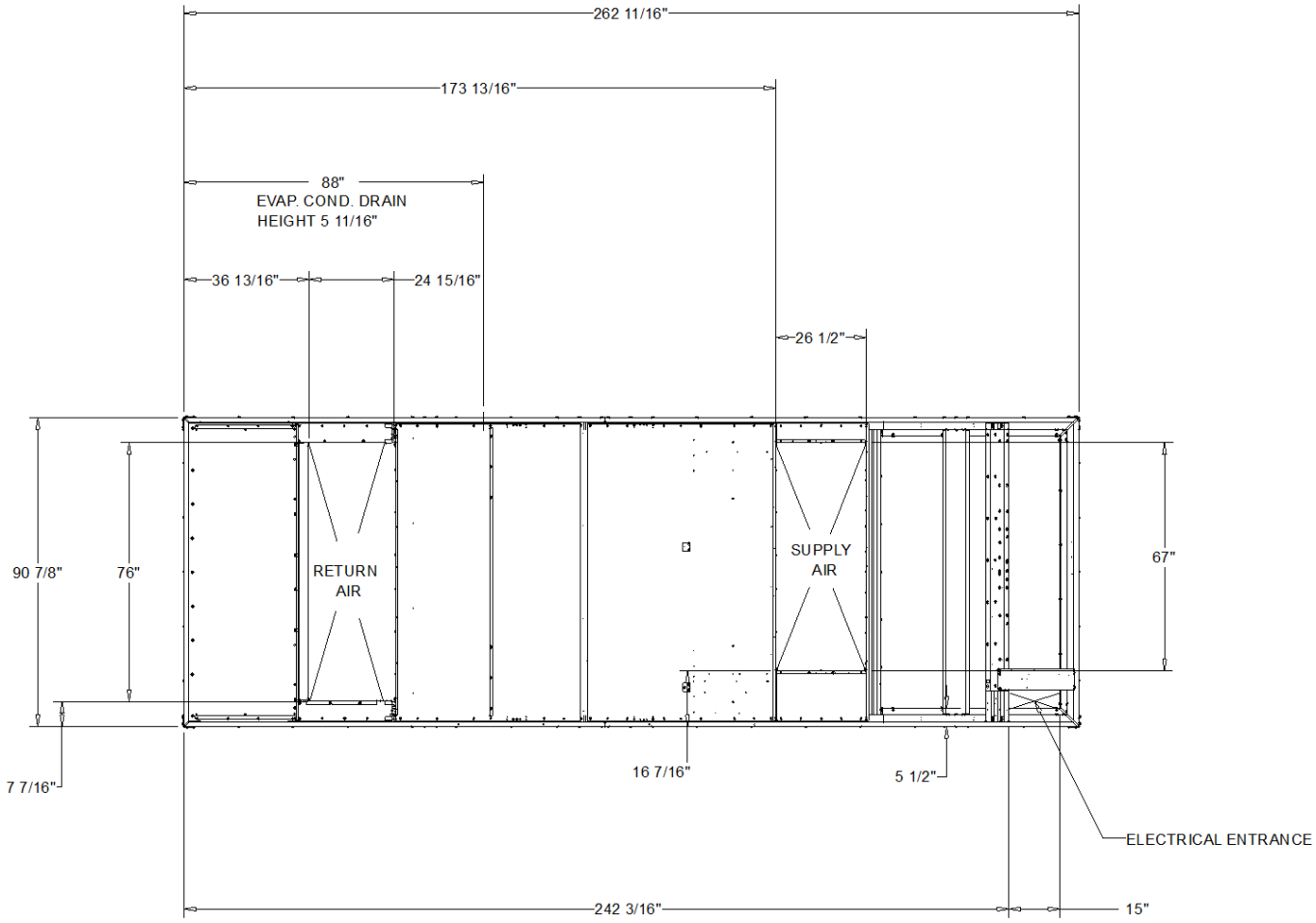


20-30 TON EXTENDED CASING / RELIEF FANS / PANEL FILTERS
LEFT SIDE VIEW



20-30 TON EXTENDED CASING / RELIEF FANS / PANEL FILTERS
FRONT SIDE VIEW

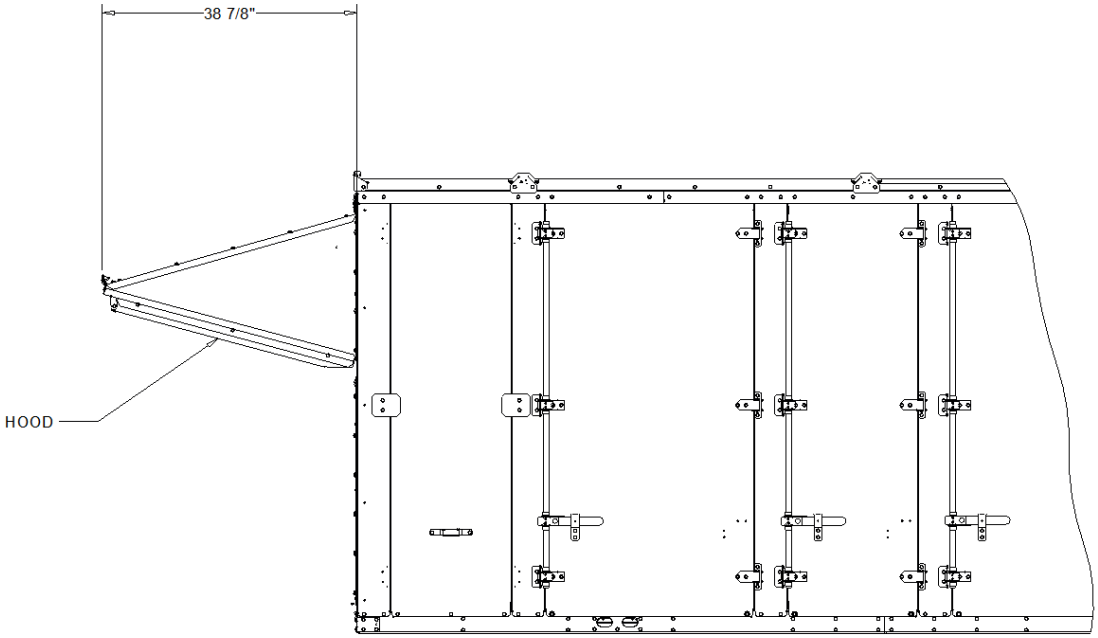




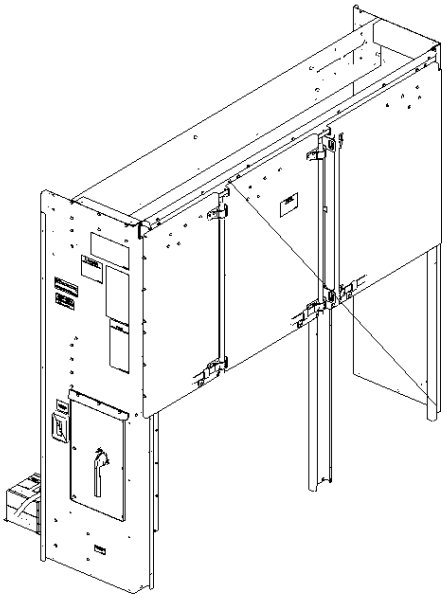
OPENINGS 20-30 TON EXTENDED CASING / RELIEF FANS / PANEL FILTERS

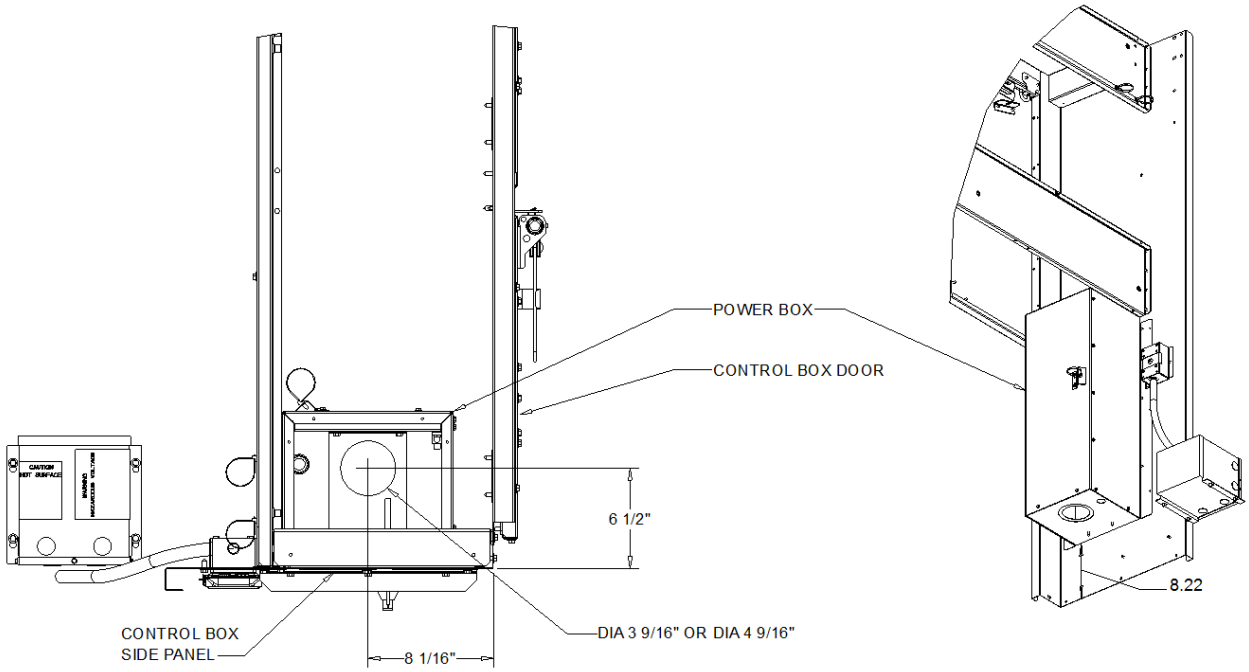
PLAN VIEW

NOTES:
1. VERIFY WEIGHT, CONNECTION, AND ALL DIMENSION WITH INSTALLER DOCUMENTS BEFORE INSTALLATION



NO RELIEF / ECONOMIZER
LEFT SIDE VIEW DETAIL

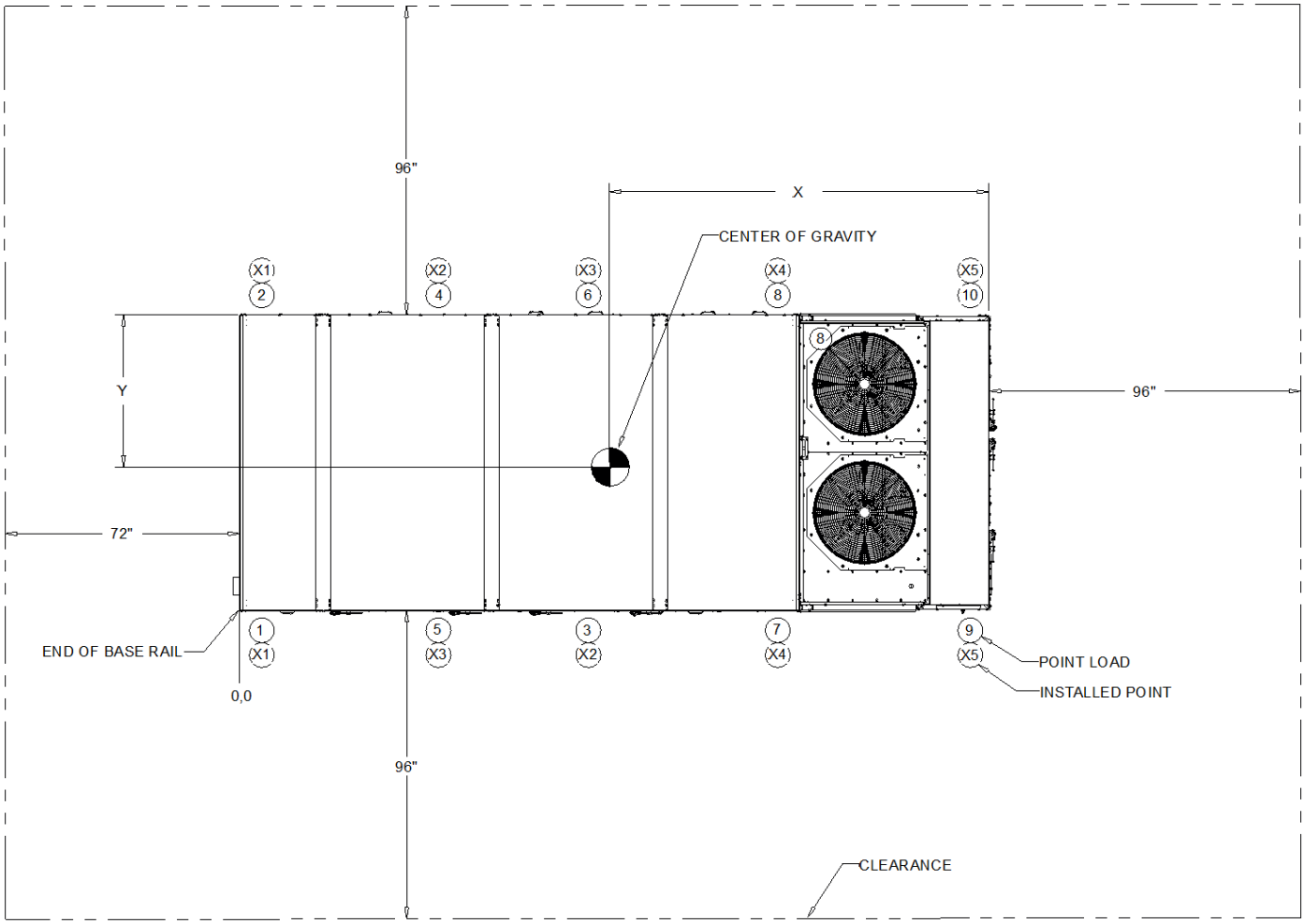




20 - 55 TON ELECTRIC MAIN POWER ENTRY

DETAIL VIEW

NOTES:
1. VERIFY WEIGHT, CONNECTION, AND ALL DIMENSION WITH INSTALLER DOCUMENTS BEFORE INSTALLATION



Center of Gravity and Installed Point weights

TOTAL INSTALLED WEIGHT	6,533.1 lb

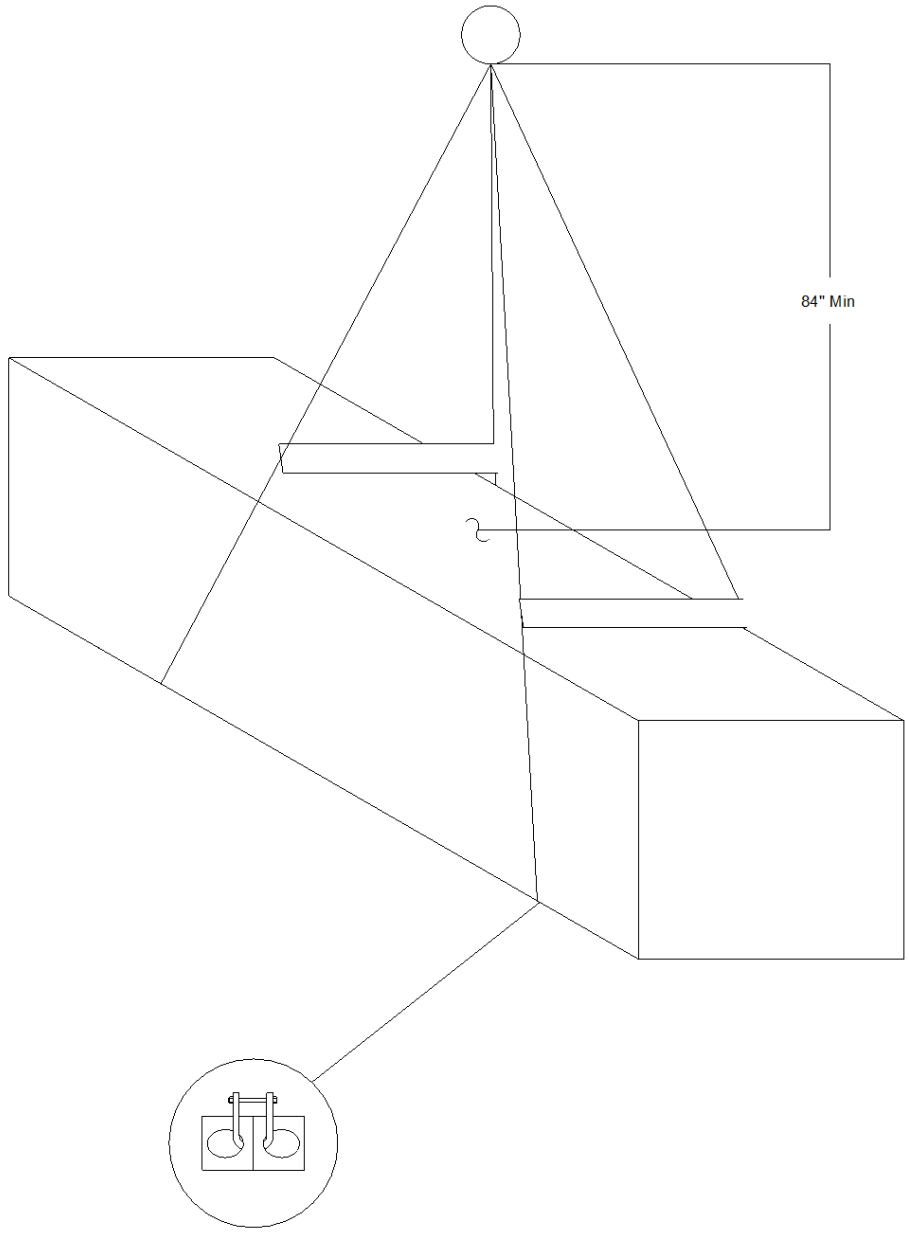
