Rocklin Unified School District

2615 Sierra Meadows Drive • Rocklin, CA 95677
Phone • (916) 624-2428 Ext 1306

February 27, 2023

TO: **All Bidders**
BID: **Rocklin High School Rooftop HVAC Replacement Project**
SUBJECT: **Addendum One**

The following changes, omissions, and additions will apply to the bid, and to the proposal submissions, execution and completion of the project, and to the various parts of the work affected thereby. All other conditions shall remain the same.

Careful note of the addendum shall be taken by all parties of interest so the proper allowances may be made in strict accordance with the addendum, and that all contractors shall be fully advised in the performance of the work which will be required of them.

Bidder shall acknowledge receipt of the Addendum One.

Addendum One Notes:

1.) Extension bid due date, extended to March 9, 2023, 1:00 PM.

2.) Updates to the Scope of Work includes L& H Airco Item #9. In addition pricing line has been added to Exhibit B, bid documents for this support.

3.) Addendum One Incorporates questions and answers into the bid documents.

4.) Added Exhibit D Carrier Detail Drawing.

END ADDENDUM #1

Respectfully submitted.

Mike Stemple
Purchasing & Contracts Manager, Rocklin Unified School District

Exhibit A: Scope of Work Addendum One
Exhibit B: Bid Documents Addendum One
Exhibit D: Drawing Exhibit

Questions and Answers :

1. Invitation states equipment will be at AAA yard at the date construction begins. Carrier at the walk stated all the equipment may not be available at this time. If equipment is not available during summer, additional charges for multiple picks and overtime will need to be charged. School will be in session. How are we to bid at this time?
   District Response : The Carrier equipment lead time is 36-38 weeks and is not expected to be available for summer 2023 installation, plan around this lead time Nov & December Breaks.

2. L & H Airco is the Alerton representative in the area. Are we to carry this number or is that portion to be excluded from our number and carried by the district?
   District Response: Added Addendum One please include L & H Airco support in bid response added a line item for this support.

3. No permits, structural upgrades, or plans included in this price. Is that a correct assumption?
   District Response: correct no permit is required.

4. Invitation states disconnect and whips are provided by district. Are we to provide new flexible conduit from roof jack to disconnect or use existing?
   District Response: Use existing, any special repairs or conditions requiring replacement should be covered under the contingency included.

5. No as builds provided. We assume electrical breaker and wire to unit is correct size and do not need to be upgraded. Please confirm?
   District Response: As we know no breakers or wires need to be updated however, there could be exception if a breaker is in bad condition or need to be replaced.

6. Will AAA have equipment available at yard to load equipment or do we need to contact AAA for pricing of loading equipment?
   District Response: AAA Crane is where the equipment is stored, your bid will need to take into consideration charges at AAA unless you are using your own provider and coordinate pickup.

7. Please confirm with Carrier no additional roof supports are needed for the economizer portion of the RTU's?
   District Response: These are part of the submittal drawing and there should be no need for additional roofing support.

8. Please confirm The DSSA is involved or not involved in this project ?
   District Response: Not Involved. This is a Mechanical HVAC replace in Kind Deferred maintenance project.

9. Do you have an engineering estimate for this project ?
   District Response: Estimate $115k - $130K.

10. What is the estimated lead time that we have to work with ?
    District Response: The estimated lead time is 36-38 weeks estimate this work will be installed over the Thanksgiving Break Nov 20-24th and or Christmas Break Dec 22-Jan 5.

11. Are smoke detectors to be included in this bid ?
    District Response: No smoke detectors are included in the HVAC unit. The smoke detectors are located in the ducting, integration is required for detectors located in ducting, as necessary.

Rocklin High School Rooftop HVAC Replacement Project

Exhibit A - Scope of Work- Addendum One

The Rocklin Unified School District is seeking sealed bids from qualified contractors for the replacement if sixteen (16) rooftop HVAC units at the Rocklin High School Site. The District will be providing the replacement units to be installed. The District provided HVAC units will be stored at the AAA Crane Services, 1980 South River Road, West Sacramento, CA 95651. Contractor pricing will include the delivery cost to move equipment to Rocklin High School, as well as inspection and coordination of delivery to the site.

1. **General –** Contractor shall provide all necessary equipment, labor and materials to install the District provided equipment, including but not limited to the 16 rooftop HVAC units (see Exhibit D), Economizers, Curb Adapters, Seismic Brackets, Fused Disconnects, Fuses, Filter Boxes and Electrical Whips.

2. **Teardown –** Contractor shall adhere to a safety requirements, properly shut down equipment, perform lock out tag out (LOTO), Isolate the gas using rooftop valves, remove and demolish old HVAC systems, recover system gases into recovery tank and dispose of in accordance required state & local ordinances, disconnect and remove electrical wiring, gas piping and condensate piping, mounting brackets, disconnects, whips, economizers, curb adapters and miscellaneous unused equipment and dispose of in accordance with state & local ordinances.

3. **Installation –** Contractor is responsible for the coordination and delivery of owner furnished equipment. Contractor shall prepare curb for installation, ensure that provided roof curb adapter is sized correctly, provide crane lift to hoist curb and Carrier equipment, and set in place on rooftop, secure unit using provided seismic brackets, install provided economizer as required, reconnect ducting, electrical power, **include (Alerton) representative support services for disconnect & reconnect to existing controls) including programming updates (L & H Airco) refer to added Note # 9 for additional detail** , install additional provided equipment: whip, disconnect, and fuses, provide and pull new electric wiring, provide and connect new condensate drain, provide and connect new gas piping (hard pipe), perform factory startup and verify operations.

4. **Startup –** Verify that electrical, gas, and condensate drains are secured , properly connected, debris free & leak free, all moving equipment moves freely prior to startup, any safety equipment previously disconnected is reattached secured and operational. Start -up report log is provided and signed off, confirm electrical disconnects are operational, air leakage is acceptable, there is no excessive vibration noises, filters are installed properly, all controls are operational and working condition and function as required.

5. **Warranty-** Guarantee that all material workmanship is under warranty for a period of one year from the date of final acceptance by owner. During guarantee period all defect developing through

materials or workmanship shall be replaced immediately and without expense to the owner to the satisfaction of the owner.

6. Site Detail :

Building	Unit Name
B-Band	AC-6
B-Band	AC-66
B-Band	AC-57
B-Band	AC-56
B-Theater	AC-9
B-Theater	AC-8
E	AC-27
E	AC-30
E	AC-35
E	AC-32
G	AC-58
G	AC-68
G	AC-69
H	AC-41
J	AC-51
J	AC-52

7. Equipment detail – Estimated Equipment Lead time is 36-38 weeks (November 6 – 20th)

Building	Ref	Carrier Model	Unit Description	Economizer
B- Band	AC-57	48VLNK240403	2 Ton 208-230VV/1PH/60HZ Gas Heat	NA
B- Band	AC-56	48VLNK240403	2 Ton 208-230VV/1PH/60HZ Gas Heat	NA
E	AC-27	48VLNK240403	2 Ton 208-230VV/1PH/60HZ Gas Heat	NA
E	AC-32	48VLNK240403	2 Ton 208-230VV/1PH/60HZ Gas Heat	NA
G	AC-58	48VLNK240403	2 Ton 208-230VV/1PH/60HZ Gas Heat	NA
B- Band	AC-6	48FCLA05A2A6-0A0A0	4 Ton 460C/3PH/60HZ Gas Heat	Down Discharge Dry Bulb Economizer
E	AC-30	48FCLA05A2A6-0A0A0	4 Ton 460C/3PH/60HZ Gas Heat	Down Discharge Dry Bulb Economizer
E	AC-35	48FCLA06A2A6-0A0A0	5 Ton 460V/3PH/60HZ Gas Heat	Down Discharge Dry Bulb Economizer
J	AC-51	48FCLA06A2A6-0A0A0	5 Ton 460V/3PH/60HZ Gas Heat	Down Discharge Dry Bulb Economizer
B- Theater	AC-8	48VLNK600906	5 Ton 460V/3PH/60HZ Gas Heat	Convertible Discharge Dry Bulb Economizer
H	AC-41	48FCDM07A2A6-0A0A0	6 Ton 460V/3PH/60HZ Gas Heat	Down Discharge Dry Bulb Economizer
B- Band	AC-66	48FCDM08A2A6-0A0A0	7.5 Ton 460V/3PH/60HZ Gas Heat	Down Discharge Dry Bulb Economizer
G	AC-68	48FCDM08A2A6-0A0A0	7.5 Ton 460V/3PH/60HZ Gas Heat	Down Discharge Dry Bulb Economizer
G	AC-69	48FCDM08A2A6-0A0A0	7.5 Ton 460V/3PH/60HZ Gas Heat	Down Discharge Dry Bulb Economizer
J	AC-52	48FCDM08A2A6-0A0A0	7.5 Ton 460V/3PH/60HZ Gas Heat	Down Discharge Dry Bulb Economizer
B- Theater	AC-9	48FCDM16A2A6-0A0A0	15 Ton 460V/3PH/60HZ Gas Heat	Down Discharge Dry Bulb Economize

District Provides :
16 Each Carrier HVAC Units , Economizers, Curb Adapters.
HVAC Components: Fused Disconnects , Fuses, Seismic Brackets , Filter Box, &
Electrical Whip.

8. **Storage Facility** – Facility information and notes: Carrier Sacramento will be there to support the inspection and equipment identification during equipment loading at AAA Crane Services as required. Carrier contact Mike Cortez, email: Michael.cortez@carrier.com, Phone (916) 616-4669.

   AAA Crane Services
   1980 South River Road
   Sacramento, CA 95691

   Office Phone (916) 568-3456
   Geoff Quinn. Regional Manager (916) 826-2290, email: geoff@aaacraneservices.net

   Yard Contact Mike (916) 292-2718

   Please note bidder can use the crane company of your choice. The information above is provided for coordination & support efforts as needed for pick up at AAA Crane Services.

9. **L& H Airco – Support (Contact for pricing and include in bid price):**
   Kevin Bender (916) 997-0042, Email kevinb@lhairco.com

   ***GENERAL* - DESCRIPTION TO INCLUDE:**

   - Field install Alerton controls and terminate to AC manufacture provided and installed conventional thermostat interface
   - CEC approved Economizer Fault Detection and Diagnostics (FDD) system for Alerton controlled economizers

     Note: (All economizer control by Alerton).
   - Automated Demand Response (ADR) capabilities
   - Demand Control Ventilation (DCV) as required
   - New control wire and interlocks, at buildings, to be installed in existing conduit and raceways
   - New smoke detector wire included, if necessary, smoke detectors are located above T-Bar in spaces served
   - New flex conduit as needed for low voltage wiring
   - Control system started and checked out for a complete and fully functional system
   - New Belimo economizer actuators provided and installed by L&H Airco total of (16)

- Demo and remove all control wire, smoke detector interlocks, supply air sensors, and current sensors to be reused at a later date for RTU's serving Bldg B Band and Theater (6), Bldg E (4), Bldg G (3), Bldg H (1), and Bldg J (2)
- At a later date install removed sensors and connect new Belimo actuators to existing VLD's in space

EXCLUSIONS:

- Integrating with AC units via communication protocol including BACnet
- Installing, configuring, set-up, etc… of any third party devices including VFD's provided by others
- Filling out or submitting T-24 documentation
- Providing or installing any occupancy sensors or door switches
- Providing or installing any motor starters, disconnects, ECM's or variable frequency drives
- Providing or installing any dampers (i.e. economizer, manual, fire/smoke, etc…)
- Providing, installing, monitoring or interlocking any smoke or carbon monoxide sensors (i.e. fire/smoke, unit duct, etc…)
- Providing or installing any power exhaust controls
- Any work with fire alarm system, fire/smoke dampers (FSD) or FSD test switches
- Any HVAC or equipment start up
- Any air or water test and balancing
- Any Measurement & Verification support, measurement based commissioning or commissioning otherwise not outlined above
- Any roof jacks, roof penetrations, access doors or associated work
- Any bonds, permits or other fees
- Any labor performed outside swing shift hours
- Any work not mentioned above

EXHIBIT B - Bid Documents

1.1 BID FORM

ROCKLIN UNIFIED SCHOOL DISTRICT

Sealed Bids will be received at the Rocklin Unified School District Office located at 2615 Sierra Meadows Drive, Rocklin CA 95677, until 1:00 PM on February 23, 2023.

Project:

Rocklin High School Rooftop HVAC Replacement Project

The undersigned proposes to furnish such labor, materials, applicable taxes, equipment, and services to perform and complete the project, as described, and in strict conformity with the drawing plans and documents contained herein.

This bid may be withdrawn at any time prior to the scheduled time for the opening of bids or any authorized postponement thereof.

A bidder shall not submit a bid unless the bidder's California contractor's license number appears clearly on the bid, the license expiration date and class are stated, and the bid contains a statement that the representations made therein are made under penalty of perjury. Any bid submitted by a contractor who is not licensed pursuant to Business and Professions Code section 7028.15 shall be considered nonresponsive and shall be rejected. Any bid not containing the above information may be considered nonresponsive and may be rejected.

Proof of Bidder's registration per Labor Code §1725.5 must be submitted with this bid form.

The undersigned declares under penalty of perjury under the laws of the State of California that the representations made in this bid are true and correct.

Print or Type Name: _____

Title: _____

Name of Company as Licensed in California: _____

Business Address: _____

Telephone Number: _____

California Contractor License No.: _____

Class and Expiration Date: _____

Public Works Contractor Registration No.: _____

State of Incorporation, if Applicable: _____

CORPORATION:

Evidence of authority to bind corporation is attached.

Dated: _____, 2023

_____
_____ (*Name*)
_____ (Chairman, Pres., or Vice-Pres.)

1.2 BID SCHEDULE

Rocklin High School Rooftop HVAC Replacement Project

Company Name: _____

Item	Description	Qty	Unit	Cost	Total Cost
1	Transportation & Crane Services	1	LS		
2	L & H Control Support	16	Each		
3	Installation of (16) HVAC units & Disposal of replaced units	16	Each		
4	10% Owners Contingency Allowance (Items1-3)	1	LS		
Total Bid Price					

The undersigned proposes to furnish such labor, materials, applicable taxes, and services to perform and complete the Scope of Work as described in instructions to bidders, bid documents, and schedules contained herein.

Bid Price is valid for 160 days.

Bidder Name: _____

Signature: _____

Print Name: _____

Title: _____

The receipt of the following addenda to the specifications is acknowledged:

Addendum No. _____ Date _____ Addendum No. _____ Date _____

1.3 BID BOND

KNOW ALL MEN BY THESE PRESENTS that we the undersigned _____ as Principal and _____ as Surety, are hereby held and firmly bound unto the Rocklin Unified School District "Owner" in the sum of _____ Dollars ($_____) for payment of which sum, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

The condition of the above obligation is such that whereas the Principal has submitted to the Owner a certain bid, attached hereto and hereby made a part hereof, to enter into a Contract in writing for the construction of _____ in strict accordance with Contract Documents.

NOW, THEREFORE,

a. If said bid shall be rejected, or, in the alternative;

b. If said bid shall be accepted and the Principal shall execute and deliver a contract in the form of agreement attached hereto and shall execute and deliver Performance and Payment Bonds in the forms attached hereto (all properly completed in accordance with said bid), and shall in all other respects perform the agreement created by the acceptance of said bid;

Then this obligation shall be void, otherwise the same shall remain in full force and effect, it being expressly understood and agreed that the liability of the Surety for any and all default of the Principal hereunder shall be the amount of this obligation as herein stated.

Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract on the call for bids, or to the Work to be performed hereunder, or the specifications accompanying the same, shall in any way affect its obligation under this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of said Contract or the call for bids, or to the Work, or to the specifications.

IN WITNESS WHEREOF, the above-bounden parties have executed this instrument under several seals this ____ day of _____, _____, the name and corporate party being hereto affixed and these presents duly signed by its

undersigned representative, pursuant to authority of its governing body. In the presence of:

(Notary Seal)

_____
(Principal)

_____
(Business Address)

_____

_____
(Corporate Surety)

_____
Business Address)

By:_____

_____

The rate or premium of this bond is _____ per thousand, the total amount of premium charged, $_____.

(The above must be filled in by Corporate Surety).

1.4 DESIGNATION OF SUBS

Each bidder shall set forth below the name and the location of the place of business of each subcontractor and the California contractor license number, and public works contractor registration number (for all projects over Twenty-five Thousand Dollars ($25,000)), of each subcontractor who will perform work or labor or render service to the Contractor in or about the construction of the Work or improvement, or to a subcontractor licensed by the State of California who, under subcontract to the Contractor, specially fabricates and installs a portion of the Work or improvement according to detailed drawings contained in the plans and specifications, in an amount in excess of one-half of 1 percent (0.5%) of the bidder's total bid, and the portion of the Work which will be done by each subcontractor. An inadvertent error in listing a California contractor's license number shall not be grounds for filing a bid protest or for considering the bid nonresponsive if the bidder submits the corrected contractor's license number to the Owner within 24 hours after the bid opening, or any continuation thereof, so long as the corrected contractor's license number corresponds to the submitted name and location for that subcontractor. If the Contractor fails to specify a subcontractor for any portion of the Work to be performed under the Contract in excess of one-half of 1 percent (0.5%) of the Contractor's total bid, the Contractor shall be deemed to have agreed to perform such portion itself, and shall not be permitted to subcontract that portion of the Work except under the conditions hereinafter set forth.

Subletting or subcontracting of any portion of the Work as to which no subcontractor was designated in the original bid shall only be permitted in cases of public emergency or necessity, and then only after a finding reduced to writing as a public record of the legislative body of the Owner.

For all projects over Twenty-five Thousand Dollars ($25,000): for any bid proposal submitted and for any contract for public work entered into, an inadvertent error in listing a subcontractor who is not registered under Labor Code section 1725.5 shall not be grounds for filing a bid protest or grounds for considering the bid nonresponsive, provided that either: the subcontractor is registered prior to the bid opening; or the subcontractor is registered and has paid the penalty registration fee specified in Labor Code section 1725.5(a)(2)(E), if applicable, within 24 hours after the bid opening; or the subcontractor is replaced by another registered subcontractor under Public Contract Code section 4107. Failure of a listed subcontractor to be registered shall be grounds under Public Contract Code section 4107 for the Contractor, with the Owner's consent, to substitute a registered subcontractor for the unregistered subcontractor.

Failure to provide this information in a legible manner may result in the rejection of an otherwise acceptable bid.

Portion of Work	Name of Subcontractor & Phone No.	Location of Subcontractor	California Contractor License Number	Public Works Contractor Registration Number (if applicable)

I am the authorized representative of the Bidder submitting this Designation of Subcontractors and I declare that each subcontractor listed holds a valid and current contractor license in good standing in California to perform the portion of work for which the subcontractor is listed.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that this declaration is executed on _____, 2023, at _____[city],_____[state].

Signature: _____

Print Name: _____

Title: _____

1.5 NONCOLLUSION DECLARATION

Rocklin Unified School District

Site Design and Installation of Electric Vehicle (EV) Charging Stations

The undersigned declares:

I am the _____ of _____, the party making the foregoing bid.

The bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation. The bid is genuine and not collusive or sham. The bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid. The bidder has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or to refrain from bidding. The bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder. All statements contained in the bid are true. The bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof, to effectuate a collusive or sham bid, and has not paid, and will not pay, any person or entity for such purpose.

Any person executing this declaration on behalf of a bidder that is a corporation, partnership, joint venture, limited liability company, limited liability partnership, or any other entity, hereby represents that he or she has full power to execute, and does execute, this declaration on behalf of the bidder.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that this declaration is executed on _____, 2023, at _____ [*city*], _____ [*state*].

_____
Signature

_____
Print Name

1.6 WORKERS' COMPENSATION CERTIFICATE

Labor Code Section 3700, in relevant part, provides:

> "Every employer except the state shall secure the payment of compensation in one or more of the following ways:
>
> (a) By being insured against liability to pay compensation in one or more insurers duly authorized to write compensation insurance in this state.
>
> (b) By securing from the Director of Industrial Relations a certificate of consent to self-insure either as an individual employer or as one employer in a group of employers. Said certificate may be given upon furnishing proof satisfactory to the Director of Industrial Relations of ability to self-insure and to pay any compensation that may become due to his or her employees, … "

I am aware of the provisions of the Labor Code Section 3700 which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the work of this contract. I shall supply the Owner with certificates of insurance evidencing that Workers' Compensation Insurance is in effect and providing that the Owner will receive thirty (30) days' notice of cancellation.

_____
Name of Contractor

_____
Signature

_____ _____
Print Name Date

(In accordance with Article 5 (commencing at Section 1860], Chapter 1, Part 7, Division 2 of the Labor Code, the above certificate must be signed and filed with the awarding body prior to performing any work under the contract.)

1.7 CERTIFICATION REGARDING WORK HOURS AND SAFETY STANDARDS

Contract Work Hours and Safety Standards Act (40 U.S.C. 3701-3708). Where applicable, all contracts awarded by the non-Federal entity in excess of $100,000 that involve the employment of mechanics or laborers must include a provision for compliance with 40 U.S.C. 3702 and 3704, as supplemented by Department of Labor regulations (29 CFR Part 5). Under 40 U.S.C. 3702 of the Act, each contractor must be required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. The requirements of 40 U.S.C. 3704 are applicable to construction work and provide that no laborer or mechanic must be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.

The undersigned subcontractor certifies it will comply with the contract work hours and safety standards act:

- No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

- In the event of any violation of the clause set forth in first paragraph of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States Department of Labor for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in first paragraph of this section, in the sum of $27 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in first paragraph of this section.

- The United States Department of Agriculture shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2) of

this section.

- The contractor or subcontractor shall insert in any subcontracts the clauses set forth in previous paragraphs of this section and also a clause requiring the subcontractors to include These clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in previous paragraphs of this section.

_____

Name of Organization/Firm

_____ _____

Signature of Authorized Representative Date

_____

Print Name and Title of Authorized Representative

1.8 EXPERIENCE QUALIFICATIONS

The Bidder has been engaged in the contracting business, under the present business name for ___years. Experience in work of a nature similar to that covered in the Bid extends over a period of _____ years.

The Bidder, as a contractor, has never failed to satisfactorily complete a contract awarded to it, except as follows:

_____

_____

The following contracts have been satisfactorily completed in the last three years for the persons, firm or entity indicated:

Year	Owner	Type of Work	Contract Amount

Executed on _____, at _____, _____

BIDDER

Company Name: _____

Authorized Signature: _____

Printed Name: _____

Title: _____

Unit Report For AC-6,30

Project: Rocklin High School
Prepared By: Brayden Duncan

11/28/2022
10:30AM

Unit Parameters

Unit Model: **48FCLA05A2A6-0A0A0**
Unit Size: **05 (4 Tons)**
Volts-Phase-Hertz: **460-3-60**
Heating Type: **Gas**
Heat Control: **Low Nox, Low Heat**
Duct Cfg: **Vertical Supply / Vertical Return**
DX Options: **Standard One Stage Cooling Models**

Dimensions (ft. in.) & Weight (lb.) ***

Unit Length: **6' 2.375"**
Unit Width: **3' 10.625"**
Unit Height: **2' 9.375"**
Total Operating Weight: **543** lb

*** Weights and Dimensions are approximate. Weight does not include unit packaging. Approximate dimensions are provided primarily for shipping purposes. For exact dimensions and weights, refer to appropriate product data catalog.

Lines and Filters

Gas Line Size: **1/2**
Condensate Drain Line Size: **3/4**
Return Air Filter Type: **Throwaway**
Return Air Filter Quantity: **2**
Return Air Filter Size: **16 x 25 x 2**

Selection includes construction throwaway filter into the base fan curve. This filter is not MERV Rated.

Unit Configuration

Direct Drive - EcoBlue - Medium Static
Al/Cu - Al/Cu
Base Electromechanical Controls
Standard Packaging

Warranty Information

1-Year parts(std.)
5-Year compressor parts(std.)

No optional warranties were selected.

NOTE: Please see Warranty Catalog 500-089 for explanation of policies and ordering methods.