UNIT CONFIGURATION SELECTION	1 Piece
CENTER OF GRAVITY - X	126.670 in
CENTER OF GRAVITY - Y	41.280 in
INSTALLED POINT LOAD X1 LOCATION	4.000 in
INSTALLED POINT LOAD X2 LOCATION	67.650 in
INSTALLED POINT LOAD X3 LOCATION	131.300 in
INSTALLED POINT LOAD X4 LOCATION	194.950 in
INSTALLED POINT LOAD X5 LOCATION	258.600 in

NOTES:
1. VERIFY WEIGHT, CONNECTION, AND ALL DIMENSION WITH INSTALLER DOCUMENTS BEFORE INSTALLATION

INSTALLED POINT LOAD WEIGHT	
INSTALLED POINT LOAD WEIGHT 1	766.6 lb
INSTALLED POINT LOAD WEIGHT 2	635.1 lb
INSTALLED POINT LOAD WEIGHT 3	742.8 lb
INSTALLED POINT LOAD WEIGHT 4	611.4 lb
INSTALLED POINT LOAD WEIGHT 5	719.0 lb
INSTALLED POINT LOAD WEIGHT 6	587.6 lb
INSTALLED POINT LOAD WEIGHT 7	695.3 lb
INSTALLED POINT LOAD WEIGHT 8	563.8 lb
INSTALLED POINT LOAD WEIGHT 9	671.5 lb
INSTALLED POINT LOAD WEIGHT 10	540.1 lb