Ordering Information

Part Number	Description	Quantity
48FCLA05A2A6-0A0A0	Rooftop Unit	2

Performance Summary For AC-6,30

Project: Rocklin High School 11/28/2022
Prepared By: Brayden Duncan 10:30AM

Part Number:48FCLA05A2A6-0A0A0

ARI SEER:	**14.00**	

Base Unit Dimensions

Unit Length:	**74.4**	in
Unit Width:	**46.6**	in
Unit Height:	**33.4**	in

Operating Weight

Base Unit Weight:	**543**	lb
Total Operating Weight:	**543**	lb

Unit

Unit Voltage-Phase-Hertz:	**460-3-60**	
Air Discharge:	**Vertical**	
Fan Drive Type:	**Vane Axial**	
Actual Airflow:	**1600**	CFM
Site Altitude:	**0**	ft

Cooling Performance

Condenser Entering Air DB:	**105.0**	F
Evaporator Entering Air DB:	**80.0**	F
Evaporator Entering Air WB:	**67.0**	F
Entering Air Enthalpy:	**31.44**	BTU/lb
Evaporator Leaving Air DB:	**61.2**	F
Evaporator Leaving Air WB:	**58.3**	F
Evaporator Leaving Air Enthalpy:	**25.24**	BTU/lb
Unit Discharge Air DB:	**62.4**	F
Unit Discharge Air WB:	**58.8**	F
Unit Discharge Air Enthalpy:	**25.52**	BTU/lb
Gross Cooling Capacity:	**44.60**	MBH
Net Cooling Capacity:	**42.58**	MBH
Gross Sensible Capacity:	**32.46**	MBH
Net Sensible Capacity:	**30.44**	MBH
Compressor Power Input:	**3.91**	kW
Coil Bypass Factor:	**0.117**	

Heating Performance

Heating Airflow:	**1600**	CFM
Entering Air Temp:	**70.0**	F
Leaving Air Temp:	**98.4**	F
Gas Heating Input Capacity:	**60.0**	MBH
Gas Heating Output Capacity:	**49.0**	MBH
Temperature Rise:	**28.4**	F
Thermal Efficiency (%):	**81.0**	

Supply Fan

External Static Pressure:	**0.60**	in wg
Fan RPM:	**1863**	
Fan Power:	**0.70**	BHP
NOTE:	**Selected IFM RPM Range: 1262 - 2170**	

Selection includes construction throwaway filter into the base fan curve. This filter is not MERV Rated.

Electrical Data

Voltage Range:	**414 - 506**	
Compressor #1 RLA:	**6.2**	
Compressor #1 LRA:	**41**	

Indoor Fan Motor Type: **MED**
Indoor Fan Motor FLA (Total): **1.7**
Combustion Fan Motor FLA (ea): **0.25**
Power Supply MCA: **11**
Power Supply MOCP (Fuse or HACR): **15**
Disconnect Size FLA: **10**
Disconnect Size LRA: **45**
Electrical Convenience Outlet: **None**
Outdoor Fan [Qty / FLA (ea)]: **1 / 0.8**

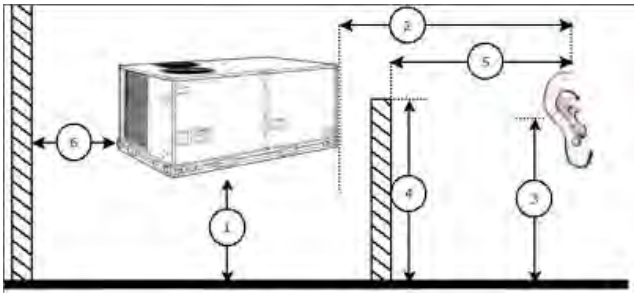
Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

Acoustics

Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	91.8	88.6	85.6
125 Hz	82.6	77.5	84.7
250 Hz	76.3	71.2	80.5
500 Hz	71.5	63.6	76.0
1000 Hz	67.9	66.0	72.4
2000 Hz	64.9	57.1	68.0
4000 Hz	62.0	50.8	62.8
8000 Hz	58.9	44.9	59.3
A-Weighted	75.2	70.3	79.0

Advanced Acoustics



Advanced Accoustics Parameters

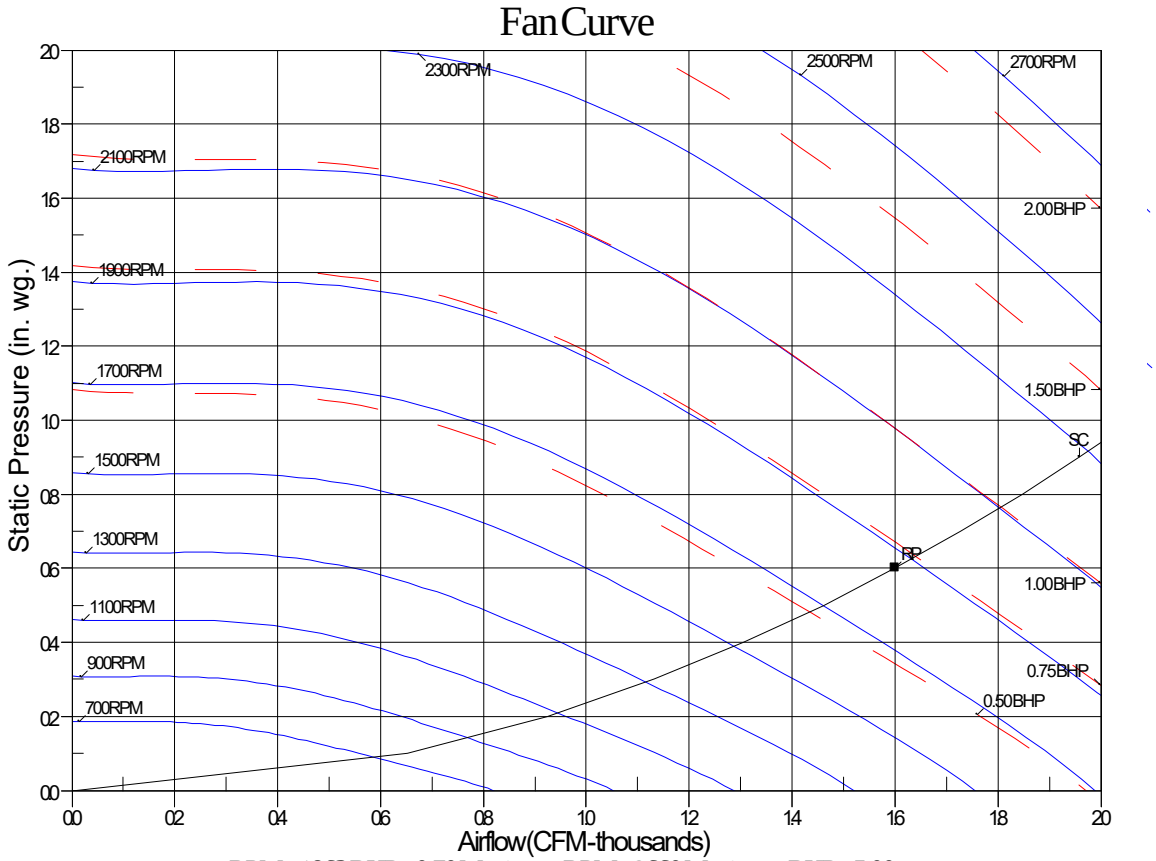
1. Unit height above ground: **30.0** ft
2. Horizontal distance from unit to receiver: **50.0** ft
3. Receiver height above ground: **5.7** ft
4. Height of obstruction: **0.0** ft
5. Horizontal distance from obstruction to receiver: **0.0** ft
6. Horizontal distance from unit to obstruction: **0.0** ft

Detailed Acoustics Information

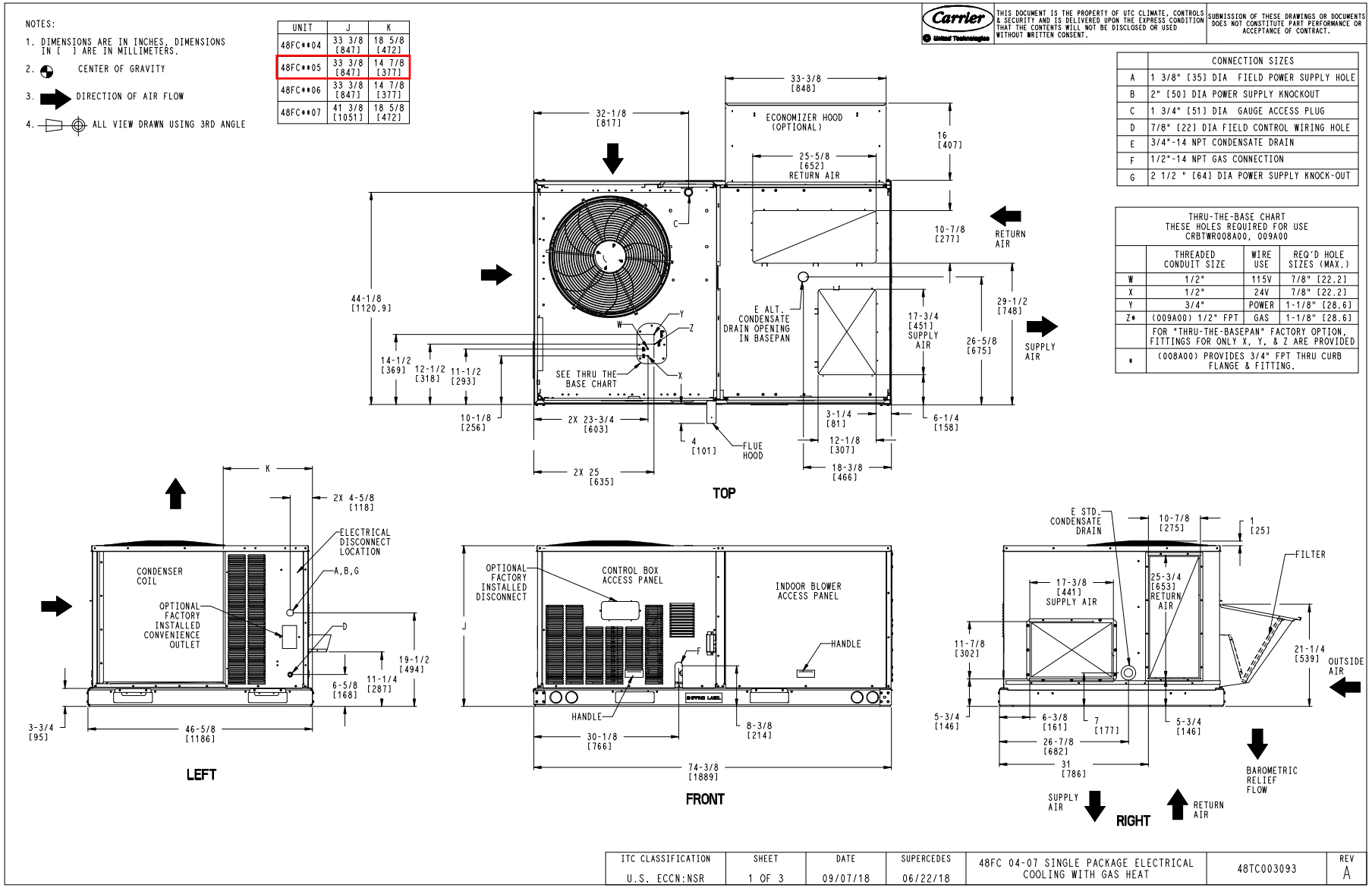
Octave Band Center Freq. Hz	63	125	250	500	1k	2k	4k	8k	Overall
A	85.6	84.7	80.5	76.0	72.4	68.0	62.8	59.3	89.2 Lw
B	59.4	68.6	71.9	72.8	72.4	69.2	63.8	58.2	78.5 LwA
C	53.2	52.3	48.1	43.6	40.0	35.6	30.4	26.9	56.8 Lp
D	27.0	36.2	39.5	40.4	40.0	36.8	31.4	25.8	46.1 LpA

Legend
A Sound Power Levels at Unit's Acoustic Center, Lw
B A-Weighted Sound Power Levels at Unit's Acoustic Center, LwA
C Sound Pressure Levels at Specific Distance from Unit, Lp
D A-Weighted Sound Pressure Levels at Specific Distance from Unit, LpA

Calculation methods used in this program are patterned after the ASHRAE Guide; other ASHRAE Publications and the AHRI Acoustical Standards. While a very significant effort has been made to insure the technical accuracy of this program, it is assumed that the user is knowledgeable in the art of system sound estimation and is aware of the tolerances involved in real world acoustical estimation. This program makes certain assumptions as to the dominant sound sources and sound paths which may not always be appropriate to the real system being estimated. Because of this, no assurances can be offered that this software will always generate an accurate sound prediction from user supplied input data. If in doubt about the estimation of expected sound levels in a space, an Acoustical Engineer or a person with sound prediction expertise should be consulted.



RPM=1863 BHP=0.70 Maximum RPM=2660 Maximum BHP=5.00
SC-System Curve RP-Rated Point


NOTES:
1. DIMENSIONS ARE IN INCHES, DIMENSIONS IN [ ] ARE IN MILLIMETERS.
2. CENTER OF GRAVITY
3. DIRECTION OF AIR FLOW
4. ALL VIEW DRAWN USING 3RD ANGLE
UNIT | J | K
48FC**04 | 33 3/8 [847] | 18 5/8 [472]
48FC**05 | 33 3/8 [847] | 14 7/8 [377]
48FC**06 | 33 3/8 [847] | 14 7/8 [377]
48FC**07 | 41 3/8 [1051] | 18 5/8 [472]
Carrier
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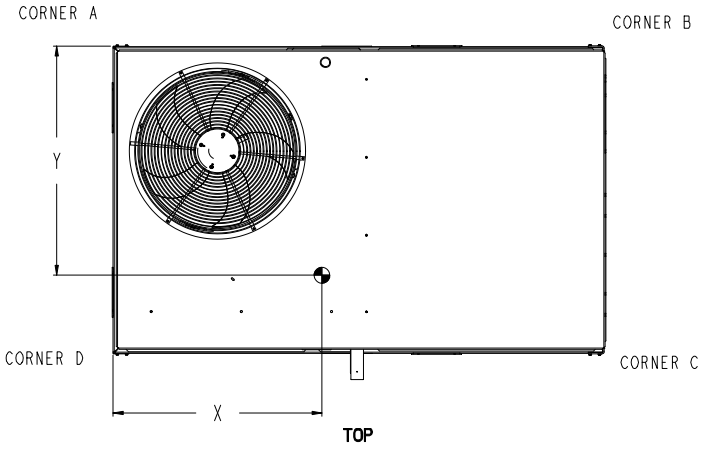
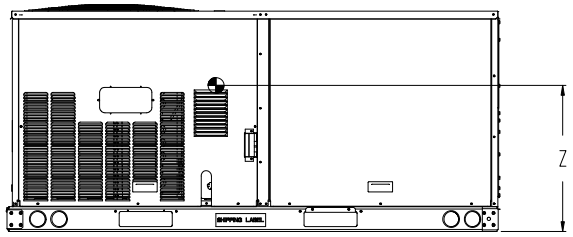
SUBMISSION OF THESE DRAWINGS OR DOCUMENTS DOES NOT CONSTITUTE PART PERFORMANCE OR ACCEPTANCE OF CONTRACT.
CONNECTION SIZES
A | 1 3/8" [35] DIA FIELD POWER SUPPLY HOLE
B | 2" [50] DIA POWER SUPPLY KNOCKOUT
C | 1 3/4" [51] DIA GAUGE ACCESS PLUG
D | 7/8" [22] DIA FIELD CONTROL WIRING HOLE
E | 3/4"-14 NPT CONDENSATE DRAIN
F | 1/2"-14 NPT GAS CONNECTION
G | 2 1/2 " [64] DIA POWER SUPPLY KNOCK-OUT
THRU-THE-BASE CHART
THESE HOLES REQUIRED FOR USE CRBTWR008A00, 009A00
THREADED CONDUIT SIZE | WIRE USE | REQ'D HOLE SIZES (MAX.)
W | 1/2" | 115V | 7/8" [22.2]
X | 1/2" | 24V | 7/8" [22.2]
Y | 3/4" | POWER | 1-1/8" [28.6]
Z* | (009A00) 1/2" FPT | GAS | 1-1/8" [28.6]
FOR "THRU-THE-BASEPAN" FACTORY OPTION, FITTINGS FOR ONLY X, Y, & Z ARE PROVIDED
* (008A00) PROVIDES 3/4" FPT THRU CURB FLANGE & FITTING.
33-3/8 [848]
32-1/8 [817]
ECONOMIZER HOOD (OPTIONAL)
25-5/8 [652] RETURN AIR
16 [407]
10-7/8 [277]
RETURN AIR
44-1/8 [1120.9]
E ALT. CONDENSATE DRAIN OPENING IN BASEPAN
17-3/4 [451] SUPPLY AIR
29-1/2 [748]
26-5/8 [675]
SUPPLY AIR
14-1/2 [369]
12-1/2 [318]
11-1/2 [293]
SEE THRU THE BASE CHART
10-1/8 [256]
2X 23-3/4 [603]
4 [101]
FLUE HOOD
3-1/4 [81]
12-1/8 [307]
6-1/4 [158]
18-3/8 [466]
2X 25 [635]
TOP
K
2X 4-5/8 [118]
ELECTRICAL DISCONNECT LOCATION
A,B,G
CONDENSER COIL
OPTIONAL FACTORY INSTALLED CONVENIENCE OUTLET
D
19-1/2 [494]
6-5/8 [168]
11-1/4 [287]
3-3/4 [95]
46-5/8 [1186]
LEFT
OPTIONAL FACTORY INSTALLED DISCONNECT
CONTROL BOX ACCESS PANEL
INDOOR BLOWER ACCESS PANEL
J
HANDLE
F
HANDLE
30-1/8 [766]
8-3/8 [214]
74-3/8 [1889]
FRONT
E STD. CONDENSATE DRAIN
10-7/8 [275]
1 [25]
FILTER
17-3/8 [441] SUPPLY AIR
25-3/4 [653] RETURN AIR
11-7/8 [302]
21-1/4 [539]
OUTSIDE AIR
5-3/4 [146]
6-3/8 [161]
7 [177]
5-3/4 [146]
26-7/8 [682]
31 [786]
BAROMETRIC RELIEF FLOW
SUPPLY AIR
RETURN AIR
RIGHT
ITC CLASSIFICATION | SHEET | DATE | SUPERCEDES | 48FC 04-07 SINGLE PACKAGE ELECTRICAL COOLING WITH GAS HEAT | 48TC003093 | REV
U.S. ECCN:NSR | 1 OF 3 | 09/07/18 | 06/22/18 | | | A

UNIT	STD. UNIT WEIGHT *		CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		C.G.		HEIGHT
	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X	Y	Z
48FC**04	482	219	113	51	116	53	128	58	125	57	37 5/8 [956]	24 9/16 [624]	18 1/4 [464]
48FC**05	543	246	138	63	133	60	133	60	138	63	36 1/2 [927]	23 3/8 [594]	18 [457]
48FC**06	556	252	142	64	136	62	136	62	142	64	36 1/2 [927]	23 3/8 [594]	18 [457]
48FC**07	607	275	162	73	152	69	141	64	151	68	36 [914]	22 1/2 [572]	19 3/8 [492]

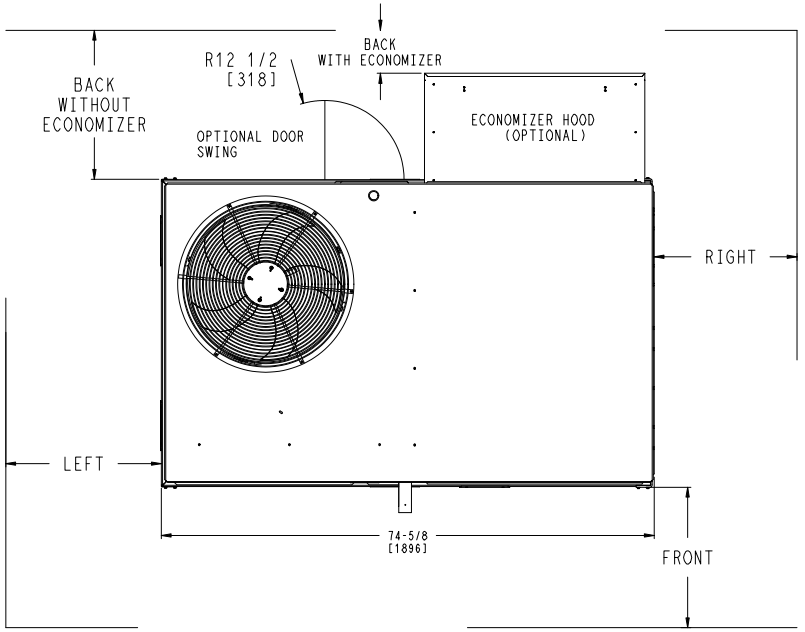
* STANDARD UNIT WEIGHT IS WITH LOW GAS HEAT AND WITHOUT PACKAGING.
FOR OTHER OPTIONS AND ACCESSORIES, REFER TO THE PRODUCT DATA CATALOG.



TOP



FRONT

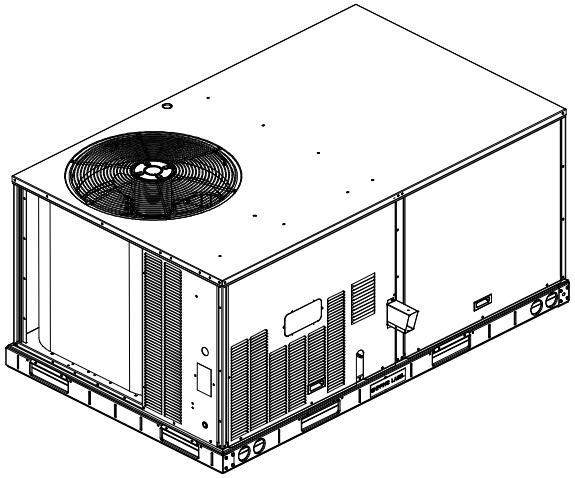


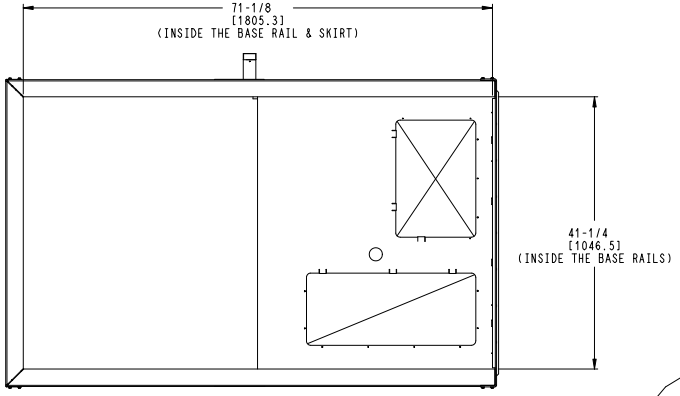
NOTES:

1. FOR ALL MINIMUM CLEARANCES LOCAL CODES OR JURISDICTIONS MAY PREVAIL.

	CLEARANCE		
	SERVICE WITH:	SERVICE WITH:	OPERATING
SURFACE	CONDUCTIVE BARRIER	NONCONDUCTIVE BARRIER	CLEARANCE
FRONT	48 [1219mm]	36 [914mm]	18 [457mm]
LEFT	48 [1219mm]	42 [1067mm]	18 [457mm]
BACK	48 [1219mm]	42 [1067mm]	18 [457mm]
BACK W/HOOD	36 [914mm]	36 [914mm]	18 [457mm]
RIGHT	36 [914mm]	36 [914mm]	18 [457mm]
TOP	72 [1829mm]	72 [1829mm]	72 [1829mm]

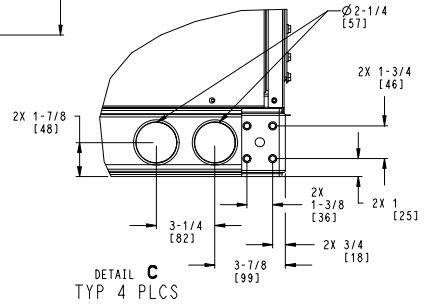
ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES			REV
U.S. ECCN:NSR	2 OF 3	09/07/18	06/22/18	48FC 04-07 SINGLE PACKAGE ELECTRICAL COOLING WITH GAS HEAT	48TC003093	A



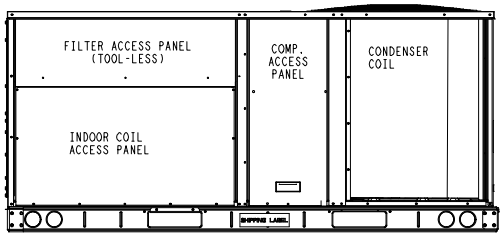


INSIDE BASERAIL DIMENSIONS

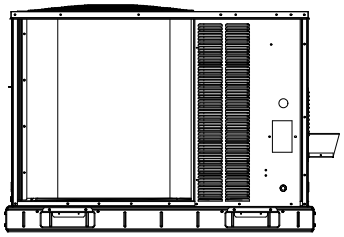
BOTTOM



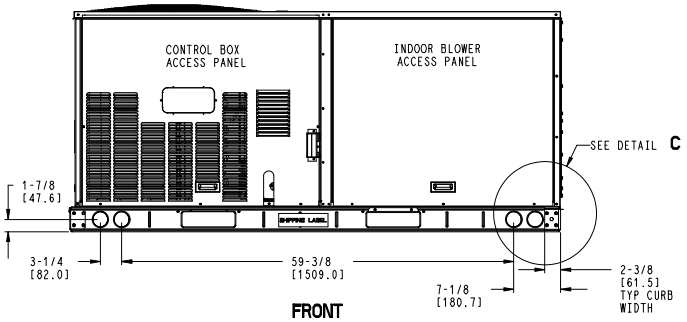
DETAIL **C**
TYP 4 PLCS



BACK



LEFT



FRONT

ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES			REV
U.S. ECCN:NSR	3 OF 3	09/07/18	06/22/18	48FC 04-07 SINGLE PACKAGE ELECTRICAL COOLING WITH GAS HEAT	48TC003093	A

NOTES:
MATERIAL:18 ga. GAL STEEL
1 1/2" ADDED TO EXISTING CURB O.D.
1" 1-1/2LB DUCT INSULATION (R VALUE 3.85)
GASKET PROVIDED WITH CURB

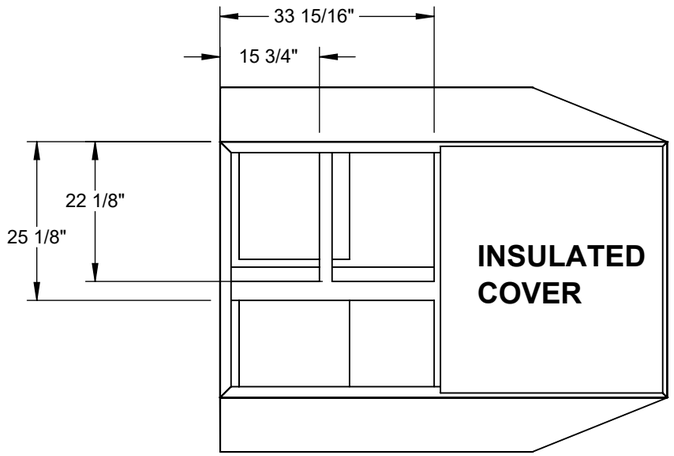
DIMENSIONED AND TOLERENCED PER ANSI Y14.5M-1982

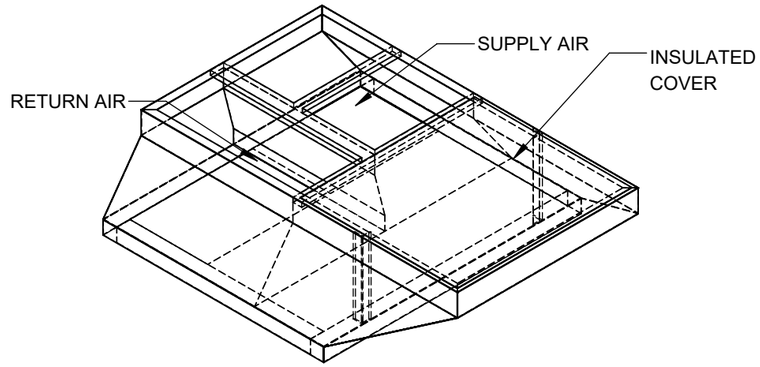
Attn:_____

Tag:_____

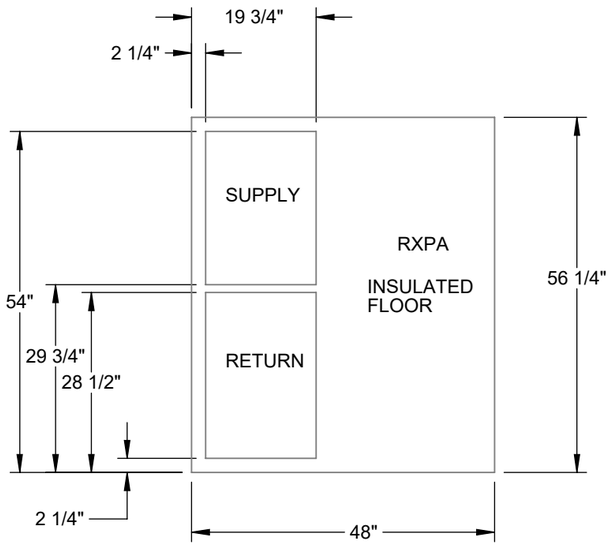
Approval:_____

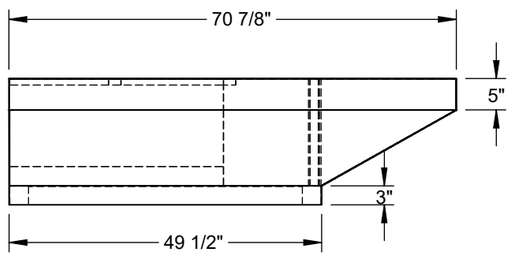
REVISIONS				
REV.	ECO#	DESCRIPTION	DATE	APPROVED
1		INITIAL DRAWING	6/23/2006	EH
2		ADD WALL	8/18/2014	HMH
3		CHANG TO MATCH LARGE CONFIGURATION	2/24/2016	HMH

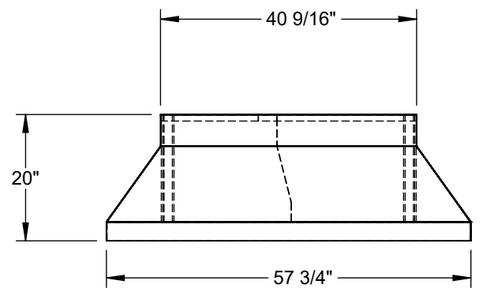




EXISTING CURB LAYOUT







CURB SHOWN IS CDI STANDARD CONFIGURATION CDI RESERVES THE RIGHT TO CHANGE LAYOUT WITHOUT NOTIFICATION. IF CURB IS NEEDED IN A DIFFERENT CONFIGURATION CDI MUST BE NOTIFIED PRIOR TO PLACING AN ORDER.

OPERATIONAL HEIGHT OF CDI ADAPTER IS 3" LESS THAN OVERALL CURB HEIGHT SHOWN.

APPROVALS	DATE
DRAWN: hhorn	2/24/2016
CHECKED:	

DIMENSIONS ARE AS FOLLOWS: 1.00 in [25.40 mm]

TITLE/FILE NAME: 1-6515S-4000

*VERIFY EXISTING CURB OD
*VERIFY SUPPLY AND RETURN OPENINGS
*NOTE ANY CHANGES
*CALL WITH ANY QUESTIONS
*FAX BACK IF DRAWING IS OK AS IS

3RD ANGLE PROJECTION

CDI LENNOX LINE ADAPTERS

Contact us @ www.cdicurbs.com or 1-888-234-7001

APPROXIMATE CURB WEIGHT (LBS.): 171.45

ECO #:

REV: 1

SCALE: 1:24

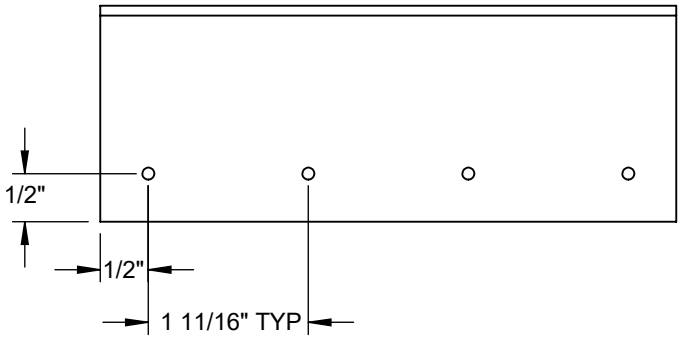
SHEET: 1 OF 3

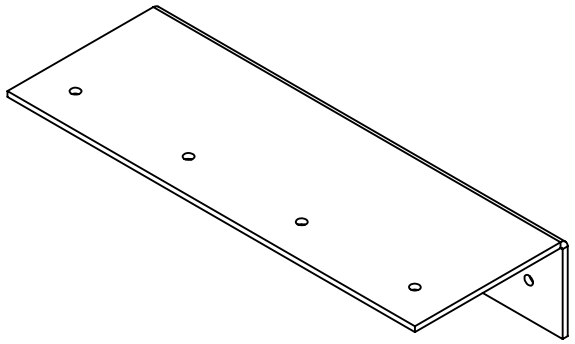
S:\CURBS_CURB_ADAPTERS\1-XXXX-XXXX_CURB_ADAPTERS\1-6XXX-XXXX_RHEEM_RUUD\

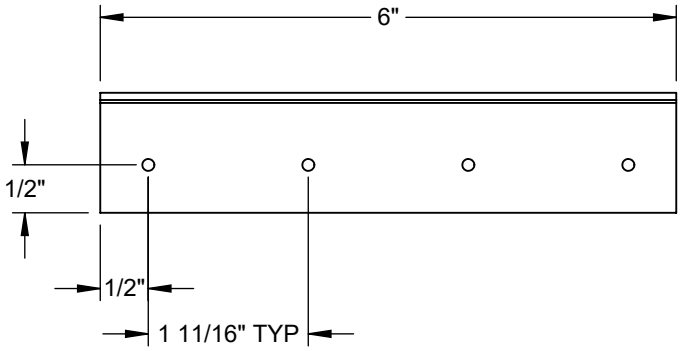
Attn:_____

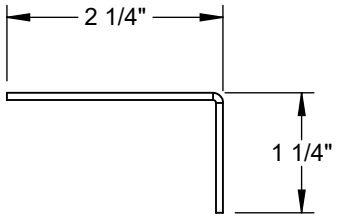
RESTRAINT CLIP FOR USE WITH CDI CURB # 4000 (6 clips total, 3 per long side of unit).

Tag:_____









ADAPTERS NEED 7" TOP KICK

MATERIAL: 14 GA GALVANIZED STEEL

* Verify existing curb OD
* Verify supply and return openings
* Note any changes
* Call with any questions
* Fax back if drawing is OK as is

DIMENSIONS ARE AS FOLLOWS: 1.000 in [25.40 mm]

3RD ANGLE PROJECTION

APPROVALS		DATE
DRAWN:	spickar	2/17/2014
CHECKED:		.
MGMT:		.

TITLE: **4000 L-CLIPS NS**

CDI
9560 85 TH AVE. N
MAPLE GROVE, MN 55369
(763)391-7790
(763)3917851

FILE NAME: 4000 L-CLIPS NS

DRAWING NO.:

REV: 01

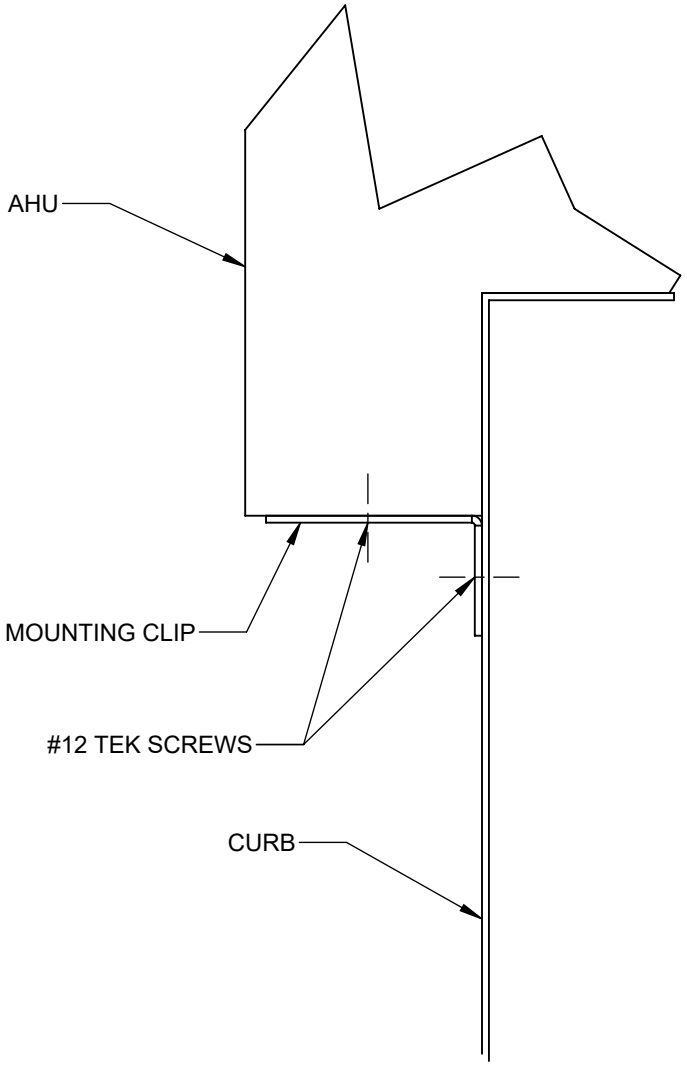
ECO #:

SCALE: 1:2

SHEET: 1 OF 2

Attn:_____

Tag:_____



RESTRAINT CLIP FOR USE WITH
CDI CURB # 4000
(6 clips total, 3 per long side of unit).

* Verify existing curb OD
* Verify supply and return openings
* Note any changes
* Call with any questions
* Fax back if drawing is OK as is

DIMENSIONS ARE AS FOLLOWS: 1.000 in [25.40 mm]	3RD ANGLE PROJECTION

APPROVALS	DATE
DRAWN: spickar	2/17/2014
CHECKED:	.
MGMT:	.

TITLE: **4000 L-CLIPS NS**

CDI
9560 85 TH AVE. N
MAPLE GROVE, MN 55369
(763)391-7790
(763)3917851

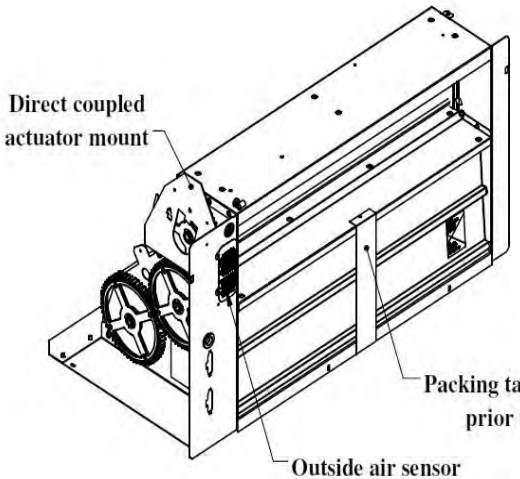
FILE NAME:	DRAWING NO.:	REV:
4000 L-CLIPS NS		01
ECO #:	SCALE: 1:2	SHEET: 2 OF 2

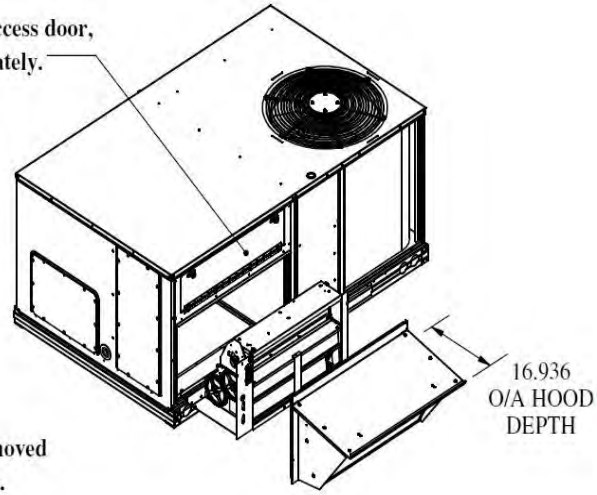
MicroMetl	Date:	Weight: 45lbs (US) 20.41kg (Metric)	Part Number: ECD-SRT12CB-D2DH
	RTU:		
Submitted to:		Approved by:	Notes:

Economizer - Economizer - Genesis Ultra Low Leak Economizer, Vertical Orientation, Honeywell Jade W7220 Single/Multiple Speed Electromechanical Controller, Adjustable Dry Bulb Sensor, Honeywell Actuator. Painted Rain Hood With Aluminum Filter, Barometric Relief, All Necessary Panels And Hardware Included. For Differential Return Air Sensor Please Order 9901-2022-DIFF JC2

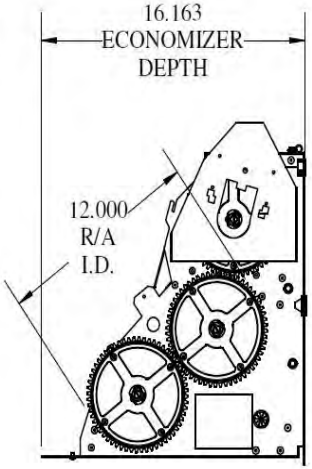
FEATURES:

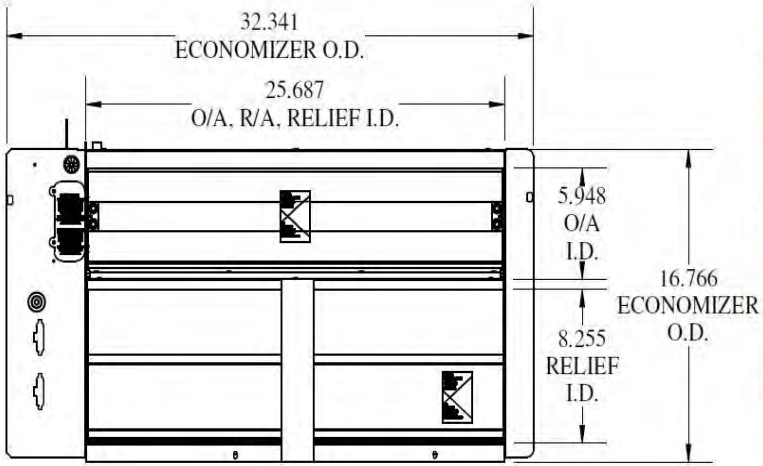
- External gear driven dampers with roll formed blades.
- Designed for vertical applications only.
- Factory assembled rain hood, with aluminum water entrainment filters.
- Filter access door supplied with RTU.
- Hinged filter access door is ordered separately.
  - MMC P/# for Chassis 1 - ECD-SRT1CA-HDOOR
  - MMC P/# for Chassis 2 - ECD-SRT2CA-HDOOR
- Rain hood is sloped for water run off.
- All harnesses and plugs needed are supplied.
- Economizer is class 1A & AMCA rated.
- Relief blades are AMCA rated.
- Uses filter rack with unit.
- Motorized relief available, add -M to end of part number
  - Ex: ECD-SRT12CB-D2DH-M
- Economizer with smoke detector available, add -S to end of part number
  - Ex: ECD-SRT12CB-D2DH-S





-Control Types	
-D2DH	W7220 controller, actuator w/feedback, adjustable drybulb controls
-D2EH	W7220 controller, actuator w/feedback, enthalpy controls





MicroMetl	Date:	Weight: 45lbs (US) 20.41kg (Metric)	Part Number: ECD-SRT12CB-D2DH
	RTU:		
Submitted to:		Approved by:	Notes:

Economizer - Economizer - Genesis Ultra Low Leak Economizer, Vertical Orientation, Honeywell Jade W7220 Single/Multiple Speed Electromechanical Controller, Adjustable Dry Bulb Sensor, Honeywell Actuator. Painted Rain Hood With Aluminum Filter, Barometric Relief, All Necessary Panels And Hardware Included. For Differential Return Air Sensor Please Order 9901-2022-DIFF JC2

Compliant Economizer:

1. **Title 24:** Economizers meet California Energy Commission Title 24-2013 / 2016 prescriptive section 140.4 (damper leakage etc.), and mandatory section 120.2.i for Fault Detection and Diagnostic controls (JADE HJW10). 5 Year Warranty for parts and components only.
2. **ASHRAE 90.1:** Economizers meet ASHRAE 90.1-2013 / 2016 damper leakage requirements, and meet 2016 Fault Detection and Diagnosis requirements.
3. **IECC:** Economizers meet IECC 2012, IECC 2015, and IECC 2018 for outside air, return air, and relief damper (when provided) leakage requirements, and IECC 2015 and IECC 2018 for Fault Detection and Diagnostic requirements.
4. **AMCA:** Outside air and return air (volume) dampers are AMCA Class 1A rated at 1" w.g. Refer to MicroMetl NS2 catalog sheet on web site for details. Relief air dampers (when provided) are also AMCA rated. Refer to GR1 series catalog sheet on web site for details.

Features:

- For single or 2 speed indoor fan units with Central Terminal Board (CTB) and Compressor Staging Board. Other control options available.
- Gear driven design for trouble-free operation, eliminating slippage and binding associated with standard linkage.
- Includes assembled rainhood with aluminum water entrainment filters in the outside air section.
- Rainhood is sloped for water run-off.
- Built-in barometric relief damper provided. Power exhaust options available.
- All harnesses and plugs needed are provided.
- Uses standard factory filter access door shipped with HVAC unit.
- If factory hinged access door option is installed on unit, an additional kit is required to seal hinged door properly.
  - OEM part no. CRPECONV003A00 or MicroMetl part number 0640-0100-HDANGL

Notes:

1. Control systems include Honeywell W7220 JADE controller, mixed (supply) air temperature sensor, OA sensor in description, and spring-return communicating actuator (some include differential return sensor as noted).
2. JADE W7220 controller is field mounted in unit's control box.
3. Mixed (supply) air sensor is field installed in indoor blower fan section.
4. Differential return sensor (MicroMetl Part No. 9901-2022-DIFF JC2) is field installed in return duct.
5. ASHRAE, IECC, and Title 24 require the economizer controller be capable of reporting faults to a fault management application accessible by day-to-day operating or service personnel, or annunciated locally on zone thermostats or in some codes other devices are acceptable. Refer to applicable code requirements and to MicroMetl instructions for suggestions.
6. For older single speed models without the Central Terminal Board the "-D2" part number is replaced by "-DJ". (See separate submittal).

MicroMetl Corporation certifies that the models GR1 and NS2 shown herein are licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with requirements of the AMCA Certified Ratings Programs. The AMCA Certified Ratings Seal applies to Air Leakage and Air Performance ratings.

Indianapolis_3035 N. Shadeland Ave., Indianapolis, IN 46226_800.MMC.HVAC •• Sparks_905 Southern Way, Sparks, NV 89431_800.884.4MMC •• Longview_201 Kodak Blvd., Longview, TX 75602_903.248.4800

Unit Report For AC-8

Project: Rocklin High School
Prepared By: Brayden Duncan

11/28/2022
10:30AM

Unit Parameters

Unit Model: **48VLNC600906**
Unit Size: **60 (5 Tons)**
Volts-Phase-Hertz: **460-3-60**
Heating Type: **Gas**
Heat Control: **90,000 Btuh**
Duct Cfg: **Vertical Supply / Vertical Return**
DX Options: **Low NOx Unit**

Dimensions (ft. in.) & Weight (lb.) ***

Unit Length: **4' 0.1875"**
Unit Width: **3' 8.125"**
Unit Height: **4' 6.75"**

*** Weights and Dimensions are approximate. Weight does not include roof curbs, unit packaging, field installed accessories or factory installed options. Approximate dimensions are provided primarily for shipping purposes. For exact dimensions and weights, refer to appropriate product data catalog.

Base Unit Weight (Does not include any accessories):

455 lb

Warranty Information

1 year warranty on parts
5 year warranty on compressor
5 year warranty on heat exchanger

No optional warranties were selected.

NOTE: Please see Warranty Catalog 500-089 for explanation of policies and ordering methods.