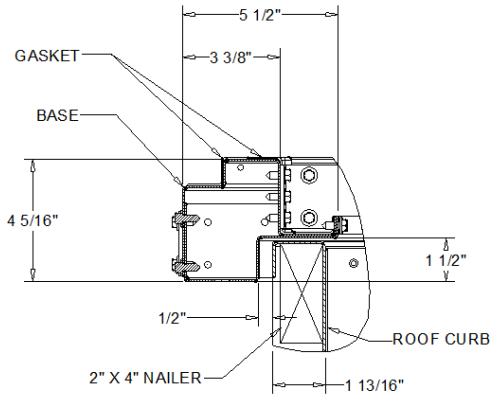
20-30T CENTER OF GRAVITY, INSTALLED POINT LOADS AND CLEARANCE

PLAN VIEW

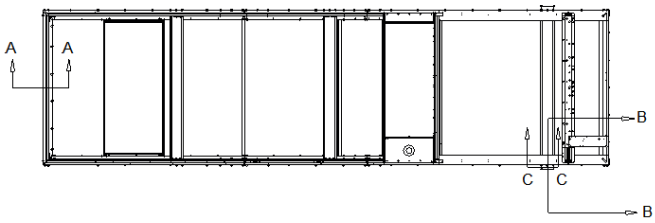


4 LUG Rigging

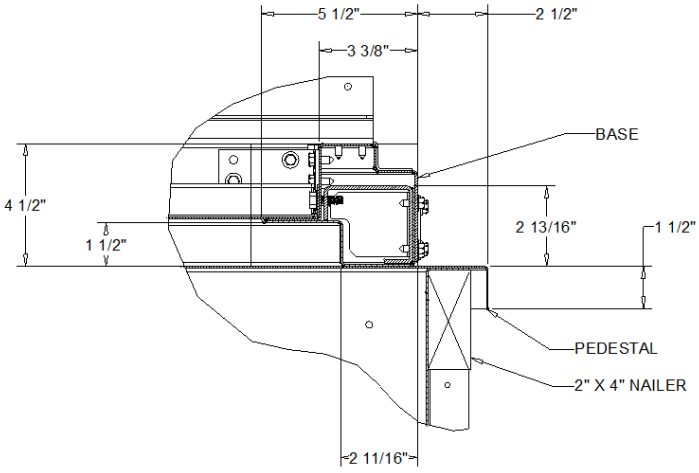
ISOMETRIC VIEW



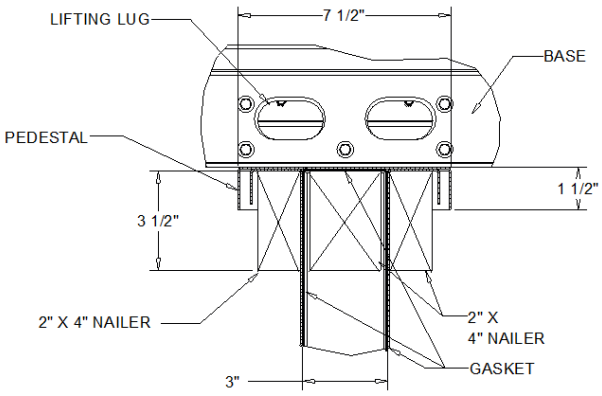
TYPICAL ROOF CURB & BASE DETAIL
SECT. A-A



PLAN VIEW



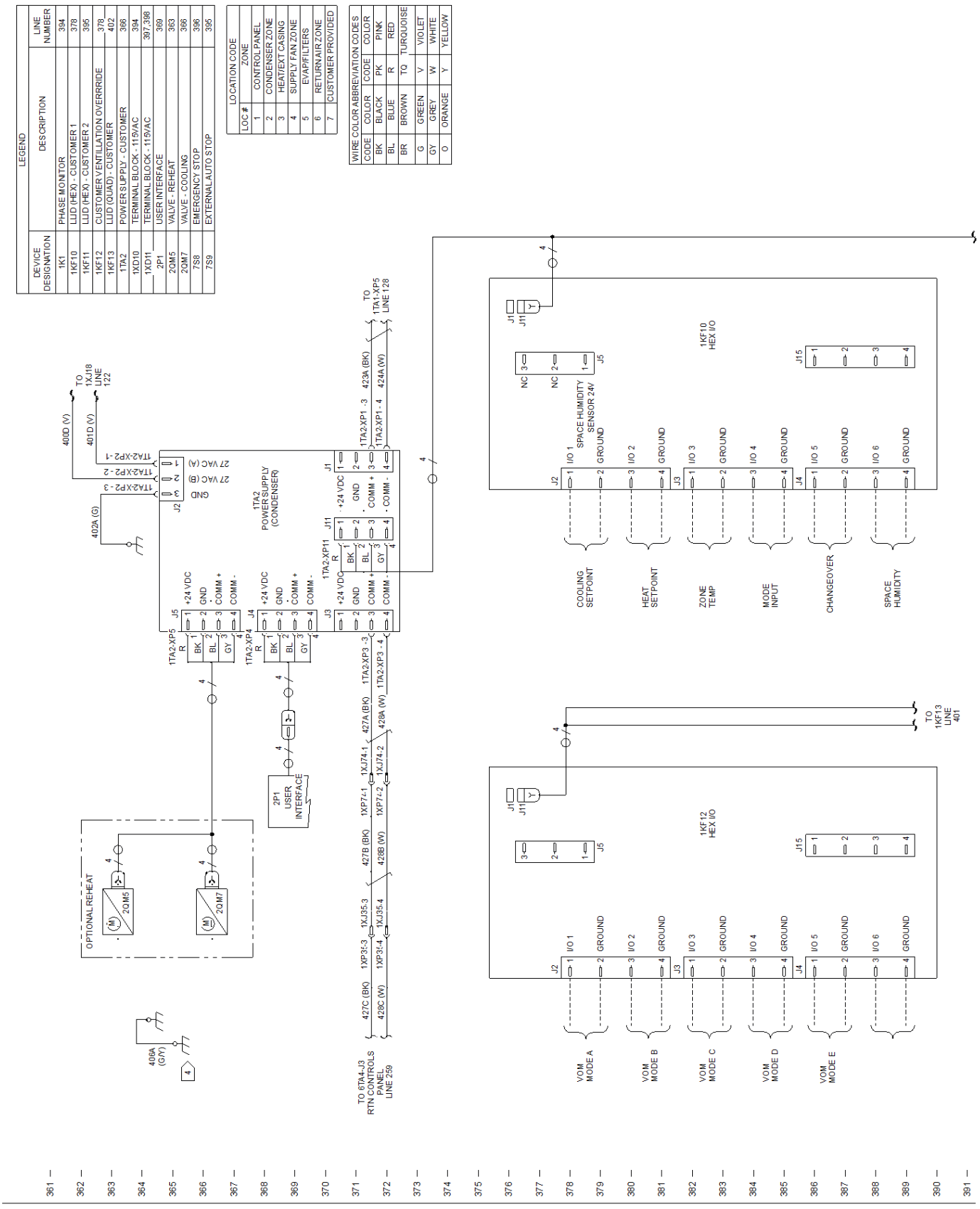
TYPICAL PEDESTAL & BASE DETAIL
SECT. B-B (SIDE VIEW OF PEDESTAL)

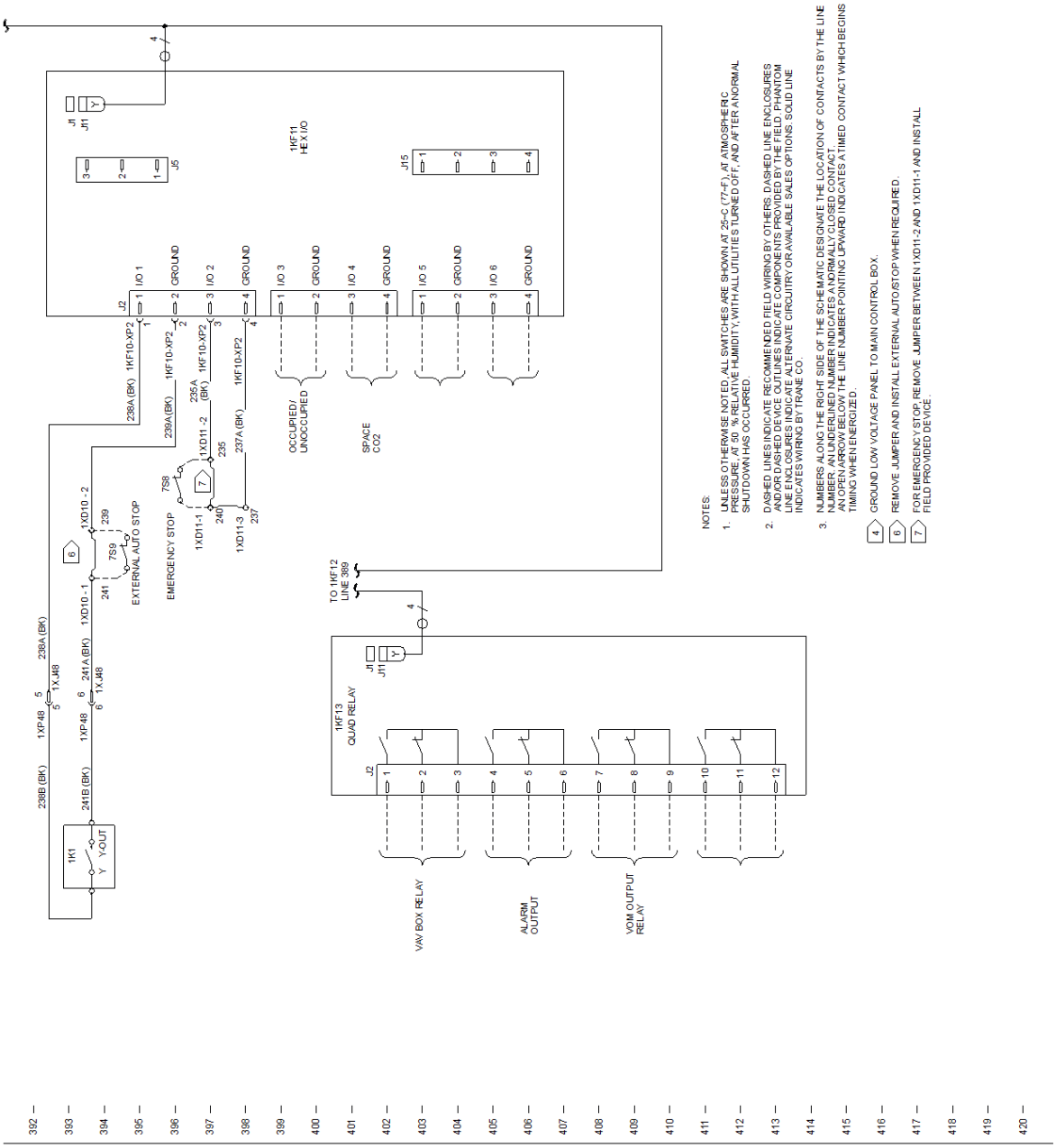


TYPICAL PEDESTAL & BASE DETAIL
SECT. C-C (END VIEW OF PEDESTAL)

PEDESTAL AND BASE

DETAIL VIEW


LEGEND
DEVICE DESIGNATION
DESCRIPTION
LINE NUMBER
1K1 PHASE MONITOR 394
1KF10 LLID (HEX) - CUSTOMER 1 378
1KF11 LLID (HEX) - CUSTOMER 2 395
1KF12 CUSTOMER VENTILLATION OVERRRIDE 378
1KF13 LLID (QUAD) - CUSTOMER 402
1TA2 POWER SUPPLY - CUSTOMER 366
1XD10 TERMINAL BLOCK - 115VAC 394
1XD11 TERMINAL BLOCK - 115VAC 397,398
2P1 USER INTERFACE 369
2QM5 VALVE - REHEAT 363
2QM7 VALVE - COOLING 366
7S8 EMERGENCY STOP 396
7S9 EXTERNAL AUTO STOP 395
LOCATION CODE
LOC # ZONE
1 CONTROL PANEL
2 CONDENSER ZONE
3 HEAT/EXT CASING
4 SUPPLY FAN ZONE
5 EVAP/FILTERS
6 RETURN AIR ZONE
7 CUSTOMER PROVIDED
WIRE COLOR ABBREVIATION CODES
CODE COLOR CODE COLOR
BK BLACK PK PINK
BL BLUE R RED
BR BROWN TQ TURQUOISE
G GREEN V VIOLET
GY GREY W WHITE
O ORANGE Y YELLOW
OPTIONAL REHEAT
2QM5
2QM7
406A (GY)
427C (BK)
428C (W)
TO 6TA4-J3 RTN CONTROLS PANEL LINE 259
1XP31-3
1XP31-4
1XJ35-3
1XJ35-4
427B (BK)
428B (W)
1XP7-1
1XP7-2
1XJ74-1
1XJ74-2
427A (BK)
428A (W)
1TA2-XP3 -3
1TA2-XP3 -4
2P1 USER INTERFACE
1TA2-XP5 R
1TA2-XP4 R
+24 VDC
GND
COMM +
COMM -
J5
J4
J3
J1
J11
1TA2 POWER SUPPLY (CONDENSER)
1TA2-XP2 -1
1TA2-XP2 -2
1TA2-XP2 -3
27 VAC (A)
27 VAC (B)
GND
J2
400D (V)
401D (V)
402A (G)
TO 1XJ18 LINE 122
1TA2-XP1 -3
1TA2-XP1 -4
423A (BK)
424A (W)
TO 1TA1-XP5 LINE 128
1KF10 HEX I/O
1KF12 HEX I/O
J15
J5
J2
J3
J4
NC
SPACE HUMIDITY SENSOR 24V
I/O 1
I/O 2
I/O 3
I/O 4
I/O 5
I/O 6
GROUND
COOLING SETPOINT
HEAT SETPOINT
ZONE TEMP
MODE INPUT
CHANGEOVER
SPACE HUMIDITY
VOM MODE A
VOM MODE B
VOM MODE C
VOM MODE D
VOM MODE E
TO 1KF13 LINE 401



General
Units shall be specifically designed for outdoor rooftop installation on a roof curb and be completely factory assembled and tested, piped, internally wired, fully charged with R-410A compressor oil, factory runtested and shipped in one piece. Units shall be available for direct expansion cooling only, or direct expansion cooling with natural gas or electric. Filters, outside air sytem, relief air system, optional non-fused disconnect switches and all operating and safety controls shall be furnished factory installed.

All units shall be UL listed to US and Canadian Safety Standardsd. Cooling capacity shall be rated in accordance with AHRI Standard 340/360. All units shall have decals and tags to aid in service and indicate caution areas. Electrical diagrams shall be printed on long life water resistant material and shall ship attached to control panel doors.

Casing
Exterior panels shall be zinc coated galvanized steel painted with a slate gray baked enamel finish durable enough to withstand a minimum of 672 hours consecutive salt spray application in accordance with standard ASTM B117. Screws shall be magnigard coated.

Refrigeration components and compressor shall be accessible through removable louvered panels as standard.

Unit air handling section shall have a pitched roof and laminated double-wall construction with polyurethane foam core injected between sheet metal panels. Insulation value shall be R9. All interior surfaces shall be suitable for cleaning per ASHRAE 62. All access doors and panels shall have closed cell gaskets. All door, roof and base panels shall have a thermal break.

Unit base shall be watertight with heavy gauge formed load-bearing members and curb overhang. Unit lifting lugs shall accept chains or cables for rigging. Lifting lugs shall also serve as unit tie down points.

Access Doors
Access doors shall be hinged with a single, exterior mounted, height and tension adjustable handle to provide positive latching at three points. Access doors shall provide a door stop mechanism to latch the door in the open position to prevent unsafe door closure by wind. Serviceable compartments in the air handler such as filters, evaporator coil, supply fan and variable frequency drives shall have doors of laminated, double-wall construction. This construction shall use a polyurethane foam core between the exterior sheet metal pane and the interior line, with an insulating value of R9. Three single wall doors shall be provided for access to the control panel.

Multi Zone VAV (Discharge Air Temperature)
Option shall provide all necessary controls to operate a VAV rooftop from the discharge air temperature, including discharge air microprocessor controller and discharge air sensor. The controller shall coordinate the economizer control and the stages of cooling with discharge air temperature reset capabilities. Includes factory installed and tested VFDs to provide supply fan motor speed modulation.

Dual Supply Fan - Direct Drive & Variable Speed
The eDrive direct drive plenum supply fan shall be two single width, single inlet 9-blade plenum fans. Fan blades shall be aluminum airfoil. Plenum fans shall be direct-driven. Entire assembly shall be completely isolated from unit and fan board by 2" deflection spring isolation. Multiple fan widths shall be available to optimize efficiency. Beltless fan shall not require routine maintenance such as fan bearing lubrication, belt tensioning and replacement, sheave alignment, and setscrew torque checks.

Dual Supply Fan Motor
Supply fan motors shall be open drip-proof. All supply fans shall be dynamically balanced in factory. Each motor shall have its own Variable Frequency Drive. Supply fan shall be test run in unit and shall reach rated rpm. All 60 Hz supply fan motors shall meet the Energy Independence Security Act of 2007 (EISA).

Relief Fan - Direct Drive & Variable Speed
The eDrive direct drive plenum supply fan shall be [one] [two] [three] single inlet 5-blade plenum fan(s) with backward inclined, high efficiency welded aluminum impeller that is dynamically balanced as an assembly. Fan shall be beltless and maintenance free throughout its operating life. Fans shall be balanced to G6.3 per ISO 21940. No external vibration shall be necessary.

Motor shall be electronically commutated (ECM) and contain power electronics for speed control. Motor modulation shall be managed by the equipment controller. Discharge dampers at unit outlet shall modulate with relief airflow in response to outside air damper position.

Relief Fan - Direct Drive & Variable Speed with Statitrac Control
The eDrive relief fan shall be [one] [two] [three] single-width, single-inlet, 5-blade direct-drive plenum fan(s) with backward inclined, high efficiency welded aluminum impeller that is dynamically balanced as an assembly. Fan shall be beltless and maintenance free throughout its operating life. Fan shall be balanced to G6.3 per ISO 21940. No external vibration isolation is necessary. Motor shall be electronically commutated (ECM) and contain power electronics for speed control. Motor modulation shall be managed by the equipment controller.

The modulating relief discharge dampers and ECM shall be modulated in response to building pressure. A differential pressure control system, (Statitrac), shall use a differential pressure transducer to compare indoor building pressure to outdoor ambient atmospheric pressure. The relief fan shall be turned on when required to lower building static pressure setpoint.

The (Statitrac) control system shall then modulate the discharge dampers and ECM to control the building pressure to within the adjustable, specified dead band that shall be adjustable at the user interface panel.

Pre-Evaporator Coil Filter - MERV 8 Panel
Filters shall be [2-inch][4-inch] thick, MERV 8 disposable synthetic media, and shall slide into an extruded aluminum rack.

Filter Monitoring - Differential Pressure Transducer
A factory-installed, differential pressure transducer shall be piped to both sides of the [pre evaporator filter] [final filter] to indicate status. Transducer shall maintain a +/- 5 percent accuracy within operating temperature limits of -20°F to 120°F. Transducer shall be mounted in a unit control box and report status through unit control display.

0-100% Modulating Economizer
Economizer option shall be operated through the primary temperature controls to automatically utilize outside air for "free" cooling. Automatically modulated return and outside air dampers shall maintain proper temperature in the conditioned space. Economizer shall be equipped with an automatic lockout when the outdoor high ambient temperature is too high for proper cooling.

Minimum position control shall be standard and adjustable at the user interface or with a remote potentiometer or through the building management system. A spring return motor shall ensure closure of OA dampers during unit shutdown or power interruption.

Demand Control Ventilation
When equipped with a CO2 sensor, the outside air damper position shall modulate in response to a CO2 sensor in the conditioned space, in order to minimize the unit energy consumption and simultaneously meet the ventilation requirements of ASHRAE Std 62.1. If ordered, the Traq airflow monitoring solution shall augment the system, allowing for measurement and control of outside airflow.

Outside Air Measurement (Traq)
A factory mounted airflow measurement station (Traq) shall be provided in the outside air opening to measure airflow. The airflow measurement station shall measure from 40 cfm/ton to maximum airflow. The airflow measurement station shall adjust for temperature variations. Measurement accuracy does not exceed 10% at minimum airflow and decreases to less than 5% at higher airflows, meeting requirements of LEED IE Q Credit 1 as defined by ASHRAE 62.1-2007.

Economizer Control with Comparative Enthalpy
Economizer control option shall include two enthalpy sensors to compare total heat content of the indoor air and outside air to determine the most efficient air source when economizing.

Low-Leak Economizer Damper
Low leak dampers shall be provided with rolled stainless steel jamb seals to the sides of the damper assembly. Low leak economizer dampers shall have a leakage rate of 10 cfm/sq ft or less tested in accordance with AMCA Standard 500.

Fault Detection and Diagnostic (FDD) control shall also be provided with Low Leak Economizers. FDD control shall monitor the commanded position of the economizer compared to the feedback position of the damper. If the damper position is outside +/- 10% of the commanded position, a diagnostic shall be generated.

Fixed Speed Compressors
Fixed speed compressors shall be industrial grade, energy efficient direct drive 3600 RPM speed scroll type with suction gas-cooled hermetic motor design. Compressor shall have a centrifugal oil pump with dirt separator, oil sight glass, and oil charging valve. Each compressor shall have a crankcase heater installed and properly sized to minimize the amount of liquid refrigerant present in the oil sump during off cycles.

Compressor shall be provided with motor winding temperature control to protect against excessive motor temperatures resulting from over-/under-voltage or loss of charge, high and low pressure protection.

Air-Cooled Condenser Coil
Condenser coils shall have all aluminum microchannel coils, enabling all units to meet LEED EA Credit 4 requirements. All coils shall be leak tested at the factory to ensure pressure integrity. The condenser coil is pressure tested to 650 psig. Subcooling circuit(s) shall be provided as standard.

Air-Cooled Condenser Fans & Motors
All condenser fans shall be vertical discharge, direct drive fans, statically balanced, with aluminum blades and zinc plated steel hubs. Condenser fan motors shall be three-phase motors with permanently lubricated ball bearings, built-in current and thermal overload protection and weather-tight slingers over motor bearings.

Evaporator Coil
Evaporator coil shall have internally enhanced copper tubing of 3/8 or 1/2-inch O.D. mechanically bonded to heavy-duty aluminum fins of configured design. All coils shall be equipped with electronic expansion valves and factory pressure and leak tested.

Pressure Transducer
Stainless steel pressure transducer shall provide accurate measurement of high and low side refrigeration system pressure over the entire operating range. System pressures and saturation temperatures shall be displayed at the user interface to improve field diagnostics. The transducer is accessible as it shall be located close to the compressor manifold set. Durable weather proof automotive grade electrical connectors shall be used to ensure reliability.

Electrical - General
Unit shall be completely factory wired with necessary control and contractor pressure lugs or terminal block for power wiring. Units shall provide an internal location for a non-fused disconnect with external handle for security.

Unit Voltage
Rooftops shall be available with 200, 230, 460, and 575 voltage, 3 phase, 60 Hz power supplies.

Phase Monitor
Phase monitor shall protect 3-phase equipment from phase loss, phase reversal and phase imbalance. Any fault condition shall produce a Failure Indicator LED and send the unit into an auto stop condition.

Symbio 800 Controller

The Symbio 800 controller is an application-specific, programmable controller that is factory installed and designed to control packaged HVAC equipment. A 7" interface features a touch-sensitive color screen that provides facility managers with at-a-glance operating status, performance monitoring, scheduling changes and operating adjustments. Other advanced features include automated controller backup and optional features such as secure remote connectivity, wireless building communications, mobile device connectivity and custom programming with expandable I/O.

BACNet - Communication Protocol
The Symbio 800 controller shall support standard BACnet® communication protocol through a RS485, two-wire communication link or BACnet®/IP.

Wall Mounted CO2 Sensor
The CO2 (Carbon Dioxide) sensor shall have the ability to monitor space occupancy levels within the building by measuring the parts per million of CO2 in the air. As the CO2 levels increase, the outside air damper modulates to meet the CO2 space ventilation requirements.

Remote Zone Temperature Sensor w/Timed Override
Electronic sensor shall be used in conjunction with a Trane ICS system. The Timed Override button shall allow the system to operate at the occupied set points while in an unoccupied status.

Certified AHRI Performance
Packaged Rooftop units cooling, heating capacities and efficiencies are rated within the scope of the Air-Conditioning, Heating & Refrigeration Institute (AHRI) Certification Program and display the AHRI Certified® mark as a visual confirmation of conformance to the certification sections of AHRI Standard 340-360 (I-P) and ANSIZ21.47 and 10 CFR Part 431 pertaining to Commercial Warm Air Furnaces. The applications in this catalog specifically excluded from the AHRI certification program are:

1) Ventilation modes
2) Heat Recovery
3) Units larger than nominal 63 tons

BACnet Points

System Control Command
Object_Type: BINARY_VALUE **Object_Identifier:** BV-10001 **Description:** Command the unit stand alone or BAS controlled operation **Dimensionality: Units: Min_Pres_Value: Max_Pres_Value: Time_Delay:** 0 seconds

Occupancy Request
Object_Type: MULTISTATE_VALUE **Object_Identifier:** MV-10001 **Description:** Command the unit into an occupancy mode **Dimensionality: Units: Min_Pres_Value: Max_Pres_Value: Time_Delay:** 0 seconds

Heat Cool Mode Request
Object_Type: MULTISTATE_VALUE **Object_Identifier:** MV-10002 **Description:** Command the unit into a heat/cool mode **Dimensionality: Units: Min_Pres_Value: Max_Pres_Value: Time_Delay:** 0 seconds

Cool Lockout Command
Object_Type: BINARY_VALUE **Object_Identifier:** BV-10002 **Description:** Command the unit to prevent cooling operation **Dimensionality: Units: Min_Pres_Value: Max_Pres_Value: Time_Delay:** 0 seconds