Ordering Information

Part Number	Description	Quantity
48VLNC600906	Rooftop Unit	1

Performance Summary For AC-8

Project: Rocklin High School — 11/28/2022
Prepared By: Brayden Duncan — 10:30AM

Part Number:48VLNC600906

ARI SEER:	**14.00**	

Base Unit Dimensions

Unit Length:	**48.2**	in
Unit Width:	**44.1**	in
Unit Height:	**54.8**	in
Base Unit Weight (Does not include any accessories):	**455**	lb

Unit

Unit Voltage-Phase-Hertz:	**460-3-60**	
Air Discharge:	**Vertical**	
Fan Drive Type:	**Direct**	
Actual Airflow:	**2002**	CFM
Site Altitude:	**0**	ft

Cooling Performance

Condenser Entering Air DB:	**105.0**	F
Evaporator Entering Air DB:	**80.0**	F
Evaporator Entering Air WB:	**67.0**	F
Entering Air Enthalpy:	**31.44**	BTU/lb
Evaporator Leaving Air DB:	**61.5**	F
Evaporator Leaving Air WB:	**58.9**	F
Evaporator Leaving Air Enthalpy:	**25.61**	BTU/lb
Unit Discharge Air DB:	**61.5**	F
Unit Discharge Air WB:	**58.9**	F
Unit Discharge Air Enthalpy:	**25.61**	BTU/lb
Net Cooling Capacity:	**52.52**	MBH
Net Sensible Capacity:	**40.04**	MBH
Total Unit Power Input:	**5.66**	kW
Coil Bypass Factor:	**0.230**	

Heating Performance

Heating Airflow:	**2002**	CFM
Entering Air Temp:	**70.0**	F
Leaving Air Temp:	**103.8**	F
Gas Heating Input Capacity:	**90.0**	MBH
Gas Heating Output Capacity:	**73.0**	MBH
Temperature Rise:	**33.8**	F
AFUE (%):	**80.4**	

Supply Fan

External Static Pressure:	**0.50**	in wg
Options / Accessories Static Pressure		
Wet Coil:	**0.10**	in wg
Application External Static (ESP + Unit Opts/Acc.):	**0.60**	in wg
Fan RPM:	**1040**	
Fan Power:	**0.80**	BHP
Fan Motor Size, hp:	**1**	
NOTE:	**Med-High Motor Speed, Vert**	

Selection includes construction throwaway filter into the base fan curve. This filter is not MERV Rated.

Electrical Data

Minimum Voltage:	**414**
Maximum Voltage:	**506**
Compressor RLA:	**7.1**
Compressor LRA:	**52**

Outdoor Fan FLA (ea): **0.53**
Indoor Fan Motor FLA (Total): **4**
Power Supply MCA: **13.4**
Power Supply MOCP (Fuse or HACR): **20**

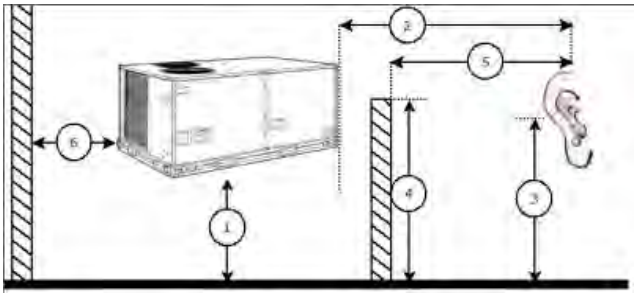
Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

Acoustics

Sound Rating: **72.0** db
Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	NA	NA	NA
125 Hz	NA	NA	81.3
250 Hz	NA	NA	72.6
500 Hz	NA	NA	68.2
1000 Hz	NA	NA	65.4
2000 Hz	NA	NA	62.9
4000 Hz	NA	NA	59.0
8000 Hz	NA	NA	54.4

Advanced Acoustics



Advanced Accoustics Parameters

1. Unit height above ground: **30.0** ft
2. Horizontal distance from unit to receiver: **50.0** ft
3. Receiver height above ground: **5.7** ft
4. Height of obstruction: **0.0** ft
5. Horizontal distance from obstruction to receiver: **0.0** ft
6. Horizontal distance from unit to obstruction: **0.0** ft

Detailed Acoustics Information

Octave Band Center Freq. Hz	63	125	250	500	1k	2k	4k	8k	Overall
A	0.0	81.3	72.6	68.2	65.4	62.9	59.0	54.4	82.2 Lw
B	-26.2	65.2	64.0	65.0	65.4	64.1	60.0	53.3	72.1 LwA
C	0.0	48.9	40.2	35.8	33.0	30.5	26.6	22.0	49.8 Lp
D	-26.2	32.8	31.6	32.6	33.0	31.7	27.6	20.9	39.7 LpA

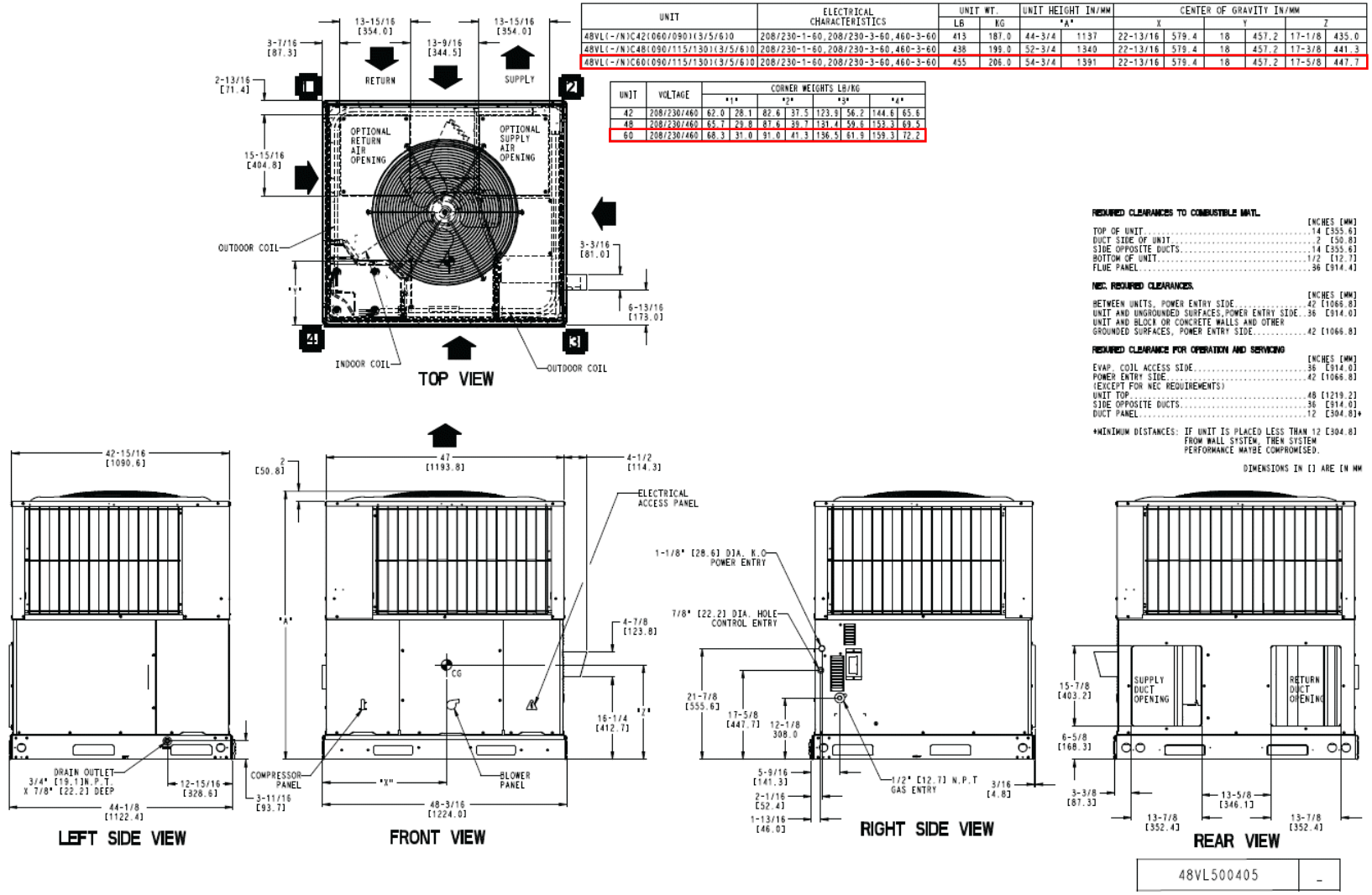
Legend
A Sound Power Levels at Unit's Acoustic Center, Lw
B A-Weighted Sound Power Levels at Unit's Acoustic Center, LwA

C Sound Pressure Levels at Specific Distance from Unit, Lp
D A-Weighted Sound Pressure Levels at Specific Distance from Unit, LpA

Calculation methods used in this program are patterned after the ASHRAE Guide; other ASHRAE Publications and the AHRI Acoustical Standards. While a very significant effort has been made to insure the technical accuracy of this program, it is assumed that the user is knowledgeable in the art of system sound estimation and is aware of the tolerances involved in real world acoustical estimation. This program makes certain assumptions as to the dominant sound sources and sound paths which may not always be appropriate to the real system being estimated. Because of this, no assurances can be offered that this software will always generate an accurate sound prediction from user supplied input data. If in doubt about the estimation of expected sound levels in a space, an Acoustical Engineer or a person with sound prediction expertise should be consulted.

UNIT	ELECTRICAL CHARACTERISTICS	UNIT WT. LB	UNIT WT. KG	UNIT HEIGHT IN/MM "A"		CENTER OF GRAVITY IN/MM X		Y		Z	
48VL(-/N)C42(060/090)(3/5/6)0	208/230-1-60,208/230-3-60,460-3-60	413	187.0	44-3/4	1137	22-13/16	579.4	18	457.2	17-1/8	435.0
48VL(-/N)C48(090/115/130)(3/5/6)0	208/230-1-60,208/230-3-60,460-3-60	438	199.0	52-3/4	1340	22-13/16	579.4	18	457.2	17-3/8	441.3
48VL(-/N)C60(090/115/130)(3/5/6)0	208/230-1-60,208/230-3-60,460-3-60	455	206.0	54-3/4	1391	22-13/16	579.4	18	457.2	17-5/8	447.7

UNIT	VOLTAGE	CORNER WEIGHTS LB/KG "1"		"2"		"3"		"4"	
42	208/230/460	62.0	28.1	82.6	37.5	123.9	56.2	144.6	65.6
48	208/230/460	65.7	29.8	87.6	39.7	131.4	59.6	153.3	69.5
60	208/230/460	68.3	31.0	91.0	41.3	136.5	61.9	159.3	72.2



OPTIONS:
MATERIAL: 18ga. GALV STEEL
INSULATED PANELS (WHERE REQUIRED)
1" 1-1/2LB DUCT INSULATION (R VALUE 3.85)
GASKET PROVIDED WITH CURB
1 1/2" ADDED TO EXISTING CURB O.D.

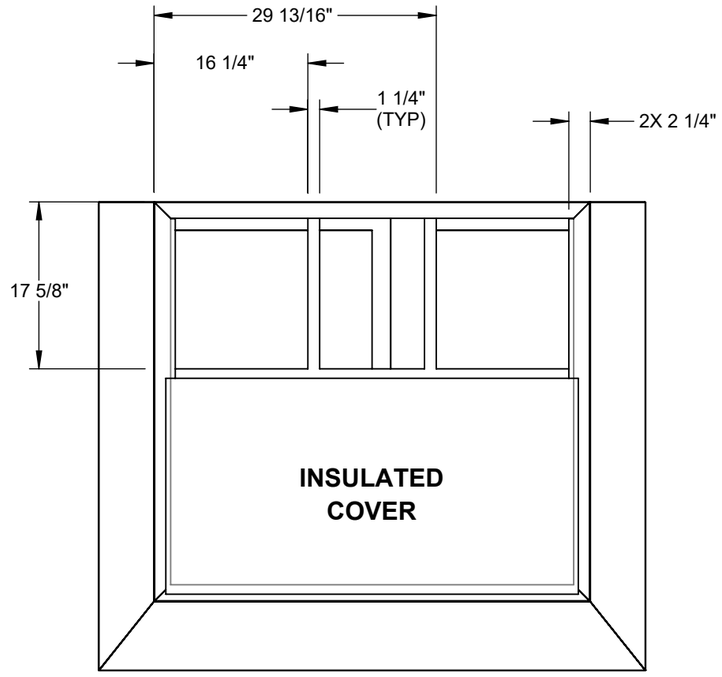
DIMENSIONED AND TOLERENCED PER ANSI Y14.5M-1982

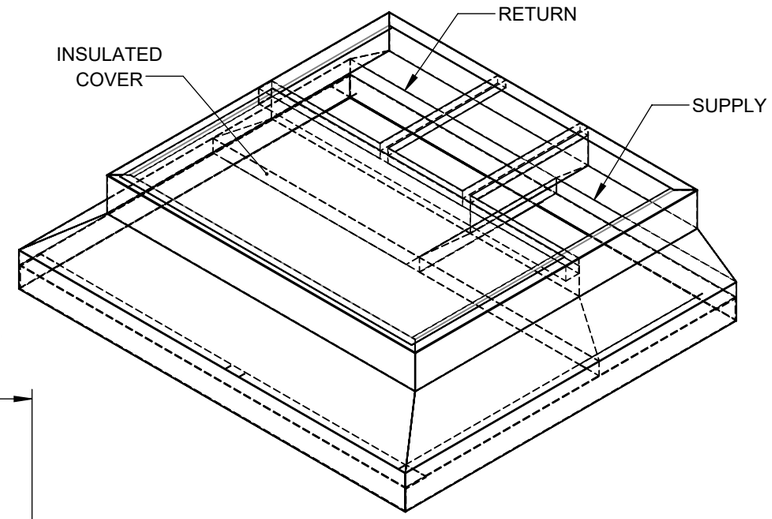
Attn:_____

Tag: _____

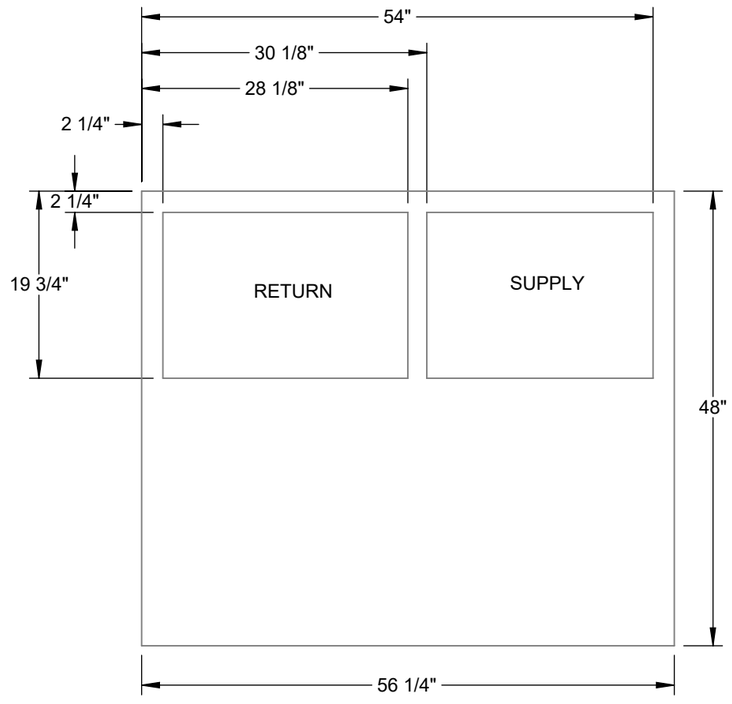
Approval:_____

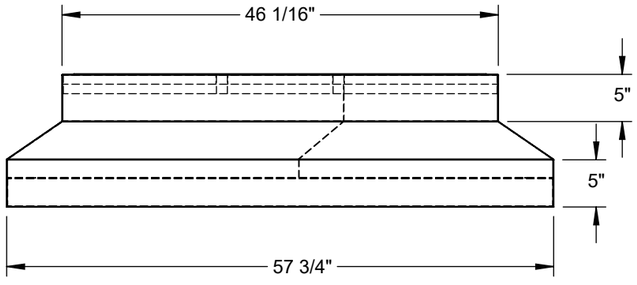
REVISIONS				
REV.	ECO#	DESCRIPTION	DATE	APPROVED
1		INITIAL DRAWING	10/2/2013	ES
2		CHANGED TO HEM STYLE	1/25/21	SRP

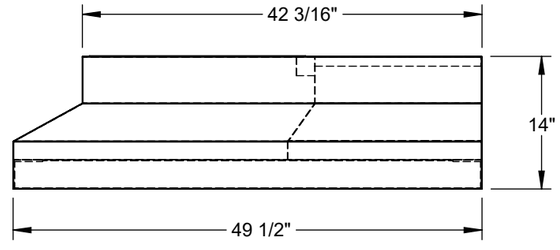




EXISTING CURB LAYOUT







CURB SHOWN IS CDI STANDARD CONFIGURATION CDI RESERVES THE RIGHT TO CHANGE LAYOUT WITHOUT NOTIFICATION. IF CURB IS NEEDED IN A DIFFERENT CONFIGURATION CDI MUST BE NOTIFIED PRIOR TO PLACING AN ORDER.

OPERATIONAL HEIGHT OF CDI ADAPTER IS 3" LESS THAN OVERALL CURB HEIGHT SHOWN.

APPROVALS	DATE
DRAWN: spickar	1/25/2021
CHECKED:	

DIMENSIONS ARE AS FOLLOWS: 1.00 in [25.40 mm]

TITLE/FILE NAME: 1-6515S-4023

*VERIFY EXISTING CURB OD
*VERIFY SUPPLY AND RETURN OPENINGS
*NOTE ANY CHANGES
*CALL WITH ANY QUESTIONS
*FAX BACK IF DRAWING IS OK AS IS

3RD ANGLE PROJECTION

CDI
Contact us @ www.cdicurbs.com or 1-888-234-7001

APPROXIMATE CURB WEIGHT (LBS.): 121.70

ECO #:

REV: 2

SCALE: 1:16

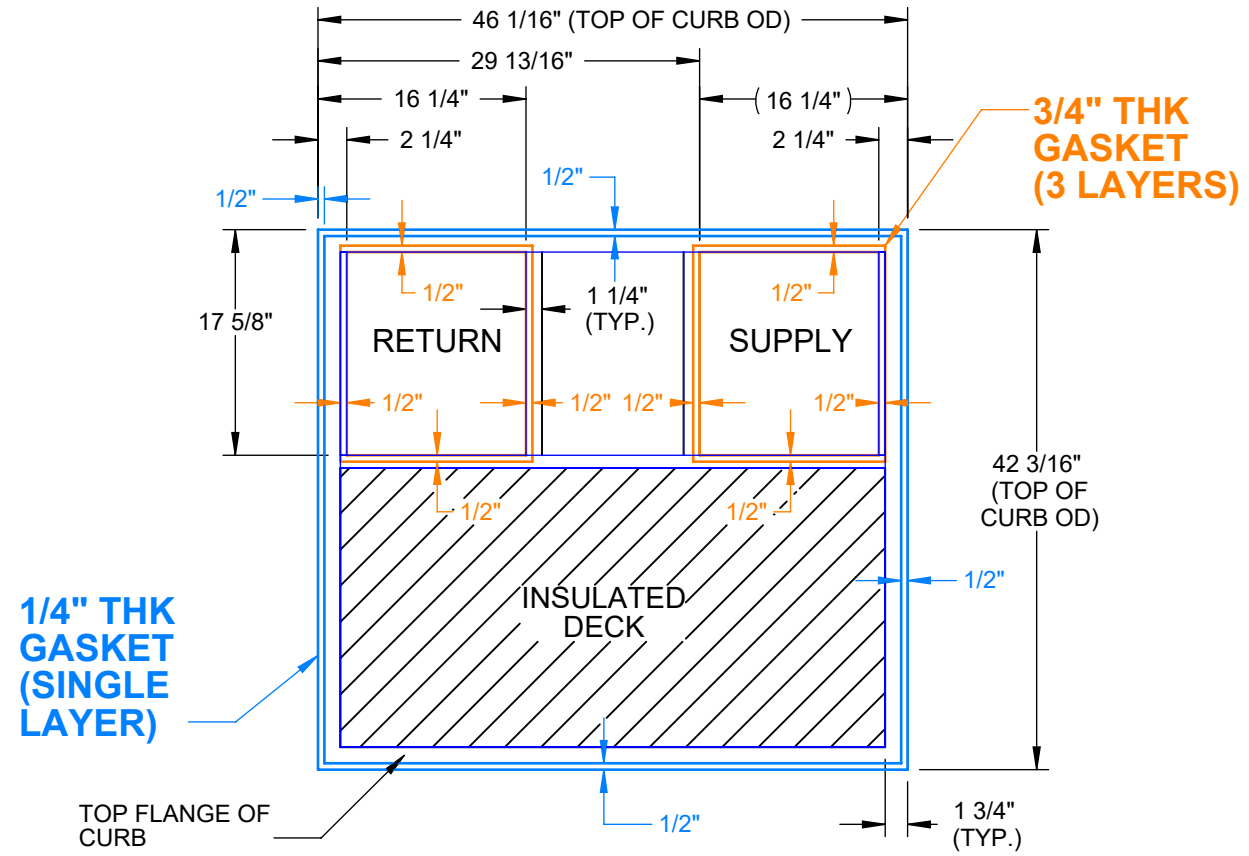
SHEET: 1 OF 6

S:\CURBS_CURB_ADAPTERS\1-XXXX-XXXX_CURB_ADAPTERS\1-6XXX-XXXX_RHEEM_RUUD\

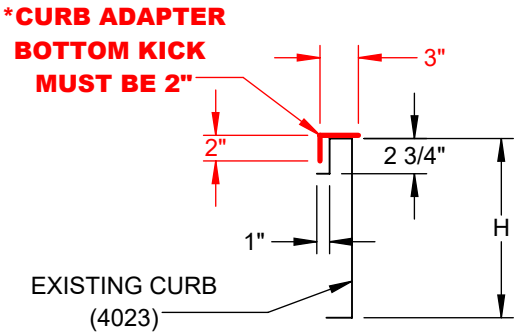
DIMENSIONED AND TOLERENCED PER ANSI Y14.5M-1982

Attn:_____ CARRIER Tag:_____

LARGE CURB VERSION FOR 48/50 ES-A42/A48/A60; 48/50 EZ-A42/A48/A60; 48/50 VL-A42/A48/A60; 48/50 XL-A36/A42/A48/A60; 50 XT-A36/A42/A48/A60; 50 VT-A36/A42/A48/A60; 50 GL-A42/A48



*ONLY IF EXISTING CURB IS 4023



* Verify existing curb OD
* Verify supply and return openings
* Note any changes
* Call with any questions
* Fax back if drawing is OK as is

DIMENSIONS ARE AS FOLLOWS: 1.000 in [25.40 mm] | 3RD ANGLE PROJECTION

APPROVALS	DATE
DRAWN: M.GREENWOOD	7/24/09
CHECKED:	.
MGMT:	.

TITLE: **CARRIER ROOF CURB**

REV.	DESCRIPTION	DATE	APPROVED
02	SUPPLY BRACE DIM WAS 31 1/16"	5/12/20	KJ
01	INITIAL DESIGN	7/09	MWG

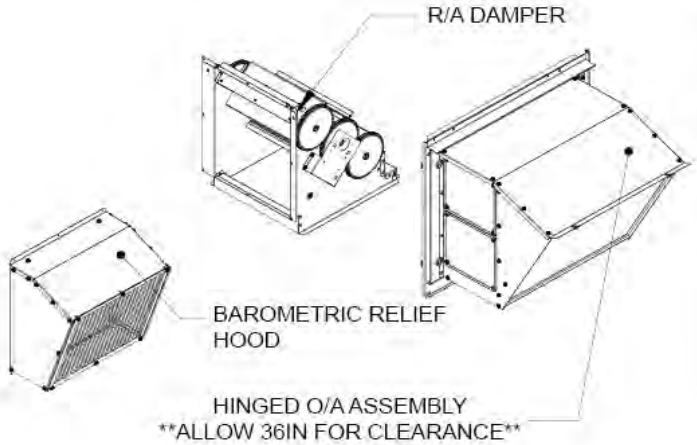
CDI 17560 TYLER ST NW ELK RIVER, MN 55330 (763)391-7790 (763)3917851

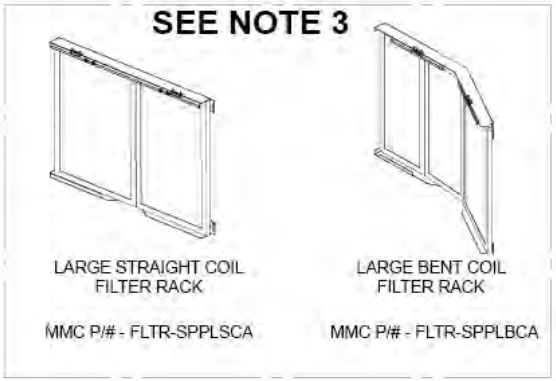
FILE NAME: 4023 | DRAWING NO.: 4023 | REV: 2 | ECO #: | SCALE: 1:15 | SHEET: 1 OF 1

MicroMetl	Date:	Weight: 89lbs (US) 40.37kg (Metric)	Part Number: ECC-SPPLGCA-DYDB-1
	RTU:		
Submitted to:		Approved by:	Notes:

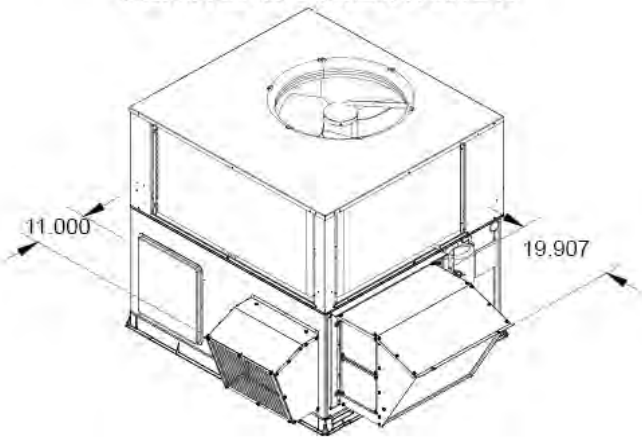
Economizer - Economizer - Ultra Low Leak Economizer, Convertible Orientation, Belimo Zip Single Speed Electromechanical Controller, Adjustable Dry Bulb Sensor, Belimo Actuator. Painted Rain Hood With Aluminum Filter, Barometric Relief, All Necessary Panels And Hardware Included. For Differential Return Air Dry Bulb Sensor Please Order 9901-1619 Sensor and a 1002-PRC-RA_B Harness.

MicroMetl Corporation certifies that the models GR1 and NS1 shown herein are licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with requirements of the AMCA Certified Ratings Programs. The AMCA Certified Ratings Seal applies to Air Leakage and Air Performance ratings.

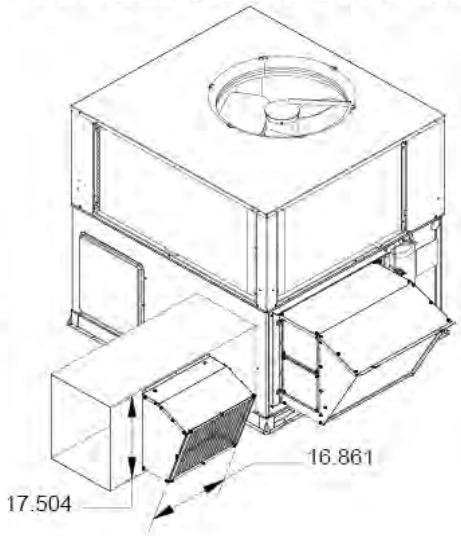




VERTICAL ORIENTATION



HORIZONTAL ORIENTATION



NOTES:

1. For single phase and single speed units the extension harness (1002-0867) will need to be ordered as a separate line item.
2. For heat pump applications a field supplied and installed 24VAC- SPST normally open relay will be needed.
   - If purchased through MicroMetl you'll need:
   (1) Relay - 9901-5030
   (4) Wire Leads - 9901-0134
3. **Filter racks are not included, will be a separate sales order item.**

Master Revision 0001A

Page Revision 0001A

MicroMetl	Date:	Weight: 89lbs (US) 40.37kg (Metric)	Part Number: ECC-SPPLGCA-DYDB-1
	RTU:		
Submitted to:		Approved by:	Notes:

Economizer - Economizer - Ultra Low Leak Economizer, Convertible Orientation, Belimo Zip Single Speed Electromechanical Controller, Adjustable Dry Bulb Sensor, Belimo Actuator. Painted Rain Hood With Aluminum Filter, Barometric Relief, All Necessary Panels And Hardware Included. For Differential Return Air Dry Bulb Sensor Please Order 9901-1619 Sensor and a 1002-PRC-RA_B Harness.

Compliant Economizer:

1. **Title 24:** Economizers meet California Energy Commission Title 24-2013 / 2016 prescriptive section 140.4 (damper leakage etc.), and mandatory section 120.2.i for Fault Detection and Diagnostic controls (Zip Economizer BZE1245).
2. **ASHRAE 90.1:** Economizers meet ASHRAE 90.1-2013 / 2016 damper leakage requirements, and meet 2016 Fault Detection and Diagnosis requirements.
3. **IECC:** Economizers meet IECC 2012, IECC 2015, and IECC 2018 for outside air, return air, and relief damper (when provided) leakage requirements, and IECC 2015 and IECC 2018 for Fault Detection and Diagnostic requirements. Note: IECC 2015 and IECC 2018 requires differential return air sensor, which is included in some models (i.e. -DYXB) and must be ordered separately on others (i.e. -DYDB, -DYEB).
4. **AMCA:** Outside air and return air (volume) dampers are AMCA Class 1A rated at 1" w.g. Refer to MicroMetl NS1 catalog sheet on web site for details. Relief air dampers (when provided) are also AMCA rated. Refer to GR1 series catalog sheet on web site for details.

MicroMetl Corporation certifies that the models GR1 and NS1 shown herein are licensed to bear the AMCA Seal.
The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with requirements of the AMCA Certified Ratings Programs.
The AMCA Certified Ratings Seal applies to Air Leakage and Air Performance ratings.

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SUBMITTAL MicroMetl

DATE: 5/17
SUBMITTED TO:
COMPANY: MicroMetl
DRAWN BY: ABC
JOB NAME:
WEIGHT: See Table
NOTES:

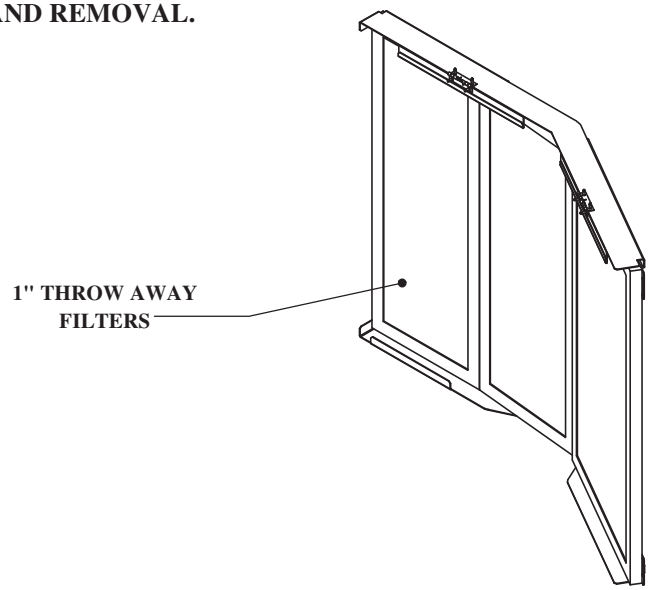
FILTER RACKS FOR ECC-SPPLGCA ECONOMIZER

PART NUMBER:
FLTR-SPPL*CA

MMC PART #	# FILTERS	WEIGHT
FLTR-SPPLBCA	(2) 24" x 10" x 1" & (1) 24" x 14" x 1" OR (2) 24" x 10" x 2" or (1) 24" x 14" x 2"	3 LBS.
FLTR-SPPLSCA	(1) 24" x 16" x 1" & (1) 24" x 14" x 1" OR (1) 24" x 16" x 2" or (1) 24" x 14" x 2"	3 LBS.

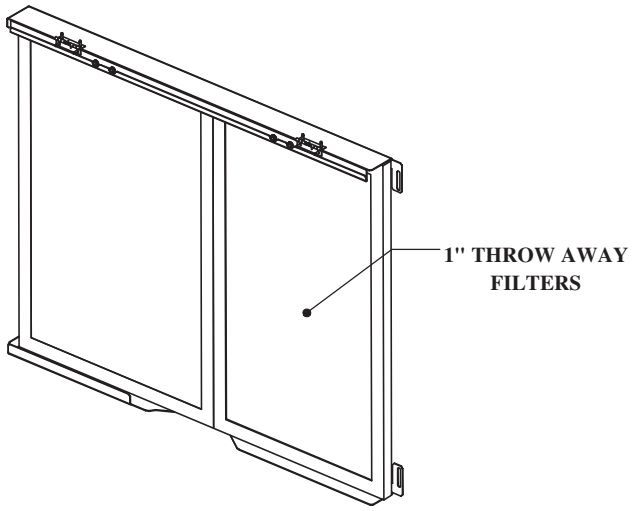
NOTES:

1. THROW AWAY 1" FILTERS ARE SUPPLIED.
2. FITS BOTH ONE AND TWO INCH FILTERS.
3. GALVANIZED CONSTRUCTION.
4. TOP FLAP IS HINGED FOR EASY INSTALLATION AND REMOVAL.



FLTR-SPPLBCA

BENT COIL



FLTR-SPPLSCA

STRAIGHT COIL

NOTE:

Approved by:_____
Date:_____

Openings and dimensions may vary from contract. An order constitutes acceptance of these variances

Unit Report For AC-9

Project: Rocklin High School
Prepared By: Brayden Duncan

11/28/2022
10:30AM

Unit Parameters

Unit Model: **48FCDM16A2A6-0A0A0**
Unit Size: **16 (15 Tons)**
Volts-Phase-Hertz: **460-3-60**
Heating Type: **Gas**
Heat Control: **Low Heat**
Duct Cfg: **Vertical Supply / Vertical Return**
DX Options: **Single Circuit, Two Stage Cooling**

Dimensions (ft. in.) & Weight (lb.) ***

Unit Length: **9' 7.875"**
Unit Width: **5' 6.375"**
Unit Height: **4' 9.375"**
Total Operating Weight: **1325** lb

*** Weights and Dimensions are approximate. Weight does not include unit packaging. Approximate dimensions are provided primarily for shipping purposes. For exact dimensions and weights, refer to appropriate product data catalog.

Lines and Filters

Gas Line Size: **3/4**
Condensate Drain Line Size: **3/4**
Return Air Filter Type: **Throwaway**
Return Air Filter Quantity: **6**
Return Air Filter Size: **18 x 24 x 2**

Selection includes construction throwaway filter into the base fan curve. This filter is not MERV Rated.

Unit Configuration

Standard/Medium Static (EcoBlue)
Al/Cu - Al/Cu
Base Electromechanical Controls
Standard Packaging

Warranty Information

1-Year parts(std.)
5-Year compressor parts(std.)
10-Year heat exchanger - Aluminized(std.)

No optional warranties were selected.

NOTE: Please see Warranty Catalog 500-089 for explanation of policies and ordering methods.

Ordering Information

Part Number	Description	Quantity
48FCDM16A2A6-0A0A0	Rooftop Unit	1

Performance Summary For AC-9

Project: Rocklin High School — 11/28/2022
Prepared By: Brayden Duncan — 10:30AM

Part Number:48FCDM16A2A6-0A0A0

ARI EER:	**10.80**	
IEER:	**14.5**	

Base Unit Dimensions

Unit Length:	**115.9**	in
Unit Width:	**66.4**	in
Unit Height:	**57.4**	in

Operating Weight

Base Unit Weight:	**1325**	lb
Total Operating Weight:	**1325**	lb

Unit

Unit Voltage-Phase-Hertz:	**460-3-60**	
Air Discharge:	**Vertical**	
Fan Drive Type:	**Vane Axial**	
Actual Airflow:	**6000**	CFM
Site Altitude:	**0**	ft

Cooling Performance

Condenser Entering Air DB:	**105.0**	F
Evaporator Entering Air DB:	**80.0**	F
Evaporator Entering Air WB:	**67.0**	F
Entering Air Enthalpy:	**31.44**	BTU/lb
Evaporator Leaving Air DB:	**60.1**	F
Evaporator Leaving Air WB:	**58.2**	F
Evaporator Leaving Air Enthalpy:	**25.15**	BTU/lb
Unit Discharge Air DB:	**61.1**	F
Unit Discharge Air WB:	**58.6**	F
Unit Discharge Air Enthalpy:	**25.39**	BTU/lb
Gross Cooling Capacity:	**169.90**	MBH
Net Cooling Capacity:	**163.30**	MBH
Gross Sensible Capacity:	**129.26**	MBH
Net Sensible Capacity:	**122.66**	MBH
Compressor Power Input:	**15.10**	kW
Coil Bypass Factor:	**0.092**	

Heating Performance

Heating Airflow:	**6000**	CFM
Entering Air Temp:	**70.0**	F
Leaving Air Temp:	**92.5**	F
Gas Heating Input Capacity:	**144.0 / 180.0**	MBH
Gas Heating Output Capacity:	**118.0 / 146.0**	MBH
Temperature Rise:	**22.5**	F

Supply Fan

External Static Pressure:	**0.60**	in wg
Fan RPM:	**1669**	
Fan Power:	**2.27**	BHP
NOTE:	**Selected IFM RPM Range: 250 - 2200**	

Selection includes construction throwaway filter into the base fan curve. This filter is not MERV Rated.

Electrical Data

Voltage Range:	**414 - 506**	
Compressor #1 RLA:	**14.7**	
Compressor #1 LRA:	**130**	

Compressor #2 RLA: **8.2**
Compressor #2 LRA: **66**
Indoor Fan Motor Type: **MED**
Indoor Fan Motor FLA (Total): **3.5**
Combustion Fan Motor FLA (ea): **0.25**
Power Supply MCA: **33**
Power Supply MOCP (Fuse or HACR): **45**
Disconnect Size FLA: **33**
Disconnect Size LRA: **209**
Electrical Convenience Outlet: **None**
Outdoor Fan [Qty / FLA (ea)]: **3 / 0.8**

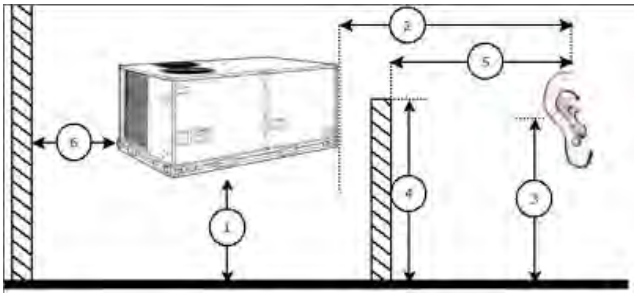
Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

Acoustics

Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	95.3	92.2	87.0
125 Hz	96.0	85.5	85.2
250 Hz	80.2	63.6	84.6
500 Hz	77.0	65.7	84.9
1000 Hz	70.8	63.7	82.2
2000 Hz	65.8	60.4	78.4
4000 Hz	72.7	61.1	75.3
8000 Hz	70.2	58.4	72.9
A-Weighted	82.8	73.2	87.0

Advanced Acoustics



Advanced Accoustics Parameters

1. Unit height above ground: **30.0** ft
2. Horizontal distance from unit to receiver: **50.0** ft
3. Receiver height above ground: **5.7** ft
4. Height of obstruction: **0.0** ft
5. Horizontal distance from obstruction to receiver: **0.0** ft
6. Horizontal distance from unit to obstruction: **0.0** ft

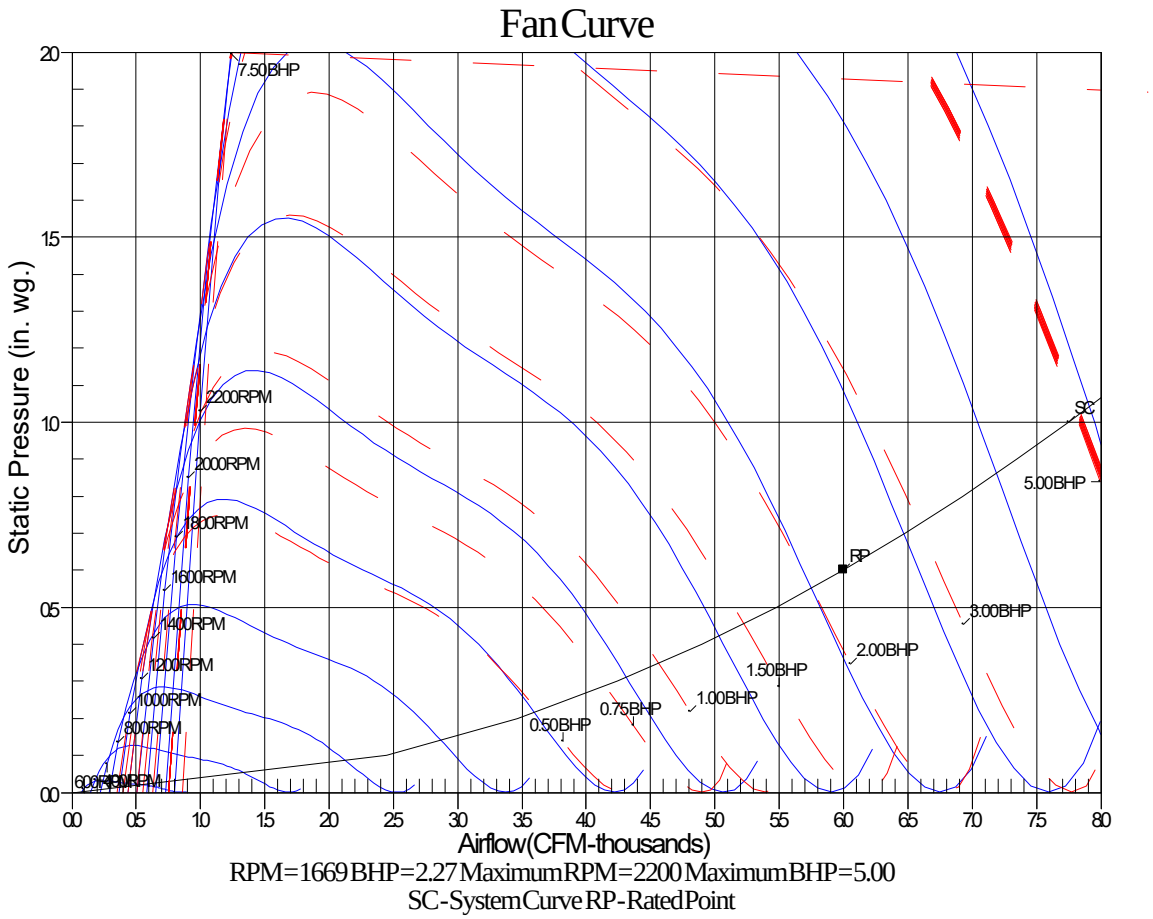
Detailed Acoustics Information

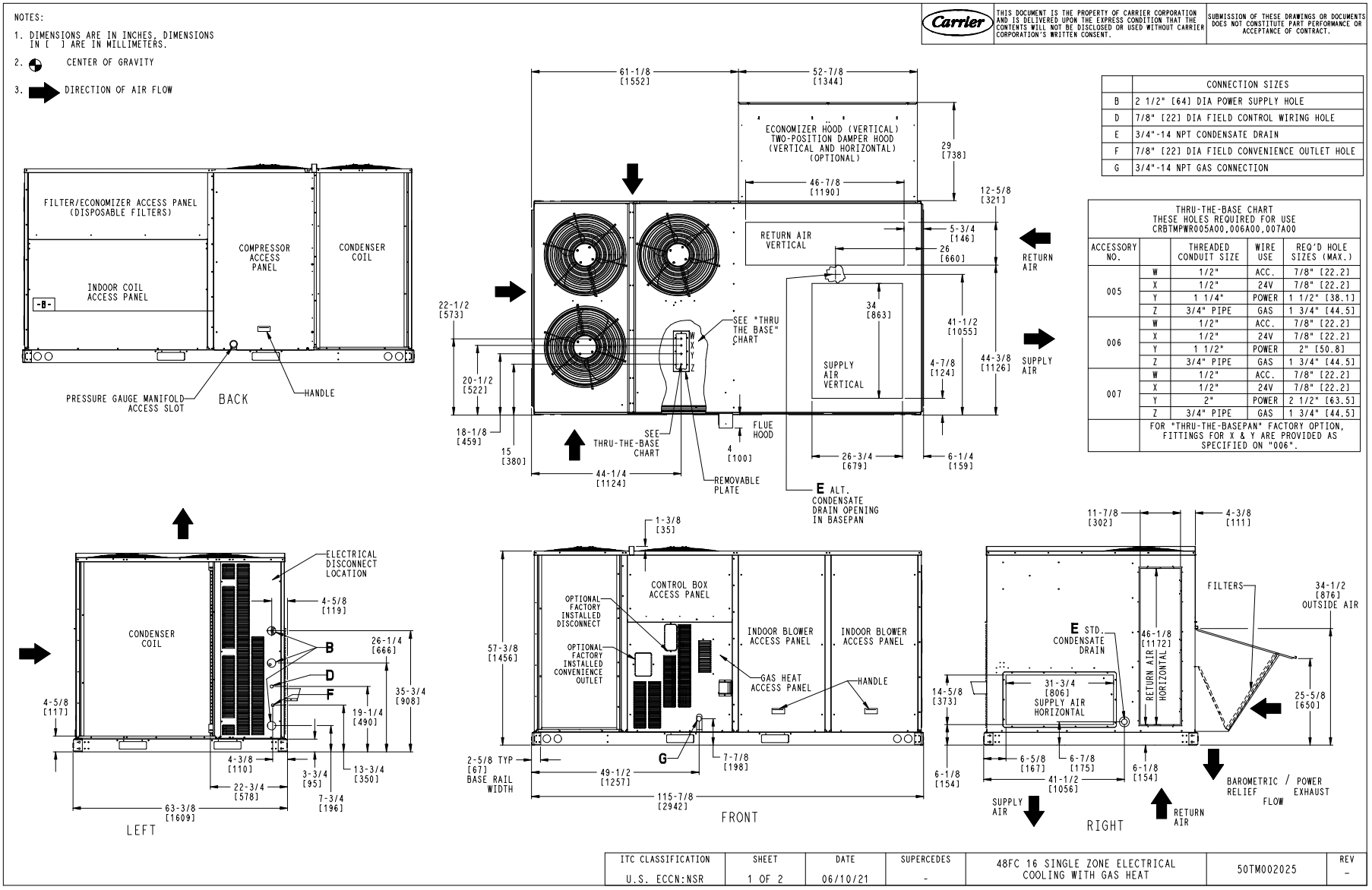
Octave Band Center Freq. Hz	63	125	250	500	1k	2k	4k	8k	Overall
A	87.0	85.2	84.6	84.9	82.2	78.4	75.3	72.9	92.4 Lw
B	60.8	69.1	76.0	81.7	82.2	79.6	76.3	71.8	87.1 LwA
C	54.6	52.8	52.2	52.5	49.8	46.0	42.9	40.5	60.0 Lp

D	28.4	36.7	43.6	49.3	49.8	47.2	43.9	39.4	54.7 LpA

Legend
A Sound Power Levels at Unit's Acoustic Center, Lw
B A-Weighted Sound Power Levels at Unit's Acoustic Center, LwA
C Sound Pressure Levels at Specific Distance from Unit, Lp
D A-Weighted Sound Pressure Levels at Specific Distance from Unit, LpA

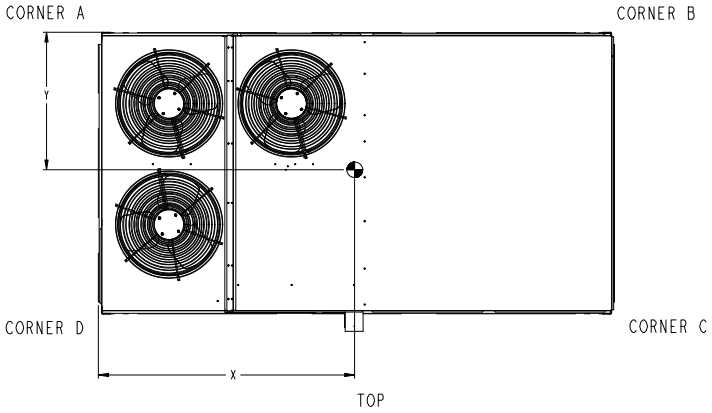
Calculation methods used in this program are patterned after the ASHRAE Guide; other ASHRAE Publications and the AHRI Acoustical Standards. While a very significant effort has been made to insure the technical accuracy of this program, it is assumed that the user is knowledgeable in the art of system sound estimation and is aware of the tolerances involved in real world acoustical estimation. This program makes certain assumptions as to the dominant sound sources and sound paths which may not always be appropriate to the real system being estimated. Because of this, no assurances can be offered that this software will always generate an accurate sound prediction from user supplied input data. If in doubt about the estimation of expected sound levels in a space, an Acoustical Engineer or a person with sound prediction expertise should be consulted.