Economizer Minimum Position Enable Command
Object_Type: BINARY_VALUE **Object_Identifier:** BV-10005 **Description:** Enable remote outside air damper minimum position requests **Dimensionality: Units: Min_Pres_Value: Max_Pres_Value: Time_Delay:** 0 seconds

Economizer Airside Enable BAS
Object_Type: MULTISTATE_VALUE **Object_Identifier:** MV-10003 **Description:** Enable or disable the airside economizer operation **Dimensionality:** **Units:** **Min_Pres_Value:** **Max_Pres_Value:** **Time_Delay:** 0 seconds

Economizer Minimum Position Setpoint BAS
Object_Type: ANALOG_VALUE **Object_Identifier:** AV-10024 **Description:** BAS supplied econonomizer position minimum setpoint value **Dimensionality:** PERCENTAGE **Units:** Percent (98) 0 **Max_Pres_Value:** 100 **Time_Delay:** 5 seconds

Occupied Offset
Object_Type: ANALOG_VALUE **Object_Identifier:** AV-10101 **Description:** Offset value used to calculate setpoints in occupied mode **Dimensionality:** TEMPERATURE_DELTA **Units:** delta-degrees-Fahrenheit (120) **Min_Pres_Value:** 1 **Max_Pres_Value:** 5 **Time_Delay:** 5 seconds

Occupied Standby Offset
Object_Type: ANALOG_VALUE **Object_Identifier:** AV-10102 **Description:** Offset value used to calculate setpoints in standby mode **Dimensionality:** TEMPERATURE_DELTA **Units:** delta-degrees-Fahrenheit (120) **Min_Pres_Value:** 1 **Max_Pres_Value:** 10 **Time_Delay:** 5 seconds

Unoccupied Cooling Setpoint
Object_Type: ANALOG_VALUE **Object_Identifier:** AV-10103 **Description:** Cooling temperature setpoint used for control in unoccupied mode **Dimensionality:** TEMPERATURE **Units:** degrees-Fahrenheit (64) **Min_Pres_Value:** 52 **Max_Pres_Value:** 90 **Time_Delay:** 5 seconds

Unoccupied Heating Setpoint
Object_Type: ANALOG_VALUE **Object_Identifier:** AV-10104 **Description:** Heating temperature setpoint used for control in unoccupied mode **Dimensionality:** TEMPERATURE **Units:** degrees-Fahrenheit (64) **Min_Pres_Value:** 50 **Max_Pres_Value:** 88 **Time_Delay:** 5 seconds

Morning Warmup Setpoint BAS
Object_Type: ANALOG_VALUE **Object_Identifier:** AV-10030 **Description:** BAS supplied temperature setpoint used in morning warmup mode **Dimensionality:** TEMPERATURE **Units:** degree s-Fahrenheit (64) **Min_Pres_Value:** 50 **Max_Pres_Value:** 90 **Time_Delay:** 5 seconds

Daytime Warmup Terminate Temperature Setpoint BAS
Object_Type: ANALOG_VALUE **Object_Identifier:** AV-10032 **Description:** BAS supplied daytime warmup terminate temperature setpoint **Dimensionality:** TEMPERATURE **Units:** degrees-Fahrenheit (64) **Min_Pres_Value:** 53 **Max_Pres_Value:** 90 **Time_Delay:** 5 seconds

Discharge Air Cooling Setpoint BAS
Object_Type: ANALOG_VALUE **Object_Identifier:** AV-10021 **Description:** BAS supplied supply air temperature cooling setpoint value **Dimensionality:** TEMPERATURE **Units:** degrees-Fahrenheit (64) 40 **Max_Pres_Value:** 90 **Time_Delay:** 5 seconds

Discharge Air Heating Setpoint BAS
Object_Type: ANALOG_VALUE **Object_Identifier:** AV-10022 **Description:** BAS supplied supply air temperature heating setpoint value **Dimensionality:** TEMPERATURE **Units:** degrees-Fahrenheit (64) **Min_Pres_Value:** 40 **Max_Pres_Value:** 180 **Time_Delay:** 5 seconds

Duct Static Pressure Setpoint BAS
Object_Type: ANALOG_VALUE **Object_Identifier:** AV-10023 **Description:** BAS supplied supply air static pressure setpoint value **Dimensionality:** PRESSURE_GASEOUS **Units:** inches-of-water (58) **M in_Pres_Value:** 0.7 **Max_Pres_Value:** 4.3 **Time_Delay:** 5 seconds

Space Static Pressure Setpoint BAS
Object_Type: ANALOG_VALUE **Object_Identifier:** AV-10028 **Description:** BAS supplied space static pressure setpoint value **Dimensionality:** PRESSURE_GASEOUS **Units:** inches-of-water (58) **Min_Pr es_Value:** -0.2 **Max_Pres_Value:** 0.3 **Time_Delay:** 5 seconds

Space Static Pressure BAS
Object_Type: ANALOG_VALUE **Object_Identifier:** AV-10017 **Description:** BAS supplied space static pressure sensor value **Dimensionality:** PRESSURE_GASEOUS **Units:** inches-of-water (58) **Min_Pres_Value:** -0.67 **Max_Pres_Value:** 0.67 **Time_Delay:** 5 seconds

Discharge Air Temperature BAS
Object Type: ANALOG_VALUE, **Object Identifier**: AV-10011, **Description**: BAS supplied supply air temperature sensor value, **Dimensionality**: TEMPERATURE, **Units**: degrees-Fahrenheit (64), **Min Pres Value**: -39.9, **Max Pres Value**: 200, **Time Delay**: 5 seconds

Duct Static Pressure BAS
Object Type: ANALOG_VALUE, **Object Identifier**: AV-10012, **Description**: BAS supplied supply air static pressure sensor value, **Dimensionality**: PRESSURE_GASEOUS, **Units**: inches-of-water (58), **Value**: 0, **Max Pres Value**: 5, **Time Delay**: 5 seconds

Outdoor Air Temperature BAS
Object Type: ANALOG_VALUE, **Object Identifier**: AV-10013, **Description**: BAS supplied outdoor air temperature sensor value, **Dimensionality**: TEMPERATURE, **Units**: degrees-Fahrenheit (64), **Min Pres Value**: -39.9, **Max Pres Value**: 200, **Time Delay**: 5 seconds

Outdoor Air Humidity BAS
Object_Type: ANALOG_VALUE **Object_Identifier:** AV-10014 **Description:** BAS supplied outdoor air humidity sensor value **Dimensionality:** PERCENTAGE **Units:** Percent (98) **Min_Pres_Value:** 10 **Max_Pres_Value:** 90 **Time_Delay:** 5 seconds

Emergency Override BAS
Object_Type: MULTISTATE_VALUE **Object_Identifier:** MV-10004 **Description:** Command the unit into an emergency mode of operation **Dimensionality:** **Units:** **Min_Pres_Value:** **Max_Pres_Value:** **Time_Delay:** 0 seconds

Outdoor Air Minimum Flow Setpoint BAS
Object_Type: ANALOG_VALUE **Object_Identifier:** AV-10025 **Description:** BAS supplied minimum outdoor airflow setpoint **Dimensionality:** FLOW_GASESOUS **Units:** Cubic-feet-per-minute (84) **Min_Pres_Value:** 0 **Max_Pres_Value:** 60000 **Time_Delay:** 5 seconds

Outdoor Air Flow BAS
Object_Type: ANALOG_VALUE **Object_Identifier:** AV-10015 **Description:** BAS supplied outdoor airflow sensor value **Dimensionality:** FLOW_GASESOUS **Units:** Cubic-feet-per-minute (84) **Min_Pres_Value:** 0 **Max_Pres_Value:** 65000 **Time_Delay:** 5 seconds

Cooling Capacity Enable
Object_Type: ANALOG_VALUE **Object_Identifier:** AV-10039 **Description:** BAS supplied cooling demand limit capacity setpoint value **Dimensionality:** PERCENTAGE **Units:** Percent (98) **Min_Pres_Value:** 0 **Max_Pres_Value:** 100 **Time_Delay:** 5 seconds

Heat Primary Enable BAS
Object_Type: ANALOG_VALUE **Object_Identifier:** AV-10040 **Description:** BAS supplied heating demand limit capacity setpoint value **Dimensionality:** PERCENTAGE **Units:** Percent (98) **Min_Pres_Value:** 0 **Max_Pres_Value:** 100 **Time_Delay:** 5 seconds

Discharge Air Setpoint BAS
Object_Type: ANALOG_VALUE **Object_Identifier:** AV-10033 **Description:** BAS supplied supply air dewpoint setpoint value **Dimensionality:** TEMPERATURE **Units:** degrees-Fahrenheit (64) **Min_Pres_Value:** 45 **Max_Pres_Value:** 75 **Time_Delay:** 5 seconds

Discharge Air Reheat Setpoint BAS
Object_Type: ANALOG_VALUE **Object_Identifier:** AV-10034 **Description:** BAS supplied supply air reheat setpoint value **Dimensionality:** TEMPERATURE **Units:** degrees-Fahrenheit (64) **Min_Pres_Value:** 60 **Max_Pres_Value:** 80 **Time_Delay:** 5 seconds

Supply Fan Speed Setpoint BAS
Object_Type: ANALOG_VALUE **Object_Identifier:** AV-10036 **Description:** BAS supplied supply fan speed setpoint value **Dimensionality:** PERCENTAGE **Units:** Percent (98) **Min_Pres_Value:** 0 **Max_Pres_Value:** 100 **Time_Delay:** 5 seconds

Exhaust Fan Speed Setpoint BAS
Object_Type: ANALOG_VALUE **Object_Identifier:** AV-10037 **Description:** BAS supplied exhaust fan speed setpoint value **Dimensionality:** PERCENTAGE **Units:** Percent (98) **Min_Pres_Value:** 0 **Max_Pres_Value:** 100 **Time_Delay:** 5 seconds

Daytime Warmup Initiate Setpoint BAS
Object_Type: ANALOG_VALUE **Object_Identifier:** AV-10031 **Description:** BAS supplied daytime warmup Initiate temperature setpoint **Dimensionality:** TEMPERATURE **Units:** degrees-Fahrenheit (64) **Min_Pres_Value:** 50 **Max_Pres_Value:** 87 **Time_Delay:** 5 seconds

Filter Runtime Hours Setpoint
Object_Type: ANALOG_VALUE **Object_Identifier:** AV-10038 **Description:** The setpoint value used by the filter run hours calculation **Dimensionality:** UNCONVERTED_UNIT **Units:** Hours (71) **Min_Pres_Value:** 0 **Max_Pres_Value:** 10000 **Time_Delay:** 5 seconds

Filter Timer Reset
Object_Type: BINARY_VALUE **Object_Identifier:** BV-10009 **Description:** Command the unit to reset the accumulated filter run hours **Dimensionality: Units: Min_Pres_Value: Max_Pres_Value: Time_Delay:** 0 seconds

Reset Diagnostic
Object_Type: BINARY_VALUE **Object_Identifier:** BV-10010 **Description:** Command the unit to reset and clear diagnostics **Dimensionality: Units: Min_Pres_Value: Max_Pres_Value: Time_Delay:** 0 seconds

Trane Unit Type
Object_Type: MULTISTATE_INPUT **Object_Identifier:** MI-12001 **Description:** General description of the equipment type classification **Dimensionality: Units: Min_Pres_Value: Max_Pres_Value: Time_Delay:** 0 seconds

Cabinet Style
Object Type: ANALOG_INPUT, **Object Identifier**: AI-12001, **Description**: Describes the cabinet style of the unit, **Dimensionality**: NONE, **Units**: no-units (95), **Min Pres Value**: 0, **Max Pres Value**: 255, **Time Delay**: 0 seconds