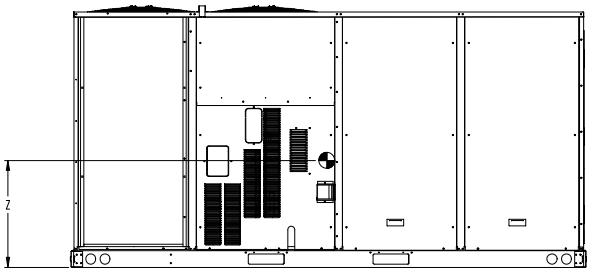

NOTES:
1. DIMENSIONS ARE IN INCHES, DIMENSIONS IN [ ] ARE IN MILLIMETERS.
2. CENTER OF GRAVITY
3. DIRECTION OF AIR FLOW
Carrier
THIS DOCUMENT IS THE PROPERTY OF CARRIER CORPORATION AND IS DELIVERED UPON THE EXPRESS CONDITION THAT THE CONTENTS WILL NOT BE DISCLOSED OR USED WITHOUT CARRIER CORPORATION'S WRITTEN CONSENT.
SUBMISSION OF THESE DRAWINGS OR DOCUMENTS DOES NOT CONSTITUTE PART PERFORMANCE OR ACCEPTANCE OF CONTRACT.
FILTER/ECONOMIZER ACCESS PANEL (DISPOSABLE FILTERS)
COMPRESSOR ACCESS PANEL
CONDENSER COIL
INDOOR COIL ACCESS PANEL
-B-
PRESSURE GAUGE MANIFOLD ACCESS SLOT
BACK
HANDLE
61-1/8 [1552]
52-7/8 [1344]
ECONOMIZER HOOD (VERTICAL) TWO-POSITION DAMPER HOOD (VERTICAL AND HORIZONTAL) (OPTIONAL)
29 [738]
46-7/8 [1190]
12-5/8 [321]
RETURN AIR VERTICAL
5-3/4 [146]
26 [660]
RETURN AIR
22-1/2 [573]
SEE "THRU THE BASE" CHART
W
X
Y
Z
34 [863]
41-1/2 [1055]
SUPPLY AIR VERTICAL
4-7/8 [124]
44-3/8 [1126]
SUPPLY AIR
20-1/2 [522]
18-1/8 [459]
15 [380]
SEE THRU-THE-BASE CHART
FLUE HOOD
4 [100]
26-3/4 [679]
6-1/4 [159]
44-1/4 [1124]
REMOVABLE PLATE
E ALT. CONDENSATE DRAIN OPENING IN BASEPAN
CONNECTION SIZES
B 2 1/2" [64] DIA POWER SUPPLY HOLE
D 7/8" [22] DIA FIELD CONTROL WIRING HOLE
E 3/4"-14 NPT CONDENSATE DRAIN
F 7/8" [22] DIA FIELD CONVENIENCE OUTLET HOLE
G 3/4"-14 NPT GAS CONNECTION
THRU-THE-BASE CHART
THESE HOLES REQUIRED FOR USE CRBTMPWR005A00,006A00,007A00
ACCESSORY NO. | | THREADED CONDUIT SIZE | WIRE USE | REQ'D HOLE SIZES (MAX.)
005 W 1/2" ACC. 7/8" [22.2]
005 X 1/2" 24V 7/8" [22.2]
005 Y 1 1/4" POWER 1 1/2" [38.1]
005 Z 3/4" PIPE GAS 1 3/4" [44.5]
006 W 1/2" ACC. 7/8" [22.2]
006 X 1/2" 24V 7/8" [22.2]
006 Y 1 1/2" POWER 2" [50.8]
006 Z 3/4" PIPE GAS 1 3/4" [44.5]
007 W 1/2" ACC. 7/8" [22.2]
007 X 1/2" 24V 7/8" [22.2]
007 Y 2" POWER 2 1/2" [63.5]
007 Z 3/4" PIPE GAS 1 3/4" [44.5]
FOR "THRU-THE-BASEPAN" FACTORY OPTION, FITTINGS FOR X & Y ARE PROVIDED AS SPECIFIED ON "006".
ELECTRICAL DISCONNECT LOCATION
CONDENSER COIL
4-5/8 [119]
26-1/4 [666]
B
D
F
35-3/4 [908]
4-5/8 [117]
19-1/4 [490]
4-3/8 [110]
3-3/4 [95]
13-3/4 [350]
22-3/4 [578]
7-3/4 [196]
63-3/8 [1609]
LEFT
1-3/8 [35]
OPTIONAL FACTORY INSTALLED DISCONNECT
OPTIONAL FACTORY INSTALLED CONVENIENCE OUTLET
CONTROL BOX ACCESS PANEL
INDOOR BLOWER ACCESS PANEL
INDOOR BLOWER ACCESS PANEL
57-3/8 [1456]
GAS HEAT ACCESS PANEL
HANDLE
G
2-5/8 TYP [67] BASE RAIL WIDTH
7-7/8 [198]
49-1/2 [1257]
115-7/8 [2942]
FRONT
11-7/8 [302]
4-3/8 [111]
FILTERS
34-1/2 [876] OUTSIDE AIR
E STD. CONDENSATE DRAIN
46-1/8 [1172] RETURN AIR HORIZONTAL
14-5/8 [373]
31-3/4 [806] SUPPLY AIR HORIZONTAL
25-5/8 [650]
6-5/8 [167]
6-7/8 [175]
41-1/2 [1056]
6-1/8 [154]
6-1/8 [154]
BAROMETRIC / POWER RELIEF
EXHAUST FLOW
SUPPLY AIR
RETURN AIR
RIGHT
ITC CLASSIFICATION U.S. ECCN:NSR
SHEET 1 OF 2
DATE 06/10/21
SUPERCEDES -
48FC 16 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT
50TM002025
REV -

UNIT	STD UNIT WEIGHT		CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		C.G.		
	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X	Y	Z
48FC-M16	1480	639	373	169	341	155	332	150	362	164	55 3/8 [1407]	31 1/4 [794]	21 1/8 [537]

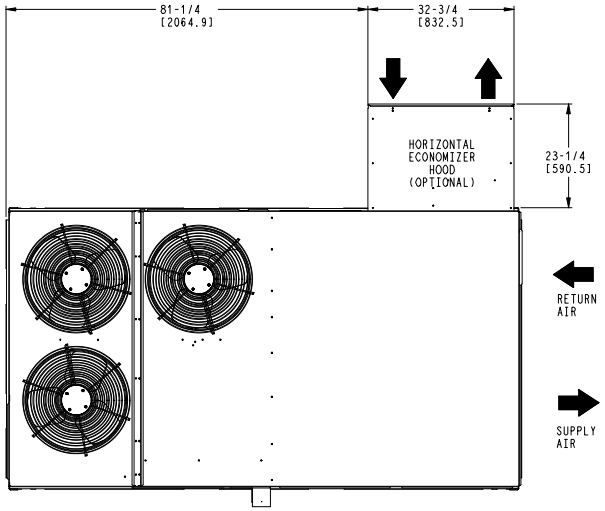
STANDARD UNIT WEIGHT IS WITH LOW HEAT & WITHOUT PACKAGING.
FOR OPTIONS & ACCESSORIES, REFER TO THE PRODUCT DATA CATALOG.

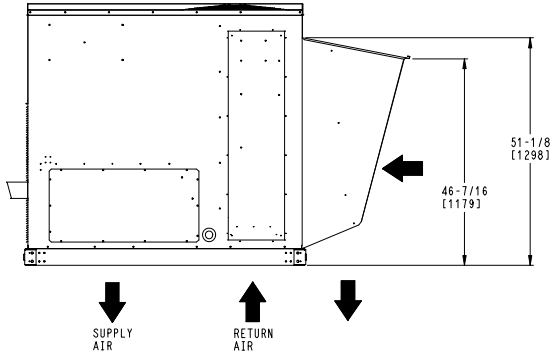


TOP



FRONT





HORIZONTAL ECONOMIZER

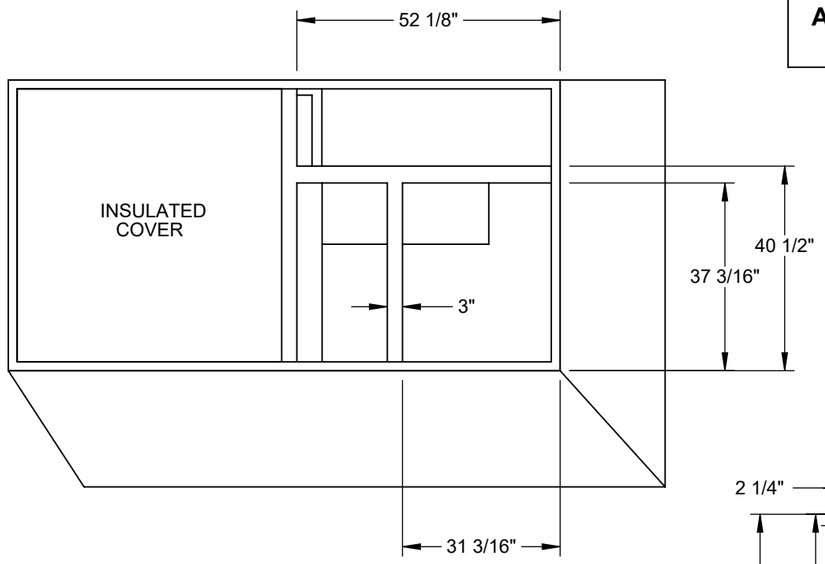
ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES			REV
U.S. ECCN:NSR	2 OF 2	06/10/21	-	48FC 16 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	50TM002025	-

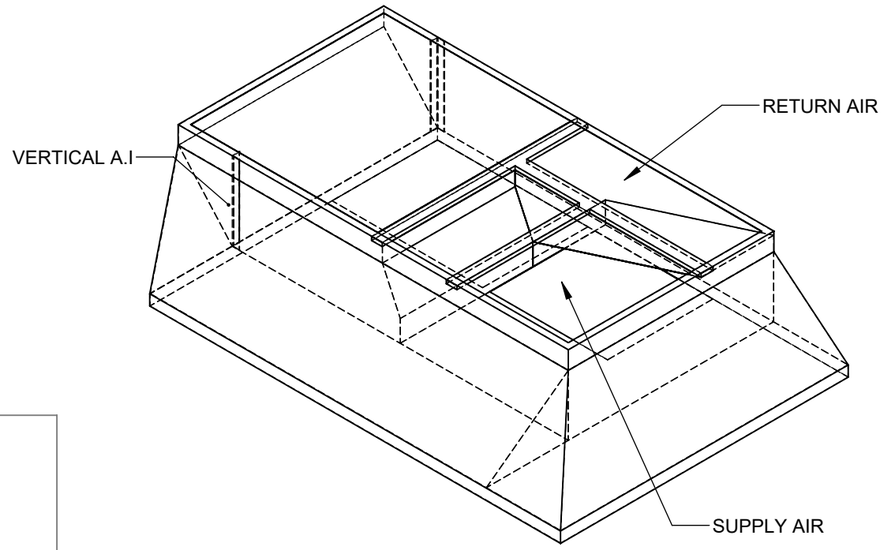
DIMENSIONED AND TOLERENCED PER ANSI Y14.5M-1982

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
1	INITIAL DWG	1/11/11	OO

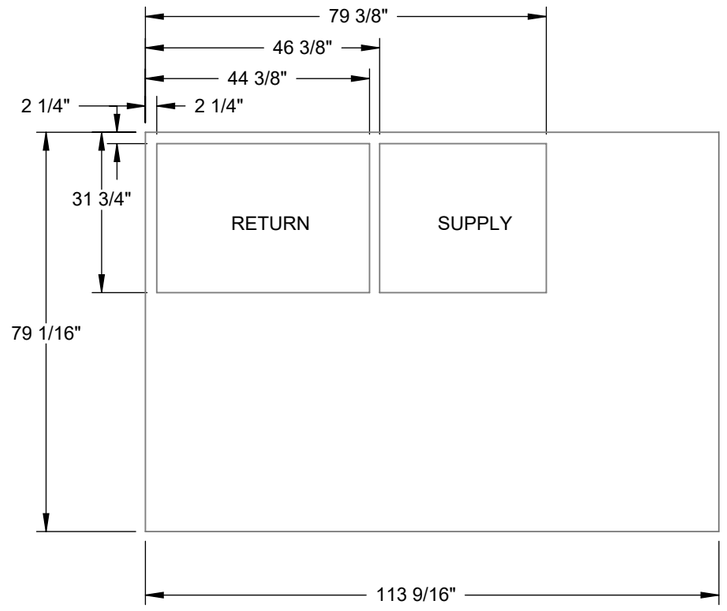
Attn:_____ **Tag:**_____

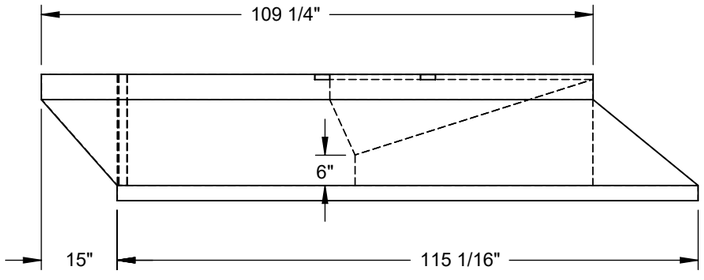
Approval:_____

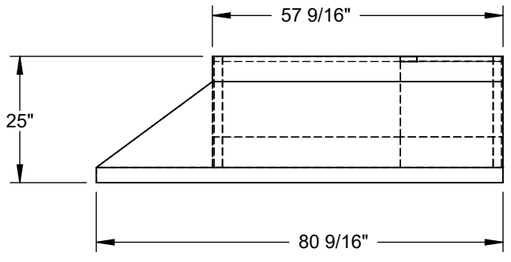




EXISTING CURB LAYOUT







Notes:
1. 1.5" ADDED TO OLD CURB O.D
2. MATERIAL: 18 ga. GALVANIZED STEEL
3. GASKET PROVIDED WITH CURB
4. INSULATION: 1" 1 1/2 LB DENSITY

CURB SHOWN IS CDI STANDARD CONFIGURATION CDI RESERVES THE RIGHT TO CHANGE LAYOUT WITHOUT NOTIFICATION. IF CURB IS NEEDED IN A DIFFERENT CONFIGURATION CDI MUST BE NOTIFIED PRIOR TO PLACING AN ORDER.

*VERIFY EXISTING CURB OD
*VERIFY SUPPLY AND RETURN OPENINGS
*NOTE ANY CHANGES
*CALL WITH ANY QUESTIONS
*FAX BACK IF DRAWING IS OK AS IS

CURB WEIGHT (LBS.)	APPROVALS	DATE
397.40	DRAWN: oolivares	
	CHECKED:	
	Tuesday, January 11, 2011 8:36:42 AM	

UNLESS OTHERWISE SPECIFIED, TOLERANCES ARE:
.X ± 0.05
.XX ± 0.03
.XXX ± 0.01
Ø .XX= ± .007
< 5 ± 1/2°

DIMENSIONS ARE AS FOLLOWS: 1.00 in [25.40 mm]

3RD ANGLE PROJECTION

TITLE: 1-6540-4008

CDI
17560 TYLER ST NW
ELK RIVER, MN 55330
(763)391-7790
(763)391-7851

FILE NAME:

ECO #:

DRAWING NO.: 1-6540-4008

REV: 1

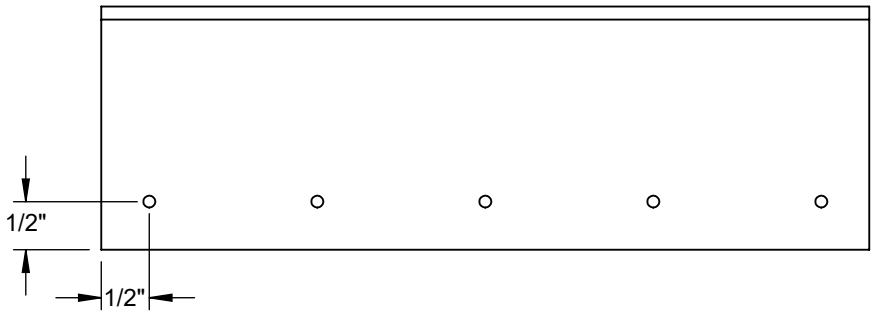
SCALE: 1:30

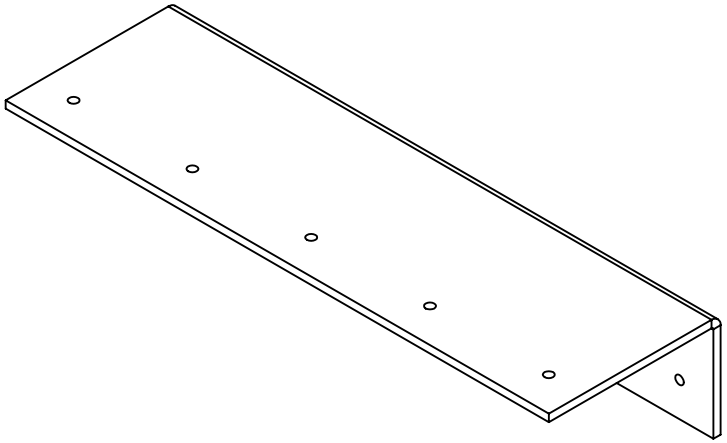
SHEET: 1 OF 3

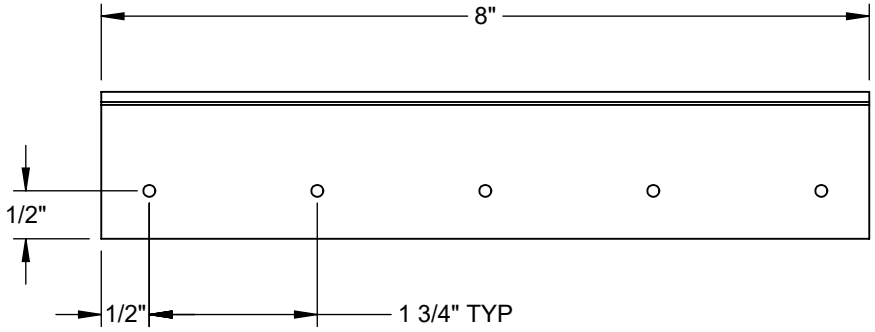
Attn:_____

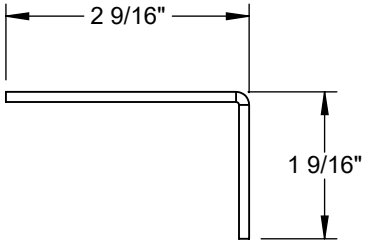
RESTRAINT CLIP FOR USE WITH CDI CURB # 4006 AND 4008 (8 clips total, 4 per long side of unit).

Tag:_____









* Verify existing curb OD
* Verify supply and return openings
* Note any changes
* Call with any questions
* Fax back if drawing is OK as is

ADAPTER NEEDS A 7" TOP KICK

MATERIAL: 12 GA GALVANIZED STEEL

DIMENSIONS ARE AS FOLLOWS: 1.000 in [25.40 mm]	3RD ANGLE PROJECTION

APPROVALS	DATE
DRAWN: ehanson	7/28/2014
CHECKED:	.
MGMT:	.

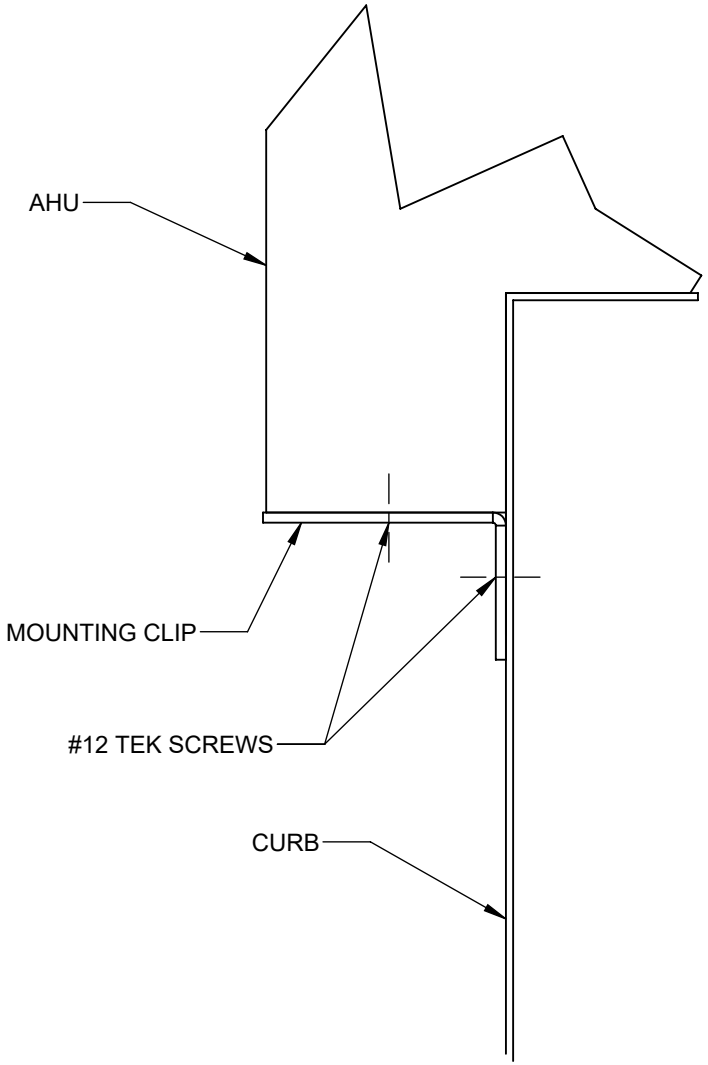
TITLE: **4008 L-CLIPS NS**

CDI
9560 85 TH AVE. N
MAPLE GROVE, MN 55369
(763)391-7790
(763)3917851

FILE NAME:	DRAWING NO.:	REV:
4008 L-CLIPS NS		01
ECO #:	SCALE: 1:2	SHEET: 1 OF 2

Attn:_____

Tag:_____



RESTRAINT CLIP FOR USE WITH
CDI CURB # 4008
(8 clips total, 4 per long side of unit).

* Verify existing curb OD
* Verify supply and return openings
* Note any changes
* Call with any questions
* Fax back if drawing is OK as is

DIMENSIONS ARE AS FOLLOWS: 1.000 in [25.40 mm]

3RD ANGLE PROJECTION

APPROVALS		DATE
DRAWN:	ehanson	7/28/2014
CHECKED:		.
MGMT:		.