Cool Type
Object Type: ANALOG_INPUT, **Object Identifier**: AI-12002, **Description**: Describes the cooling type of the unit, **Dimensionality**: NONE, **Units**: no-units (95), **Min Pres Value**: 0, **Max Pres Value**: 255, **Time Delay**: 0 seconds

Exhaust Or Return Fan Type
Object Type: ANALOG_INPUT, **Object Identifier**: AI-12006, **Description**: Identifies the product exhaust or return fan type, **Dimensionality**: NONE, **Units**: no-units (95), **Min Pres Value**: 0, **Max Pres Value**: 255, **Time Delay**: 0 seconds

Economizer Type
Object_Type: MULTISTATE_INPUT **Object_Identifier:** MI-12002 **Description:** General description of the equipment economizer system **Dimensionality: Units: Min_Pres_Value: Max_Pres_Value: Time_Delay:** 0 seconds

Condenser Type
Object_Type: MULTISTATE_INPUT **Object_Identifier:** MI-12003 **Description:** General description of the equipment condenser system **Dimensionality: Units: Min_Pres_Value: Max_Pres_Value: Time_Delay:** 0 seconds

Compressor Lockout Status
Object_Type: BINARY_INPUT **Object_Identifier:** BI-10043 **Description:** One or more compressors are locked out with no diagnostic **Dimensionality:** **Units:** **Min_Pres_Value:** **Max_Pres_Value:** **Time_Delay:** 5 seconds

Unit On Off Status
Object_Type: BINARY_INPUT **Object_Identifier:** BI-10022 **Description:** Indicates whether the unit is off or on **Dimensionality:** **Units:** **Min_Pres_Value:** **Max_Pres_Value:** **Time_Delay:** 0 seconds

Heat Cool Mode Status
Object_Type: MULTISTATE_INPUT **Object_Identifier:** MI-10002 **Description:** Indicates the current application mode of the equipment **Dimensionality:** **Units:** **Min_Pres_Value:** **Max_Pres_Value:** **Time_Delay:** 0 seconds

Occupancy Status
Object_Type: MULTISTATE_INPUT **Object_Identifier:** MI-10003 **Description:** Indicates if the unit is in occupied or unoccupied mode **Dimensionality:** **Units:** **Min_Pres_Value:** **Max_Pres_Value:** **Time_Delay:** 0 seconds

Timed Override Status
Object_Type: BINARY_INPUT **Object_Identifier:** BI-10023 **Description:** Timed override request or cancel from zone sensor **Dimensionality:** **Units:** **Min_Pres_Value:** **Max_Pres_Value:** **Time_Delay:** 0 seconds

Cooling Capacity Status
Number: 67, **Object Name:** Cooling Capacity Status, **Object Identifier:** AI-10054, **Description:** Indicates the unit cooling capacity being utilized, **Dimensionality:** PERCENTAGE, **Units:** Percent (98), **Min Pres Value:** 0, **Max Pres Value:** 100, **Time_Delay:** 0 seconds

Compressor 1A Status
Object_Type: BINARY_INPUT **Object_Identifier:** BI-10001 **Description:** Indicates the running status of compressor 1A **Dimensionality:** **Units:** **Min_Pres_Value:** **Max_Pres_Value:** **Time_Delay:** 0 seconds

Compressor 1B Status
Object_Type: BINARY_INPUT **Object_Identifier:** BI-10002 **Description:** Indicates the running status of compressor 1B **Dimensionality:** **Units:** **Min_Pres_Value:** **Max_Pres_Value:** **Time_Delay:** 0 seconds

Compressor 1C Status
Object_Type: BINARY_INPUT **Object_Identifier:** BI-10003 **Description:** Indicates the running status of compressor 1C **Dimensionality:** **Units:** **Min_Pres_Value:** **Max_Pres_Value:** **Time_Delay:** 0 seconds

Compressor 2A Status
Object_Type: BINARY_INPUT **Object_Identifier:** BI-10004 **Description:** Indicates the running status of compressor 2A **Dimensionality:** **Units:** **Min_Pres_Value:** **Max_Pres_Value:** **Time_Delay:** 0 seconds

Heating Capacity Primary Status
Object Type: ANALOG_INPUT, **Object Identifier**: AI-10055, **Description**: Indicates the unit primary heating capacity being utilized, **Dimensionality**: PERCENTAGE, **Units**: Percent (98), **Min Pres Value**: 0, **Max Pres Value**: 100, **Time Delay**: 0 seconds

Heating Capacity Secondary Status
Object Type: ANALOG_INPUT, **Object Identifier**: AI-10056, **Description**: Indicates the unit secondary heating capacity being utilized, **Dimensionality**: PERCENTAGE, **Units**: Percent (98), **Min Pres Value**: 0, **Max Pres Value**: 100, **Time Delay**: 0 seconds

Heat Output 1 Status
Object_Type: BINARY_INPUT **Object_Identifier:** BI-10007 **Description:** Indicates the commanded state of heating output 1 **Dimensionality: Units: Min_Pres_Value: Max_Pres_Value: Time_Delay:** 0 seconds

Heat Output 2 Status
Object_Type: BINARY_INPUT **Object_Identifier:** BI-10008 **Description:** Indicates the commanded state of heating output 2 **Dimensionality: Units: Min_Pres_Value: Max_Pres_Value: Time_Delay:** 0 seconds

Heat Output 3 Status
Object_Type: BINARY_INPUT **Object_Identifier:** BI-10009 **Description:** Indicates the commanded state of heating output 3 **Dimensionality: Units: Min_Pres_Value: Max_Pres_Value: Time_Delay:** 0 seconds

Heat Output 4 Status
Object_Type: BINARY_INPUT **Object_Identifier:** BI-10010 **Description:** Indicates the commanded state of heating output 4 **Dimensionality: Units: Min_Pres_Value: Max_Pres_Value: Time_Delay:** 0 seconds

Heat Output 5 Status
Object_Type: BINARY_INPUT **Object_Identifier:** BI-10011 **Description:** Indicates the commanded state of heating output 5 **Dimensionality: Units: Min_Pres_Value: Max_Pres_Value: Time_Delay:** 0 seconds

Compressor 2B Status
Object_Type: BINARY_INPUT **Object_Identifier:** BI-10005 **Description:** Indicates the running status of compressor 2B **Dimensionality: Units: Min_Pres_Value: Max_Pres_Value: Time_Delay:** 0 seconds

Unit Energy Demand
Number: 80, **Object Name:** Cooling Capacity Status, **Object Identifier:** AI-10059, **Description:** Indicates the current heat/cool energy demand of the unit, **Dimensionality:** PERCENTAGE, **Units:** Percent (98), **Min Pres Value:** -100, **Max Pres Value:** 100, **Time_Delay:** 0 seconds

VAV Box Command
Object_Type: BINARY_INPUT **Object_Identifier:** BI-10026 **Description:** Indicates whether VAV boxes should be in control or wide open **Dimensionality: Units: Min_Pres_Value: Max_Pres_Value: Time_Delay:** 0 seconds

Demand Limit Status
Object_Type: BINARY_INPUT **Object_Identifier:** BI-10025 **Description:** Indicates whether the unit is demand limited **Dimensionality: Units: Min_Pres_Value: Max_Pres_Value: Time_Delay:** 0 seconds

Service Test Mode Status
Object_Type: BINARY_INPUT **Object_Identifier:** BI-10024 **Description:** Indicates if the unit is in service test mode **Dimensionality: Units: Min_Pres_Value: Max_Pres_Value: Time_Delay:** 5 seconds

Filter Runtime Hours
Object Type: ANALOG_INPUT, **Object Identifier**: AI-10060, **Description**: Indicates the number of hours air has flowed through the filter, **Dimensionality**: UNCONVERTED_UNIT, **Units**: hours (71), **Min Pres Value**: 0, **Max Pres Value**: 10000, **Time Delay**: 0 seconds

SupplyFanOutputStatus
Object_Type: BINARY_INPUT **Object_Identifier:** BI-10028 **Description:** Indicates the state of the supply fan **Dimensionality: Units: Min_Pres_Value: Max_Pres_Value: Time_Delay:** 0 seconds

Supply Fan Speed Status

Number: 94, **Object Name:** Supply Fan Speed Status, **Object Identifier:** AI-10051, **Description:** Indicates the unit commanded supply fan speed, **Dimensionality:** PERCENTAGE, **Units:** Percent (98), **Min Pres Value:** 0, **Max Pres Value:** 100, **Time_Delay:** 0 seconds

Supply Fan Proving Status
Object_Type: BINARY_INPUT **Object_Identifier:** BI-10029 **Description:** Indicates the current state of the supply fan **Dimensionality:** **Units:** **Min_Pres_Value:** **Max_Pres_Value:** **Time_Delay:** 0 seconds

Exhaust Fan Output Status
Object_Type: BINARY_INPUT **Object_Identifier:** BI-10030 **Description:** Indicates the state of the exhaust fan **Dimensionality:** **Units:** **Min_Pres_Value:** **Max_Pres_Value:** **Time_Delay:** 0 seconds

Exhaust Damper Position
Object Type: ANALOG_INPUT, **Object Identifier**: AI-10012, **Description**: Indicates the unit exhaust damper position, **Dimensionality**: PERCENTAGE, **Units**: Percent (98), **Min Pres Value**: 0, **Max Pres Value**: 100, **Time Delay**: 0 seconds

Outdoor Air Damper Position
Object Type: ANALOG_INPUT, **Object Identifier**: AI-10011, **Description**: Indicates the unit outside air damper position, **Dimensionality**: PERCENTAGE, **Units**: Percent (98), **Min Pres Value**: 0, **Max Pres Value**: 100, **Time Delay**: 0 seconds

Economizer System Status
Object_Type: BINARY_INPUT **Object_Identifier:** BI-10038 **Description:** Indicates if economizing is disabled or enabled **Dimensionality:** **Units:** **Min_Pres_Value:** **Max_Pres_Value:** **Time_Delay:** 0 seconds

Frost Avoidance Temperature Setpoint
Object Type: ANALOG_INPUT, **Object Identifier**: AI-10062, **Description**: Indicates the frost coil avoidance temperature setpoint, **Dimensionality**: TEMPERATURE, **Units**: degrees-Fahrenheit (64), **Value**: 0, **Max Pres Value**: 100, **Time Delay**: 0 seconds

Circuit 1 Coil Frost Protection Status
Object_Type: BINARY_INPUT **Object_Identifier:** BI-10044 **Description:** The status of evaporator frost protection function for circuit 1 **Dimensionality:** **Units:** **Min_Pres_Value:** **Max_Pres_Value:** **Time_Delay:** 0 seconds

Circuit 2 Coil Frost Protection Status
Object_Type: BINARY_INPUT **Object_Identifier:** BI-10045 **Description:** The status of evaporator frost protection function for circuit 2 **Dimensionality:** **Units:** **Min_Pres_Value:** **Max_Pres_Value:** **Time_Delay:** 0 seconds

Condenser Capacity
Object Type: ANALOG_INPUT, **Object Identifier**: AI-10061, **Description**: Indicates the unit condenser capacity being utilized, **Dimensionality**: PERCENTAGE, **Units**: Percent (98), **Min Pres Value**: 0, **Max Pres Value**: 100, **Time Delay**: 0 seconds

Space Temperature
Object Type: ANALOG_VALUE, **Object Identifier**: AV-10006, **Description**: The space temperature currently used for unit control, **Dimensionality**: TEMPERATURE, **Units**: degrees-Fahrenheit (64), **Min Pres Value**: -39.9, **Max Pres Value**: 200, **Time Delay**: 0 seconds