TITLE: **4008 L-CLIPS NS**

CDI
9560 85 TH AVE. N
MAPLE GROVE, MN 55369
(763)391-7790
(763)3917851

FILE NAME: 4008 L-CLIPS NS

DRAWING NO.:

REV: 01

ECO #:

SCALE: 1:2

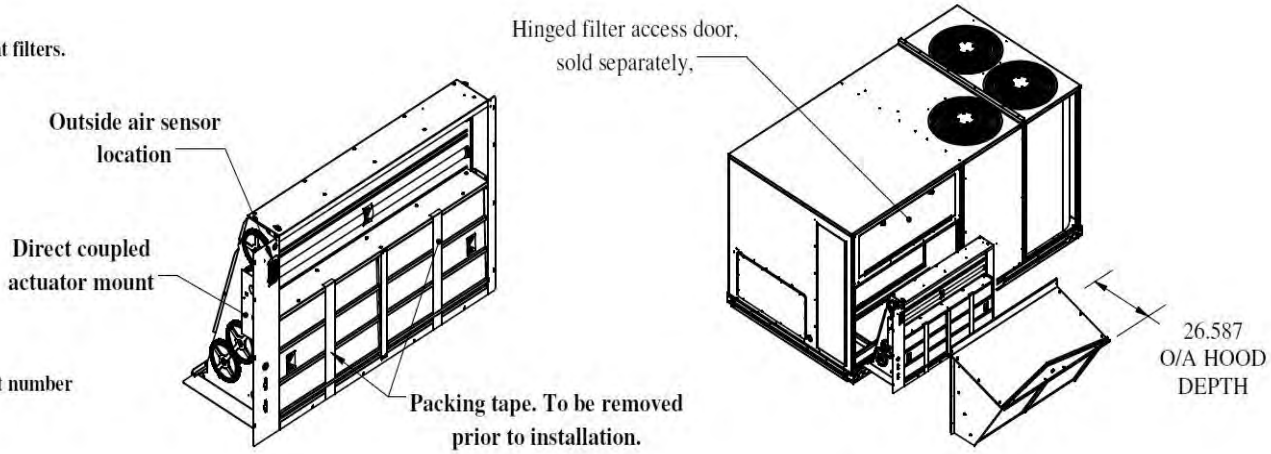
SHEET: 2 OF 2

MicroMetl	Date:	Weight: 117lbs (US) 53.07kg (Metric)	Part Number: ECD-SRT05CB-D2DH
	RTU:		
Submitted to:		Approved by:	Notes:

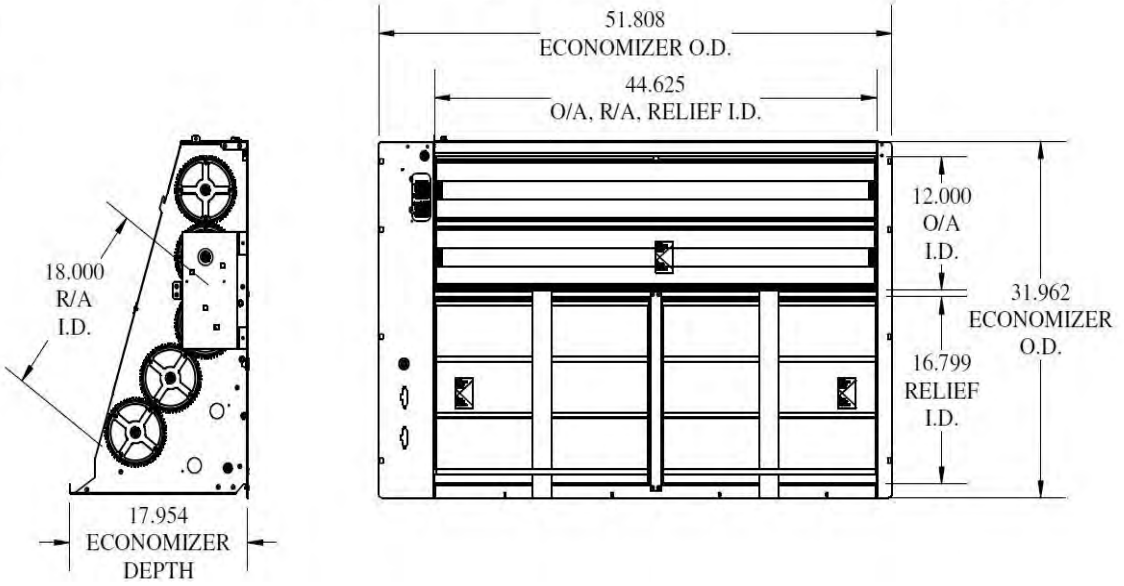
Economizer - Economizer - Genesis Ultra Low Leak Economizer, Vertical Orientation, Honeywell Jade W7220 Single/Multiple Speed Electromechanical Controller, Adjustable Dry Bulb Sensor, Honeywell Actuator. Painted Rain Hood With Aluminum Filter, Barometric Relief, All Necessary Panels And Hardware Included. For Differential Return Air Sensor Please Order 9901-2022-DIFF JC2

FEATURES:

- External gear driven dampers with roll formed blades.
- Designed for vertical applications only.
- Factory assembled rain hood, with aluminum water entrainment filters.
- Filter access door supplied with RUT.
- Hinged filter access door is ordered separately.
  - MMC P/# for Chassis 5 - ECD-SRT5CA-DOOR
- Rain hood is sloped for water run off.
- All harnesses and plugs needed are supplied.
- Economizer is class 1A & ACMA rated.
- Relief blades are ACMA rated.
- Uses filter rack with unit.
- Motorized relief available, add -M to end of part number
  - Ex: ECD-SRT05CB-D2DH-M
- Economizer with smoke detector available, add -S to end of part number
  - Ex: ECD-SRT05CB-D2DH-S



-Control Types	
-D2DH	W7220 controller, actuator w/feedback, adjustable drybulb controls
-D2EH	W7220 controller, actuator w/feedback, enthalpy controls



Master Revision 0001A

Page Revision 0001A

MicroMetl	Date:	Weight: 117lbs (US) 53.07kg (Metric)	Part Number: ECD-SRT05CB-D2DH
	RTU:		
Submitted to:		Approved by:	Notes:

Economizer - Economizer - Genesis Ultra Low Leak Economizer, Vertical Orientation, Honeywell Jade W7220 Single/Multiple Speed Electromechanical Controller, Adjustable Dry Bulb Sensor, Honeywell Actuator. Painted Rain Hood With Aluminum Filter, Barometric Relief, All Necessary Panels And Hardware Included. For Differential Return Air Sensor Please Order 9901-2022-DIFF JC2

Compliant Economizer:

1. **Title 24:** Economizers meet California Energy Commission Title 24-2013 / 2016 prescriptive section 140.4 (damper leakage etc.), and mandatory section 120.2.i for Fault Detection and Diagnostic controls (JADE HJW10). 5 Year Warranty for parts and components only.
2. **ASHRAE 90.1:** Economizers meet ASHRAE 90.1-2013 / 2016 damper leakage requirements, and meet 2016 Fault Detection and Diagnosis requirements.
3. **IECC:** Economizers meet IECC 2012, IECC 2015, and IECC 2018 for outside air, return air, and relief damper (when provided) leakage requirements, and IECC 2015 and IECC 2018 for Fault Detection and Diagnostic requirements.
4. **AMCA:** Outside air and return air (volume) dampers are AMCA Class 1A rated at 1" w.g. Refer to MicroMetl NS2 catalog sheet on web site for details. Relief air dampers (when provided) are also AMCA rated. Refer to GR1 series catalog sheet on web site for details.

Features:

- For single or 2 speed indoor fan units with Central Terminal Board (CTB) and Compressor Staging Board. Other control options available.
- Gear driven design for trouble-free operation, eliminating slippage and binding associated with standard linkage.
- Includes assembled rainhood with aluminum water entrainment filters in the outside air section.
- Rainhood is sloped for water run-off.
- Built-in barometric relief damper provided. Power exhaust options available.
- All harnesses and plugs needed are provided.
- Uses standard factory filter access door shipped with HVAC unit.
- If factory hinged access door option is installed on unit, an additional kit is required to seal hinged door properly.
  - OEM part no. CRPECONV007B00 or MicroMetl part number 0640-0300-SPNLH

Notes:

1. Control systems include Honeywell W7220 JADE controller, mixed (supply) air temperature sensor, OA sensor in description, and spring-return communicating actuator (some include differential return sensor as noted).
2. JADE W7220 controller is field mounted in unit's control box.
3. Mixed (supply) air sensor is field installed in indoor blower fan section.
4. Differential return sensor (MicroMetl Part No. 9901-2022-DIFF JC2) is field installed in return duct.
5. ASHRAE, IECC, and Title 24 require the economizer controller be capable of reporting faults to a fault management application accessible by day-to-day operating or service personnel, or annunciated locally on zone thermostats or in some codes other devices are acceptable. Refer to applicable code requirements and to MicroMetl instructions for suggestions.
6. For older single speed models without the Central Terminal Board the "-D2" part number is replaced by "-DJ". (See separate submittal).

MicroMetl Corporation certifies that the models GR1 and NS2 shown herein are licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with requirements of the AMCA Certified Ratings Programs. The AMCA Certified Ratings Seal applies to Air Leakage and Air Performance ratings.

Indianapolis_3035 N. Shadeland Ave., Indianapolis, IN 46226_800.MMC.HVAC •• Sparks_905 Southern Way, Sparks, NV 89431_800.884.4MMC •• Longview_201 Kodak Blvd., Longview, TX 75602_903.248.4800

Unit Report For AC-27,56,57,58,Added Unit

Project: Rocklin High School 12/01/2022
Prepared By: Brayden Duncan 08:48AM

Unit Parameters

Unit Model: **48VLNE240603-TP**
Unit Size: **24 (2.0 Tons)**
Volts-Phase-Hertz: **208-1-60**
Heating Type: **Gas**
Heat Control: **60,000 Btuh**
Duct Cfg: **Vertical Supply / Vertical Return**
DX Options: **Low NOx Unit**

Dimensions (ft. in.) & Weight (lb.) ***

Unit Length: **4' 0.1875"**
Unit Width: **2' 8.625"**
Unit Height: **3' 7.75"**

*** Weights and Dimensions are approximate. Weight does not include roof curbs, unit packaging, field installed accessories or factory installed options. Approximate dimensions are provided primarily for shipping purposes. For exact dimensions and weights, refer to appropriate product data catalog.

Base Unit Weight (Does not include any accessories):
304 lb

Unit Configuration

Tin-Plated Indoor Coil Hairpins

Warranty Information

1 year warranty on parts
5 year warranty on compressor
5 year warranty on heat exchanger

No optional warranties were selected.

NOTE: Please see Warranty Catalog 500-089 for explanation of policies and ordering methods.

Ordering Information

Part Number	Description	Quantity
48VLNE240603-TP	Rooftop Unit	5

Performance Summary For AC-27,56,57,58,Added Unit

Project: Rocklin High School 12/01/2022
Prepared By: Brayden Duncan 08:48AM

Part Number:48VLNE240603-TP

ARI SEER:	**14.00**	

Base Unit Dimensions

Unit Length:	**48.2**	in
Unit Width:	**32.6**	in
Unit Height:	**43.8**	in
Base Unit Weight (Does not include any accessories):	**304**	lb

Unit

Unit Voltage-Phase-Hertz:	**208-1-60**	
Air Discharge:	**Vertical**	
Fan Drive Type:	**Direct**	
Actual Airflow:	**822**	CFM
Site Altitude:	**0**	ft

Cooling Performance

Condenser Entering Air DB:	**105.0**	F
Evaporator Entering Air DB:	**80.0**	F
Evaporator Entering Air WB:	**67.0**	F
Entering Air Enthalpy:	**31.44**	BTU/lb
Evaporator Leaving Air DB:	**61.7**	F
Evaporator Leaving Air WB:	**59.3**	F
Evaporator Leaving Air Enthalpy:	**25.89**	BTU/lb
Unit Discharge Air DB:	**0.0**	F
Unit Discharge Air WB:	**0.0**	F
Unit Discharge Air Enthalpy:	**0.00**	BTU/lb
Net Cooling Capacity:	**20.50**	MBH
Net Sensible Capacity:	**16.28**	MBH
Total Unit Power Input:	**2.24**	kW
Coil Bypass Factor:	**0.032**	

Heating Performance

Heating Airflow:	**822**	CFM
Entering Air Temp:	**70.0**	F
Leaving Air Temp:	**125.2**	F
Gas Heating Input Capacity:	**60.0**	MBH
Gas Heating Output Capacity:	**49.0**	MBH
Temperature Rise:	**55.2**	F
AFUE (%):	**81.0**	

Supply Fan

External Static Pressure:	**0.50**	in wg
Options / Accessories Static Pressure		
Wet Coil:	**0.05**	in wg
Application External Static (ESP + Unit Opts/Acc.):	**0.55**	in wg
Fan RPM:	**1050**	
Fan Power:	**0.30**	BHP
Fan Motor Size, hp:	**1/2**	
NOTE:	**Med-High Motor Speed, Vert**	

Selection includes construction throwaway filter into the base fan curve. This filter is not MERV Rated.

Electrical Data

Minimum Voltage:	**197**
Maximum Voltage:	**253**
Compressor RLA:	**8.7**
Compressor LRA:	**46**

Outdoor Fan FLA (ea): **0.6**
Indoor Fan Motor FLA (Total): **3.9**
Power Supply MCA: **15.4**
Power Supply MOCP (Fuse or HACR): **20**

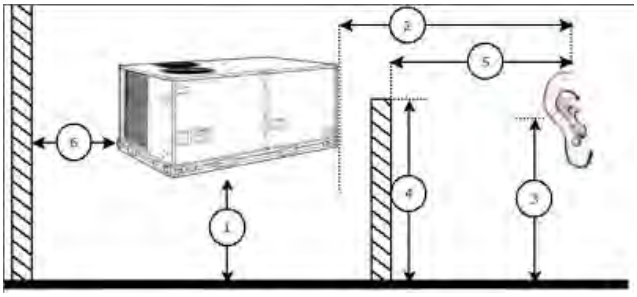
Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

Acoustics

Sound Rating: **69.0** db
Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	NA	NA	NA
125 Hz	NA	NA	71.5
250 Hz	NA	NA	71.0
500 Hz	NA	NA	64.0
1000 Hz	NA	NA	61.3
2000 Hz	NA	NA	60.0
4000 Hz	NA	NA	57.6
8000 Hz	NA	NA	49.0

Advanced Acoustics



Advanced Accoustics Parameters

1. Unit height above ground: **30.0** ft
2. Horizontal distance from unit to receiver: **50.0** ft
3. Receiver height above ground: **5.7** ft
4. Height of obstruction: **0.0** ft
5. Horizontal distance from obstruction to receiver: **0.0** ft
6. Horizontal distance from unit to obstruction: **0.0** ft

Detailed Acoustics Information

Octave Band Center Freq. Hz	63	125	250	500	1k	2k	4k	8k	Overall
A	0.0	71.5	71.0	64.0	61.3	60.0	57.6	49.0	75.1 Lw
B	-26.2	55.4	62.4	60.8	61.3	61.2	58.6	47.9	68.3 LwA
C	0.0	39.1	38.6	31.6	28.9	27.6	25.2	16.6	42.7 Lp
D	-26.2	23.0	30.0	28.4	28.9	28.8	26.2	15.5	35.9 LpA

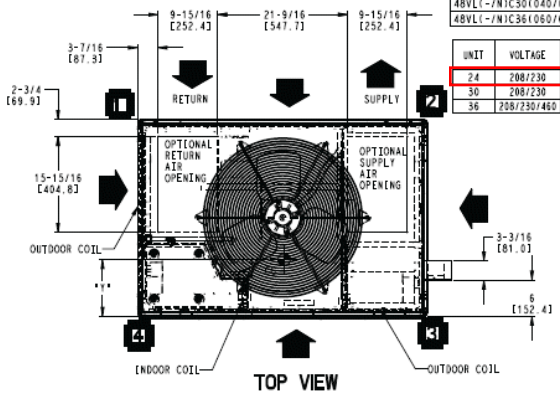
Legend
A Sound Power Levels at Unit's Acoustic Center, Lw
B A-Weighted Sound Power Levels at Unit's Acoustic Center, LwA

C Sound Pressure Levels at Specific Distance from Unit, Lp
D A-Weighted Sound Pressure Levels at Specific Distance from Unit, LpA

Calculation methods used in this program are patterned after the ASHRAE Guide; other ASHRAE Publications and the AHRI Acoustical Standards. While a very significant effort has been made to insure the technical accuracy of this program, it is assumed that the user is knowledgeable in the art of system sound estimation and is aware of the tolerances involved in real world acoustical estimation. This program makes certain assumptions as to the dominant sound sources and sound paths which may not always be appropriate to the real system being estimated. Because of this, no assurances can be offered that this software will always generate an accurate sound prediction from user supplied input data. If in doubt about the estimation of expected sound levels in a space, an Acoustical Engineer or a person with sound prediction expertise should be consulted.

UNIT	ELECTRICAL CHARACTERISTICS	UNIT WT. LB	UNIT WT. KG	UNIT HEIGHT IN/MM "A"		CENTER OF GRAVITY IN/MM X		Y		Z	
48VL(-/N)C24(040/060)30	208/230-1-60	304	138.0	43-3/4	1111	22-13/16	579.4	15-5/16	388.9	15-11/16	398.5
48VL(-/N)C30(040/060)30	208/230-1-60	336	152.0	45-3/4	1162	22-13/16	579.4	15-5/16	388.9	15-13/16	401.6
48VL(-/N)C36(060/090)(3/5/6)0	208/230-1-60, 208/230-3-60, 460-3-60	349	158.0	51-3/4	1315	22-13/16	579.4	15-5/16	388.9	16-5/8	422.3

UNIT	VOLTAGE	CORNER WEIGHT LB/KG "1"		"2"		"3"		"4"	
24	208/230	45.6	20.7	60.8	27.6	91.2	41.4	106.4	48.3
30	208/230	50.4	22.9	67.2	30.5	100.8	45.7	117.6	53.3
36	208/230/460	52.4	23.7	69.8	31.7	104.7	47.5	122.2	55.4



REQUIRED CLEARANCES TO COMBUSTIBLE MATL.

	INCHES [MM]
TOP OF UNIT	14 [355.6]
DUCT SIDE OF UNIT	2 [50.8]
SIDE OPPOSITE DUCTS	14 [355.6]
BOTTOM OF UNIT	1/2 [12.7]
FLUE PANEL	36 [914.4]

NEC. REQUIRED CLEARANCES.

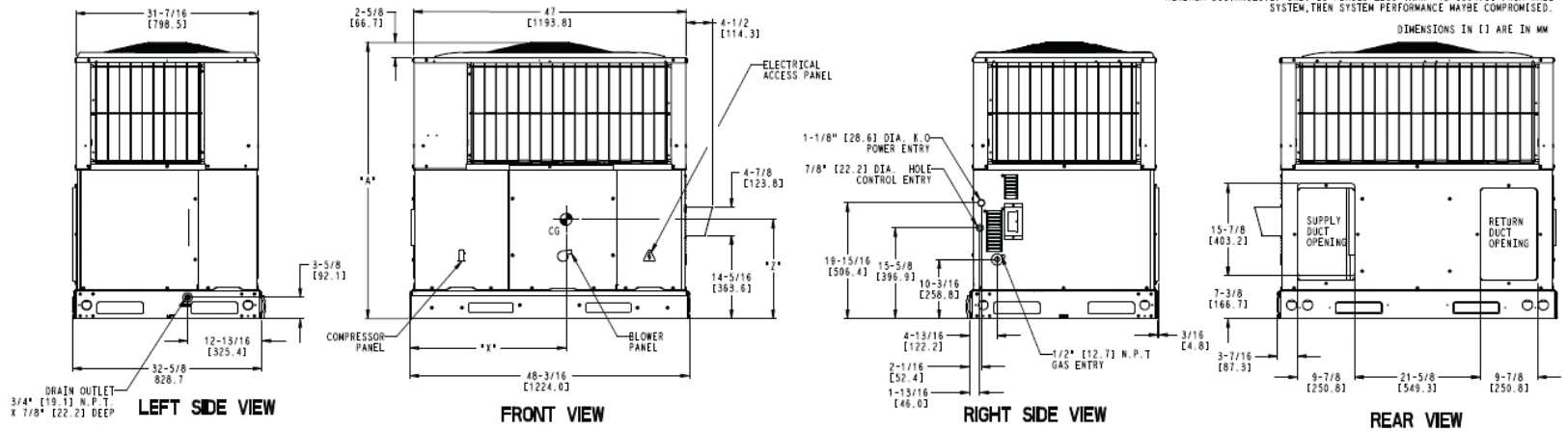
	INCHES [MM]
BETWEEN UNITS, POWER ENTRY SIDE	42 [1066.8]
UNIT AND UNGROUNDED SURFACES, POWER ENTRY SIDE	36 [914.0]
UNIT AND BLOCK OR CONCRETE WALLS AND OTHER GROUNDED SURFACES, POWER ENTRY SIDE	42 [1066.8]

REQUIRED CLEARANCE FOR OPERATION AND SERVICING

	INCHES [MM]
EVAP. COIL ACCESS SIDE	36 [914.0]
POWER ENTRY SIDE (EXCEPT FOR NEC REQUIREMENTS)	42 [1066.8]
UNIT TOP	48 [1219.2]
SIDE OPPOSITE DUCTS	36 [914.0]
DUCT PANEL	12 [304.8]*

*MINIMUM DISTANCES: IF UNIT IS PLACED LESS THAN 12 [304.8] FROM WALL SYSTEM, THEN SYSTEM PERFORMANCE MAYBE COMPROMISED.

DIMENSIONS IN [] ARE IN MM



48VL500404 | -

OPTIONS:
INSULATED PANELS (WHERE REQUIRED)
1" 1-1/2LB DUCT INSULATION (R VALUE 3.85)
GASKET PROVIDED WITH CURB

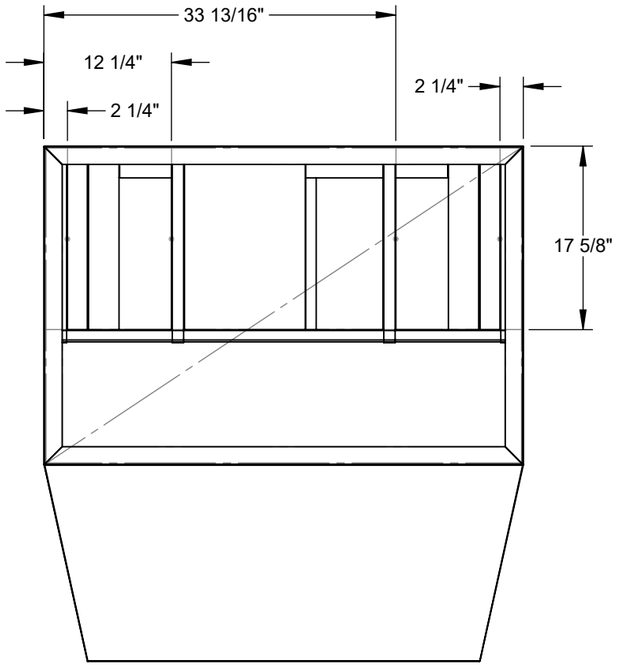
DIMENSIONED AND TOLERENCED PER ANSI Y14.5M-1982

Attn:_____

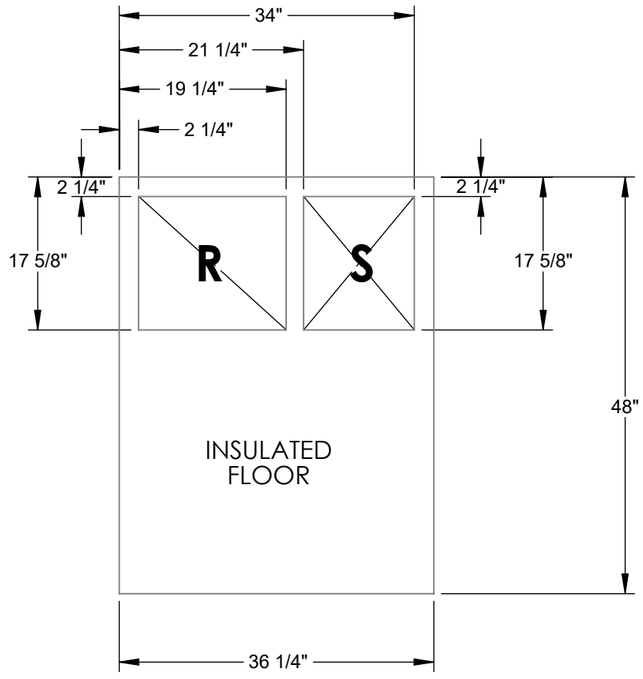
Tag:_____

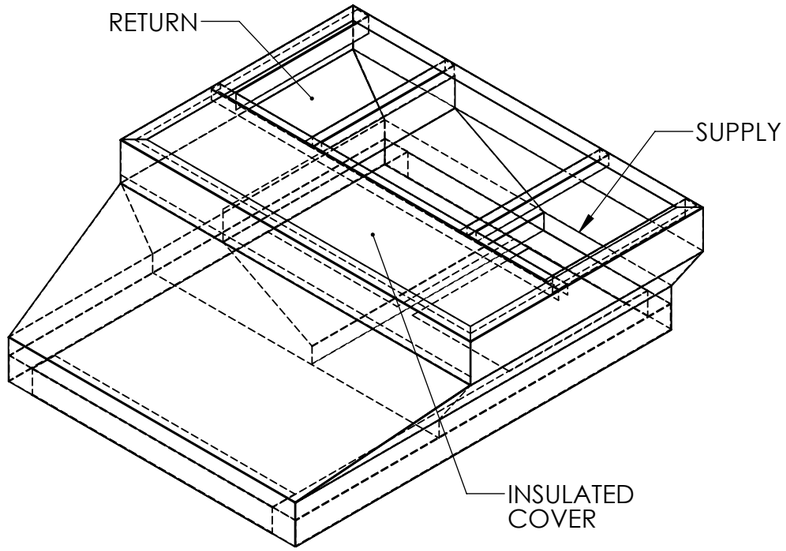
Approval:_____

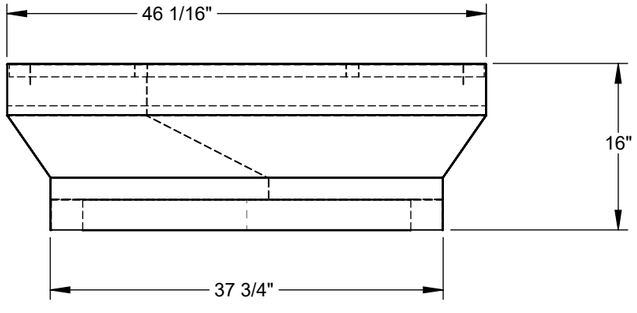
REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
1	INITIAL DRAWING	6/1/10	SRP
2	REMOVED TOP OUTER FLENGE	10/17/2011	GKF
3	CHANGE HT WAS 20"	1/7/2013	HMH
4	UPDATED TO HEM, CHANGED HT TO 16	8/14/2020	ZLS