Outdoor Air Temperature Local
Number: 121, **Object Name:** Outdoor Air Temperature Local, **Object Identifier:** AI-10003, **Description:** The outdoor air temperature value from a unit mounted sensor, **Dimensionality:** TEMPERATURE, **Units:** degrees-Fahrenheit (64), **Min Pres Value:** -39.9, **Max Pres Value:** 200, **Time_Delay:** 0 seconds

Outdoor Air Humidity

Object Type: ANALOG_VALUE, **Object Identifier**: AV-10004, **Description**: The outdoor air humidity value used for unit control, **Dimensionality**:NCONVERTED_UNIT, **Units**: percent-relative-humidity (29), **Min Pres Value**: 0, **Max Pres Value**: 100, **Time Delay**: 0 seconds

Discharge Air Temperature Local
Object Type: ANALOG_INPUT, **Object Identifier**: AI-10004, **Description**: The outdoor air humidity value from a unit mounted sensor, **Dimensionality**: UNCONVERTED_UNIT, **Units**: percent-relative-humidity (29), **Min Pres Value**: 0, **Max Pres Value**: 100, **Time Delay**: 0 seconds

Outdoor Air Enthalpy Active
Object Type: ANALOG_INPUT, **Object Identifier**: AI-10018, **Description**: The outdoor air enthalpy value being utilized by the unit, **Dimensionality**: ENTHALPY, **Units**: btus-per-pound (117), **Min Pres Value**: 0, **Max Pres Value**: 65535, **Time Delay**: 0 seconds

Discharge Air Temperature
Object Type: ANALOG_VALUE, **Object Identifier**: AV-10001, **Description**: The supply air temperature currently used for unit control, **Dimensionality**: TEMPERATURE, **Units**: degrees-Fahrenheit (64), **Min Pres Value**: -39.9, **Max Pres Value**: 200, **Time Delay**: 0 seconds

Mixed Air Temperature Local
Number: 127, **Object Identifier:** AI-10014, **Description:** The mixed air temperature value from a unit mounted sensor, **Dimensionality:** TEMPERATURE, **Units:** degrees-Fahrenheit (64), **Min Pres Value: -**39.9, **Max Pres Value: 200, Time Delay:** 0 seconds

Return Air Temperature
Object Type: ANALOG_INPUT, **Object Identifier**: AI-10015, **Description**: The return air temperature value from a unit mounted sensor, **Dimensionality**: TEMPERATURE, **Units**: degrees-Fahrenheit (64), **Min Pres Value**: -39.9, **Max Pres Value**: 200, **Time Delay**: 0 seconds

Duct Static Pressure
Object Type: ANALOG_VALUE, **Object Identifier**: AV-10002, **Description**: Duct static pressure value currently being used for unit control, **Dimensionality**: PRESSURE_GASEOUS, **Units**: inches-of-water (58), **Min Pres Value**: 0, **Max Pres Value**: 7.9, **Time Delay**: 0 seconds

Duct Static Pressure Local
Object Type: ANALOG_INPUT, **Object Identifier**: AI-10002, **Description**: Supply air static pressure value measured by a unit mounted sensor, **Dimensionality**: PRESSURE_GASEOUS, **Units**: inches-of-water (58), **Min Pres Value**: 0, **Max Pres Value**: 7.9, **Time Delay**: 0 seconds

Space Static Pressure
Object Type: ANALOG_VALUE, **Object Identifier**: AV-10007, **Description**: Space static pressure value from a unit mounted sensor; **Dimensionality**: PRESSURE_GASEOUS, **Units**: inches-of-water (58), **Min Pres Value**: -0.67, **Max Pres Value**: 0.67, **Time Delay**: 0 seconds

Space CO2 Concentration
Object Type: ANALOG_VALUE, **Object Identifier**: AV-10008, **Description**: Space CO2 concentration value being used for unit control, **Dimensionality**: PPM, **Units**: parts-per-million (96), **Min Pres Value**: 0, **Max Pres Value**: 65535, **Time Delay**: 0 seconds

Space CO2 High Limit
Object Type: ANALOG_INPUT, **Object Identifier**: AI-10063, **Description**: Indicates the high limit space CO2 setpoint for ventilation, **Dimensionality**: PPM, **Units**: parts-per-million (96), **Min Pres Value**: 0, **Max Pres Value**: 65535, **Time Delay**: 0 seconds

Space CO2 Low Limit
Object Type: ANALOG_INPUT, **Object Identifier**: AI-10064, **Description**: Indicates the low limit space CO2 setpoint, **Dimensionality**: PPM, **Units**: parts-per-million (96), **Min Pres Value**: 0, **Max Pres Value**: 65535, **Time Delay**: 0 seconds

Outdoor Air Flow

Object Type: ANALOG_VALUE, **Object Identifier**: AV-10005, **Description**: Outdoor air flow utilized by the unit, **Dimensionality**: FLOW_GASESOUS, **Units**: cubic-feet-per-minute (84), **Min Pres Value**: 0, **Max Pres Value**: 65535, **Time Delay**: 0 seconds

Daytime Warmup Initiate Setpoint Active
Object Type: ANALOG_INPUT, **Object Identifier**: AI-10031, **Description**: Active daytime warmup initiate temperature setpoint value, **Dimensionality**: TEMPERATURE, **Units**: degrees-Fahrenheit (64), **Min Pres Value**: -39.9, **Max Pres Value**: 200, **Time Delay**: 0 seconds

Daytime Warmup Terminate Setpoint Active
Object Type: ANALOG_INPUT, **Object Identifier**: AI-10032, **Description**: Active daytime warmup terminate air temperature setpoint value, **Dimensionality**: TEMPERATURE, **Units**: degrees-Fahrenheit (64), **Min Pres Value**: -39.9, **Max Pres Value**: 200, **Time Delay**: 0 seconds

Economizer Minimum Position Setpoint Active
Object Type: ANALOG_INPUT, **Object Identifier**: AI-10024, **Description**: Active default economizer minimum position setpoint value, **Dimensionality**: PERCENTAGE, **Units**: Percent (98), **Min Pres Value**: 0, **Max Pres Value**: 100, **Time Delay**: 0 seconds

Economizer Enable Minimum Outdoor Air Temperature Setpoint
Object Type: ANALOG_INPUT, **Object Identifier**: AI-10069, **Description**: Temperature setpoint below which economizing can be used, **Dimensionality**: TEMPERATURE, **Units**: degrees-Fahrenheit (64), **Min Pres Value**: -39.9, **Max Pres Value**: 200, **Time Delay**: 0 seconds

Economizing Enthalpy Enable Setpoint
Object Type: ANALOG_INPUT, **Object Identifier**: AI-10070, **Description**: Enthalpy setpoint below which economizing can be used, **Dimensionality**: ENTHALPY, **Units**: btus-per-pound (117), **Min Pres Value**: 19, **Max Pres Value**: 28, **Time Delay**: 0 seconds

Exhaust Enable Position Setpoint
Object Type: ANALOG_INPUT, **Object Identifier**: AI-10071, **Description**: Outdoor air damper position to enable exhaust sequence, **Dimensionality**: PERCENTAGE, **Units**: Percent (98), **Min Pres Value**: 0, **Max Pres Value**: 100, **Time Delay**: 0 seconds

Supply Air Tempering
Object_Type: BINARY_INPUT **Object_Identifier:** BI-10040 **Description:** Indicates the status of the Supply Air Tempering function **Dimensionality: Units: Min_Pres_Value: Max_Pres_Value: Time_Delay:** 0 seconds

Alarm Relay Output Status
Object_Type: BINARY_INPUT **Object_Identifier:** BI-10027 **Description:** Indicates if the alarm relay is energized **Dimensionality: Units: Min_Pres_Value: Max_Pres_Value: Time_Delay:** 5 seconds

Morning Warmup Enabled
Object_Type: BINARY_INPUT **Object_Identifier:** BI-10041 **Description:** Indicates if morning warmup is enabled **Dimensionality: Units: Min_Pres_Value: Max_Pres_Value: Time_Delay:** 5 seconds

Daytime Warmup Enabled
Object_Type: BINARY_INPUT **Object_Identifier:** BI-10042 **Description:** Indicates if daytime warmup is enabled **Dimensionality: Units: Min_Pres_Value: Max_Pres_Value: Time_Delay:** 5 seconds

Compressor 2C Status
Object_Type: BINARY_INPUT **Object_Identifier:** BI-10006 **Description:** Indicates the running status of compressor 2C **Dimensionality: Units: Min_Pres_Value: Max_Pres_Value: Time_Delay:** 0 seconds

Heat Output 6 Status
Object_Type: BINARY_INPUT **Object_Identifier:** BI-10012 **Description:** Indicates the commanded state of heating output 6 **Dimensionality: Units: Min_Pres_Value: Max_Pres_Value: Time_Delay:** 0 seconds

Discharge Air Temperature Local

Object Type: ANALOG_INPUT, **Object Identifier**: AI-10001, **Description**: The supply air temperature value from a unit mounted sensor, **Dimensionality**: TEMPERATURE, **Units**:degrees-Fahrenheit (64), **Value**: -39.5, **Max Pres Value**: 200 **Time Delay**: 0 Seconds

Space Static Pressure Local
Object Type: ANALOG_INPUT, **Object Identifier**: AI-10007, **Description**: Indicates the local space static pressure, **Dimensionality:** PRESSURE_GASEOUS, **Units**: inches-of-water (58), **Min Pres Value**: -0.67, **Max Pres Value**: 0.67, **Time Delay**: 0 seconds

Return Air Humidity Local
Object Type: ANALOG_INPUT, **Object Identifier**: AI-10010, **Description**: The return air humidity value from a unit mounted sensor, **Dimensionality**: UNCONVERTED_UNIT, **Units**: percent-relative-humidity (29), **Min Pres Value**: 0, **Max Pres Value**: 100, **Time Delay**: 0 seconds

Space Humidity Local
Object Type: ANALOG_INPUT.,**Object Identifier**: AI-10009, **Description**: Indicates the local space humidity, **Dimensionality**: UNCONVERTED_UNIT, **Units**: percent-relative-humidity (29), **Min Pres Value**: 0, **Max Pres Value**: 100, **Time Delay**: 0 seconds

Outdoor Air Flow Local
Object Type: ANALOG_INPUT, **Object Identifier**: AI-10005, **Description**: Indicates the local outdoor airflow, **Dimensionality**: FLOW_GASESOUS, **Units**: Cubic-feet-per-minute (84), **Min Pres Value**: 0, **Value**: 65000, **Time Delay**: 0 seconds

Discharge Air Cooling Setpoint Active
Object Type: ANALOG_INPUT, **Object Identifier**: AI-10021, **Description**: Active supply air temperature cooling setpoint value, **Dimensionality**: TEMPERATURE, **Units**: degrees-Fahrenheit (64), **Min Pres Value**: 40, **Max Pres Value**: 90, **Time Delay**: 5 seconds

Discharge Air Heating Setpoint Active
Object Type: ANALOG_INPUT, **Object Identifier**: AI-10022, **Description**: Active supply air temperature heating setpoint value, **Dimensionality**: TEMPERATURE, **Units**: degrees-Fahrenheit (64), **Min Pres Value**: 40 , M**ax Pres Value**: 180, **Time Delay**: 5 seconds

Duct Static Pressure Setpoint Active
Object Type: ANALOG_INPUT, **Object Identifier**: AI-10023, **Description**: Active supply air static pressure setpoint value, **Dimensionality**: PRESSURE_GASEOUS, **Units**: inches-of-water (58), **Min Pres Value**: 0.7, **Max Pres Value**: 4.3, **Time Delay**: 5 seconds

Outdoor Air Minimum Flow Setpoint Active
Object Type: ANALOG_INPUT, **Object Identifier**: AI-10025, **Description**: Active minimum outdoor airflow setpoint value, **Dimensionality**: FLOW_GASESOUS, **Units**: Cubic-feet-per-minute (84), **Min Pres Value**: 0, **Max Pres Value**: 60000, **Time Delay**: 5 seconds

Space Temperature Heating Setpoint Active
Object Type: ANALOG_INPUT, **Object Identifier**: AI-10027, **Description**: Active space heating setpoint value, **Dimensionality**: TEMPERATURE, **Units**: degrees-Fahrenheit (64), **Min Pres Value**: 50, **Max Pres Value**: 90, **Time Delay**: 5 seconds

Space Static Pressure Setpoint Active
Object Type: ANALOG_INPUT, **Object Identifier**: AI-10028, **Description**: Active space static pressure setpoint value, **Dimensionality:** PRESSURE_GASEOUS, **Units**: inches-of-water (58), **Min Pres Value**: -0.2, **Max Pres Value**: 0.3, **Time Delay**: 5 seconds

Morning Warmup Temperature Setpoint Active
Object Type: ANALOG_INPUT, **Object Identifier**: AI-10030, **Description**: Active temperature setpoint value used in morning warmup mode, **Dimensionality**: TEMPERATURE, **Units**: degrees-Fahrenheit (64), **Min Pres Value**: 50, **Max Pres Value**: 90, **Time Delay**: 5 seconds

Diagnostic: High Compressor Press Diff Lockout Ckt1
Object_Type: Object_Identifier: BI-20145 **Description:** Diagnostic: High Compressor Press Diff Lockout Ckt1 **Dimensionality: Units: Min_Pres_Value: Max_Pres_Value: Time_Delay:** 0 seconds

Diagnostic: Loss of Charge Ckt1
Object_Type: Object_Identifier: BI-20147 **Description:** Diagnostic: Loss of Charge Ckt1 **Dimensionality: Units: Min_Pres_Value: Max_Pres_Value: Time_Delay:** 0 seconds

Discharge Air Temperature Active
Object Type: ANALOG_VALUE, **Object Identifier**: AI-10081, **Description**: The supply air temperature currently used for unit control, **Dimensionality**: TEMPERATURE, **Units**: degrees-Fahrenheit (64), **Min Pres Value**: -39.9, **Max Pres Value**: 200, **Time Delay**: 0 seconds

Duct Static Pressure Active
Object Type: ANALOG_VALUE, **Object Identifier**: AI-10082, **Description**: Duct static pressure value currently being used for unit control, **Dimensionality**: PRESSURE_GASEOUS, **Units**: inches-of-water (58), **Min Pres Value**: 0, **Max Pres Value**:7.9, **Time Delay**: 0 seconds

Outdoor Air Temperature Active
Object Type: ANALOG_VALUE, **Object Identifier**: AI-10083, **Description**: The outdoor air temperature currently used for unit control, **Dimensionality**: TEMPERATURE, **Units**: degrees-Fahrenheit (64), **Min Pres Value**: -39.9, **Max Pres Value**: 200, **Time Delay**: 0 seconds

Outdoor Air Humidity Active
Object Type: ANALOG_VALUE, **Object Identifier**: AI-10084, **Description**: The outdoor air humidity value used for unit control, **Dimensionality**: UNCONVERTED_UNIT, **Units**: percent-relative-humidity (29), **Min Pres Value**: 0, **Max Pres Value**: 100, **Time Delay**: 0 seconds

Outdoor Air Flow Active
Object Type: ANALOG_VALUE, **Object Identifier**: AI-10085, **Description**: Outdoor air flow utilized by the unit, **Dimensionality**: FLOW_GASESOUS, **Units**: cubic-feet-per-minute (84), **Min Pres Value**: 0, **Max Pres Value**: 65535, **Time Delay**: 0 seconds

Space Temperature Active
Object Type: ANALOG_VALUE, **Object Identifier**: AI-10086, **Description**: The space temperature currently used for unit control, **Dimensionality**: TEMPERATURE, **Units**: degrees-Fahrenheit (64), **Min Pres Value**: -39.9, **Max Pres Value**: 200, **Time Delay**: 0 seconds

Space Static Pressure Active
Object Type: ANALOG_VALUE, **Object Identifier**: AI-10087, **Description**: Space static pressure value from a unit mounted sensor, **Dimensionality**: PRESSURE_GASEOUS, **Units**: inches-of-water (58), **Min Pres Value**: -0.67, **Max Pres Value**: 0.67, **Time Delay**: 0 seconds

Space CO2 Concentration Active
Object Type: ANALOG_VALUE, **Object Identifier**: AI-10088, **Description**: Space CO2 concentration value being used for unit control, **Dimensionality**: PPM, **Units**: parts-per-million (96), **Min Pres Value**: 0, **Max Pres Value**: 65536, **Time Delay**: 0 seconds

Diagnostic: Shutdown Present
Object_Type: Object_Identifier: **BI-10619** Description: **Diagnostic: Shutdown Present** Dimensionality: Units: Min_Pres_Value: Max_Pres_Value: Time_Delay: 0 seconds

Diagnostic: Discharge Air High Temperature Detected
Object_Type: Object_Identifier: BI-10603 **Description:** Diagnostic: Discharge Air High Temperature Detected**Dimensionality: Units: Min_Pres_Value: Max_Pres_Value: Time_Delay:** 0 seconds

Diagnostic: Local Manual Reset Required
Object_Type: Object_Identifier: **BI-10620** Description: **Diagnostic: Local Manual Reset Required** Dimensionality: Units: Min_Pres_Value: Max_Pres_Value: Time_Delay: 0 seconds

Diagnostic: Local Manual Reset Required

Object_Type: Object_Identifier: BI-10620 **Description:** Diagnostic: Local Manual Reset Required **Dimensionality: Units: Min_Pres_Value: Max_Pres_Value: Time_Delay:** 0 seconds

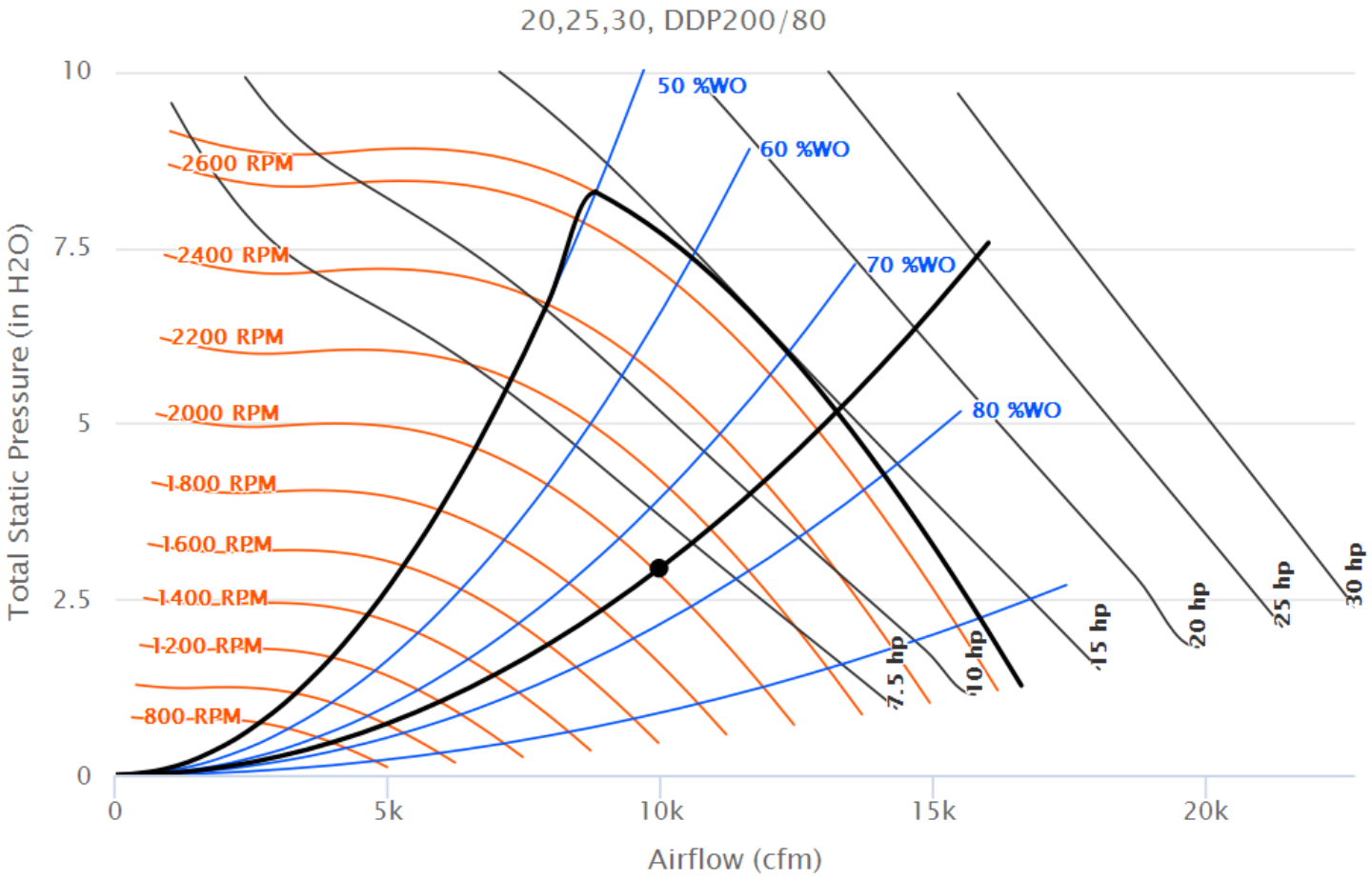
Diagnostic: Morning Warmup Mode Exceeded 120 Minutes
Object_Type: Object_Identifier: BI-10620 **Description:** Diagnostic: Morning Warmup Mode Exceeded 120 Minutes**Dimensionality: Units: Min_Pres_Value: Max_Pres_Value: Time_Delay:** 0 seconds

Diagnostic: Pre Cool Mode Exceeded 120 Minutes
Object_Type: Object_Identifier: BI-10609 **Description:** Diagnostic: Pre Cool Mode Exceeded 120 Minutes**Dimensionality: Units: Min_Pres_Value: Max_Pres_Value: Time_Delay:** 0 seconds

Diagnostic: Return Air High Temperature Detected
Object_Type: Object_Identifier: BI-10611 **Description:** Diagnostic: Return Air High Temperature Detected**Dimensionality: Units: Min_Pres_Value: Max_Pres_Value: Time_Delay:** 0 seconds

Fan Details

Unit Size		**Operating Brake Power**	6.45 bhp
Operating Airflow	10,000 cfm	**Altitude**	0.00 ft
Operating Static Pressure	2.955 in H2O	**Design Temp.**	80.00 F
Operating RPM	2,001 rpm		



Fan Details

Unit Size		**Operating Brake Power**	4.00 bhp
Operating Airflow	9200	**Altitude**	0.00 ft
Operating Static Pressure	1.626 in H2O	**Design Temp.**	80.00 F
Operating RPM	1,636 rpm