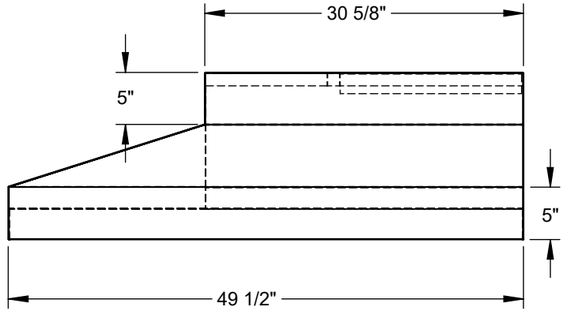


EXISTING CURB









Material: 18 ga. G-90 Galv Steel
Existing Curb Oversized by: 1.5 Inches
Operational Height(Raise unit by):11 Inches

APPROVALS		DATE
DRAWN:	zschellenberger	8/14/2020
CHECKED:		

DIMENSIONS ARE AS FOLLOWS: 1.00 in [25.40 mm]

TITLE/FILE NAME: 1-6500-4021

*VERIFY EXISTING CURB OD
*VERIFY SUPPLY AND RETURN OPENINGS
*NOTE ANY CHANGES
*CALL WITH ANY QUESTIONS
*FAX BACK IF DRAWING IS OK AS IS

3RD ANGLE PROJECTION

Contact us @ www.cdicurbs.com or 1-888-234-7001

APPROXIMATE CURB WEIGHT (LBS.): 105.76

ECO #:

REV: 1

SCALE: 1:16

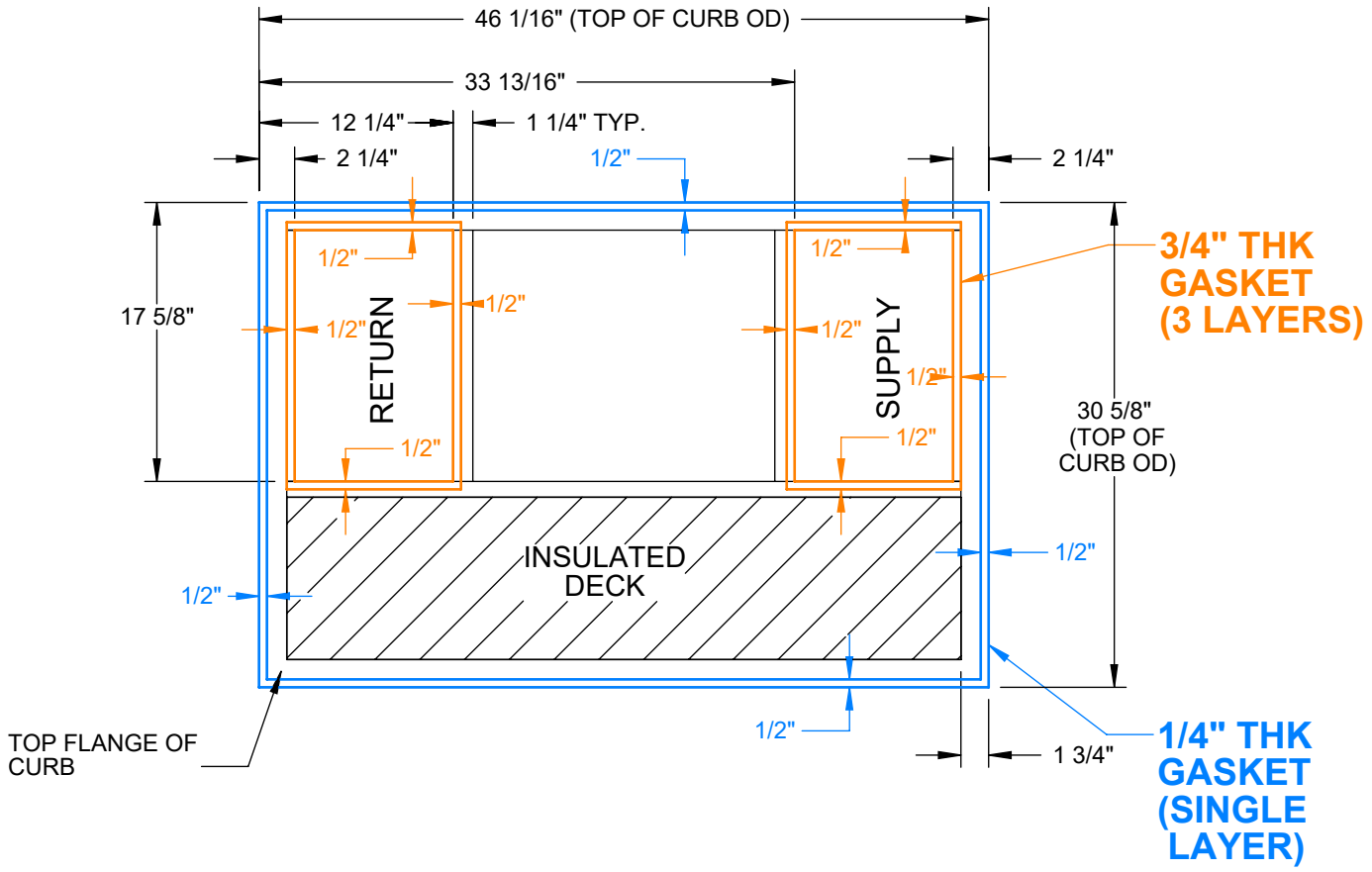
SHEET: 1 OF 4

AC-27,56,57,58

DIMENSIONED AND TOLERENCED PER ANSI Y14.5M-1982

Attn:_____ CARRIER Tag:_____

48/50 ES-A024/A030/A036; 48/50 EZ-A024/A030/A036; 48/50 VL-A024/A030/A036; 48/50 XL-A024/A030 50 XT-A024/A030; 50 VT-A024/A030; 50 GL-A024/A030/A036



* Verify existing curb OD
* Verify supply and return openings
* Note any changes
* Call with any questions
* Fax back if drawing is OK as is

DIMENSIONS ARE AS FOLLOWS: 1.000 in [25.40 mm] | 3RD ANGLE PROJECTION

APPROVALS	DATE
DRAWN: M.GREENWOOD	7/24/09
CHECKED:	.
MGMT:	.

TITLE: **CARRIER ROOF CURB**

CDI 17560 TYLER ST NW ELK RIVER, MN 55330 (763)391-7790 (763)3917851

FILE NAME: 4021 | DRAWING NO.: 4021 | REV: 1 | ECO #: | SCALE: 1:12 | SHEET: 1 OF 1

REV.	DESCRIPTION	DATE	APPROVED
01	INITIAL DESIGN	7/09	MWG

Added Unit

OPTIONS:
MATERIAL: 18ga. GALV STEEL
INSULATED PANELS (WHERE REQUIRED)
1" 1-1/2LB DUCT INSULATION (R VALUE 3.85)
GASKET PROVIDED WITH CURB
1 1/2" ADDED TO EXISTING CURB O.D.

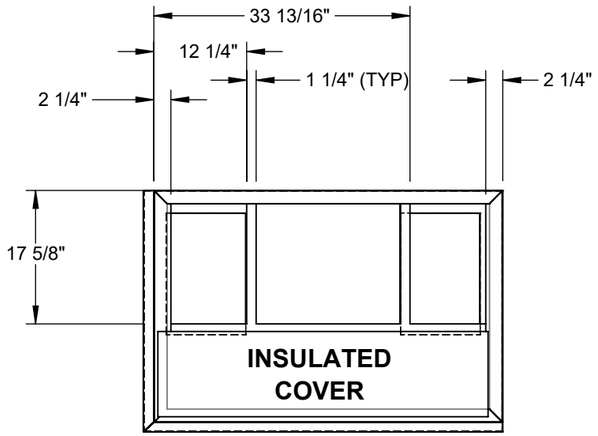
DIMENSIONED AND TOLERENCED PER ANSI Y14.5M-1982

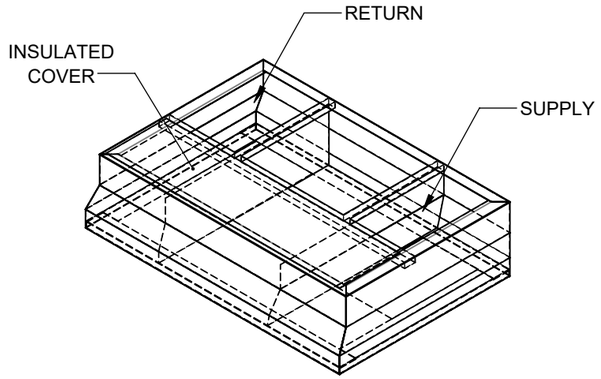
Attn:_____

Tag:_____

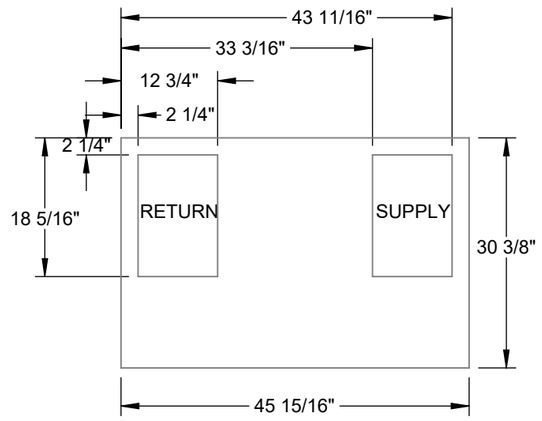
Approval:_____

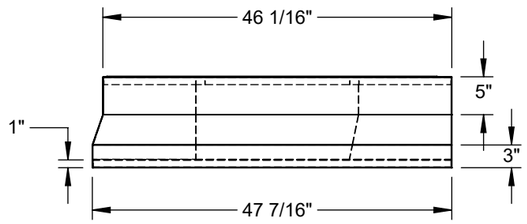
REVISIONS				
REV.	ECO#	DESCRIPTION	DATE	APPROVED
1		INITIAL DRAWING		

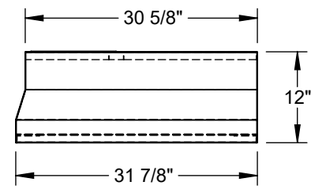




EXISTING CURB LAYOUT







CURB SHOWN IS CDI STANDARD CONFIGURATION CDI RESERVES THE RIGHT TO CHANGE LAYOUT WITHOUT NOTIFICATION. IF CURB IS NEEDED IN A DIFFERENT CONFIGURATION CDI MUST BE NOTIFIED PRIOR TO PLACING AN ORDER.

OPERATIONAL HEIGHT OF CDI ADAPTER IS 3" LESS THAN OVERALL CURB HEIGHT SHOWN.

APPROVALS	DATE
DRAWN: jdiemert	2/16/2021
CHECKED:	

DIMENSIONS ARE AS FOLLOWS: 1.00 in [25.40 mm]

TITLE/FILE NAME: 1-4015-4021

*VERIFY EXISTING CURB OD
*VERIFY SUPPLY AND RETURN OPENINGS
*NOTE ANY CHANGES
*CALL WITH ANY QUESTIONS
*FAX BACK IF DRAWING IS OK AS IS

3RD ANGLE PROJECTION

CDI
Contact us @ www.cdicurbs.com or 1-888-234-7001

APPROXIMATE CURB WEIGHT (LBS.): 72.30

ECO #:

REV: 1

SCALE: 1:20

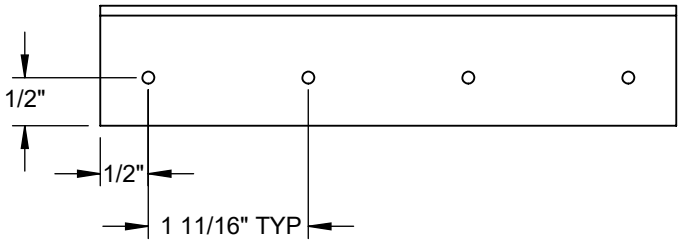
SHEET: 1 OF 6

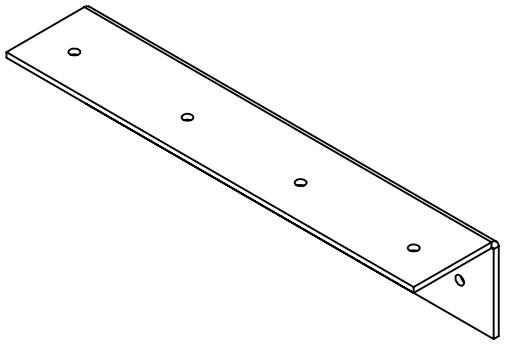
S:\CURBS_CURB_ADAPTERS\1-XXXX-XXXX_CURB_ADAPTERS\1-4XXX-XXXX_CARRIER\

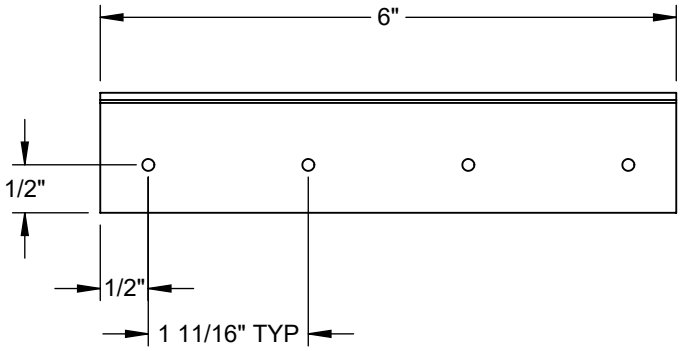
Attn:_____

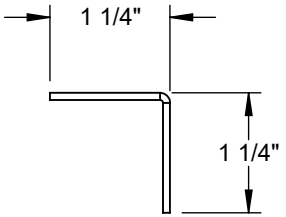
RESTRAINT CLIP FOR USE WITH CDI CURB # 4021 (4 clips total, 2 per long side of unit).

Tag:_____









* Verify existing curb OD
* Verify supply and return openings
* Note any changes
* Call with any questions
* Fax back if drawing is OK as is

STANDARD CDI CONSTRUCTION FOR ADAPTERS

MATERIAL: 14 GA GALVANIZED STEEL

DIMENSIONS ARE AS FOLLOWS: 1.000 in [25.40 mm]	3RD ANGLE PROJECTION

APPROVALS	DATE
DRAWN: ehanson	7/30/2014
CHECKED:	.
MGMT:	.

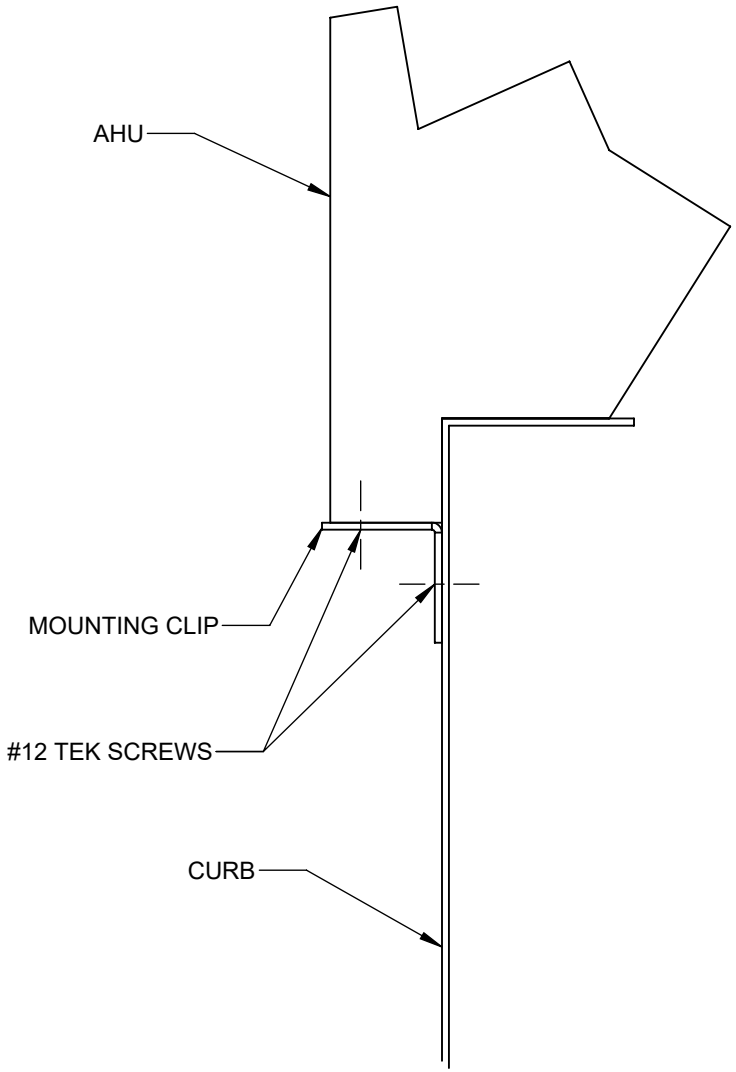
TITLE: **10-L-CLIP-4021**

CDI
9560 85 TH AVE. N
MAPLE GROVE, MN 55369
(763)391-7790
(763)3917851

FILE NAME:	DRAWING NO.:	REV:
10-L-CLIP-4021		01
ECO #:	SCALE: 1:2	SHEET: 1 OF 2

Attn:_____

Tag:_____



RESTRAINT CLIP FOR USE WITH CDI CURB # 4021 (4 clips total, 2 per long side of unit).

* Verify existing curb OD
* Verify supply and return openings
* Note any changes
* Call with any questions
* Fax back if drawing is OK as is

DIMENSIONS ARE AS FOLLOWS: 1.000 in [25.40 mm]

3RD ANGLE PROJECTION

APPROVALS		DATE
DRAWN:	ehanson	7/30/2014
CHECKED:		.
MGMT:		.

TITLE: **10-L-CLIP-4021**

CDI
9560 85 TH AVE. N
MAPLE GROVE, MN 55369
(763)391-7790
(763)3917851

FILE NAME: 10-L-CLIP-4021

DRAWING NO.:

REV: 01

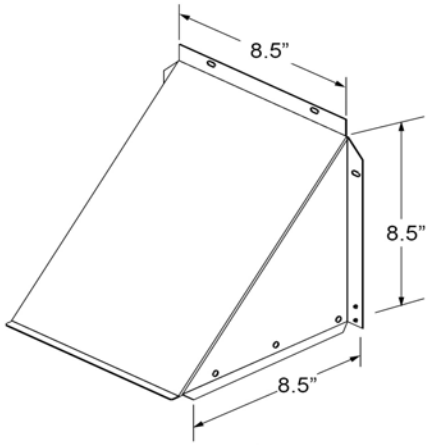
ECO #:

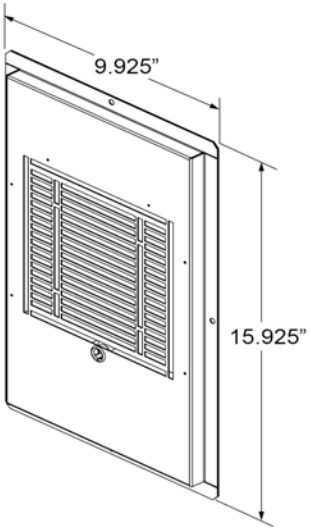
SCALE: 1:2

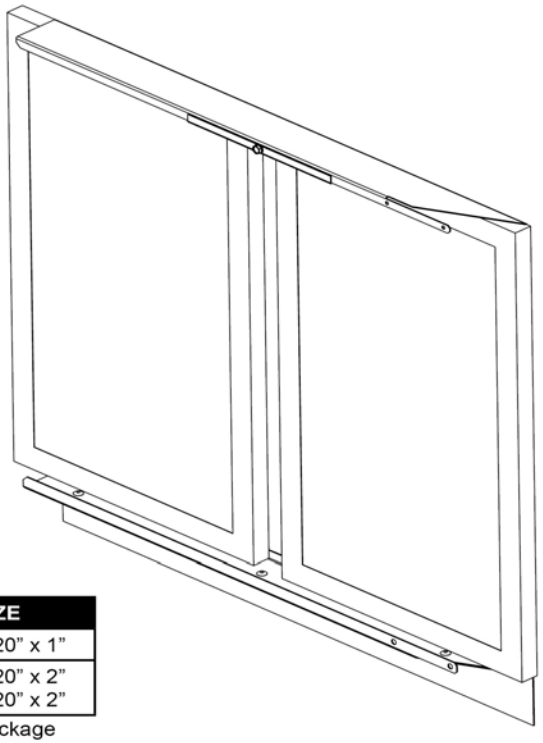
SHEET: 2 OF 2

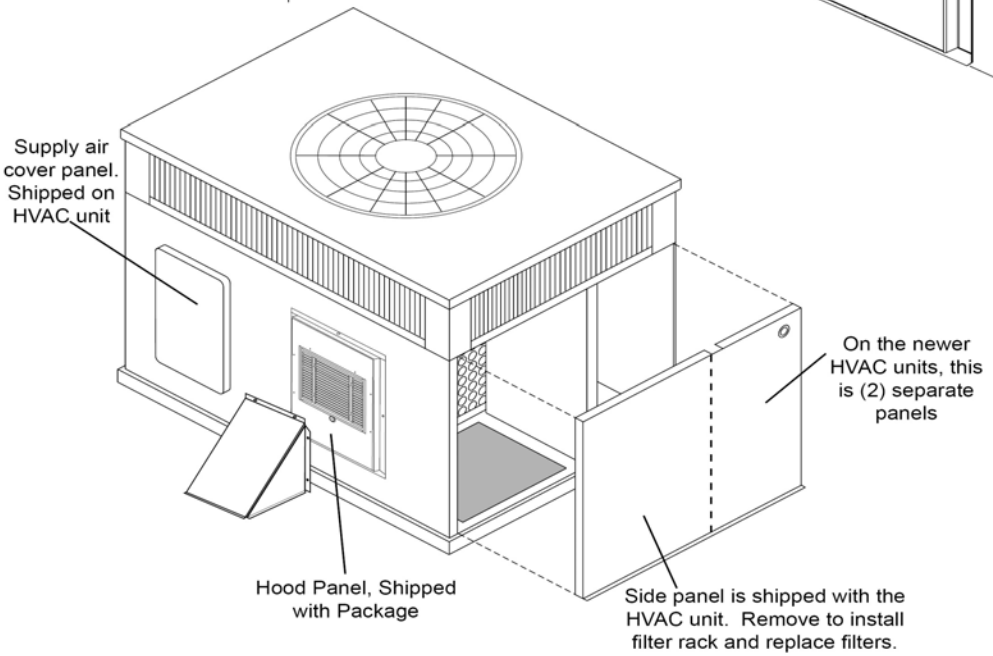
MicroMetl	Date:	Weight: 0lbs (US) 0kg (Metric)	Part Number: OAM-SDSML-CD
	RTU:		
Submitted to:		Approved by:	Notes:

Hood - Unit Specific - Manual Adjustment Damper - 25% Outside Air & Filter Rack , CFM 610 @ 650FPM - 12 X 12 X 12 , No Aluminium Filter , Painted Color Gray. Includes One 17.5 Inch X 11.5 Inch Painted Blankoff Panel, And A Filter Rack Containing Two 12x20x1 Filters.



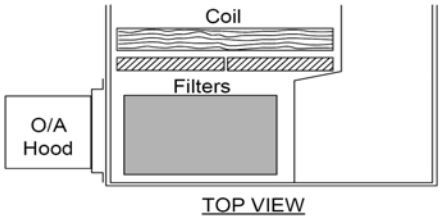






FILTER RACK SIZE	
1” Filters	(2) 12” x 20” x 1”
2” Filters	(1) 10” x 20” x 2” (1) 12” x 20” x 2”

*1” Filters shipped with package



Master Revision 0001A

Page Revision 0001A

Unit Report For AC-35,51

Project: Rocklin High School
Prepared By: Brayden Duncan

11/28/2022
10:30AM

Unit Parameters

Unit Model: **48FCLA06A2A6-0A0A0**
Unit Size: **06 (5 Tons)**
Volts-Phase-Hertz: **460-3-60**
Heating Type: **Gas**
Heat Control: **Low Nox, Low Heat**
Duct Cfg: **Vertical Supply / Vertical Return**
DX Options: **Standard One Stage Cooling Models**

Dimensions (ft. in.) & Weight (lb.) ***

Unit Length: **6' 2.375"**
Unit Width: **3' 10.625"**
Unit Height: **2' 9.375"**
Total Operating Weight: **556** lb

*** Weights and Dimensions are approximate. Weight does not include unit packaging. Approximate dimensions are provided primarily for shipping purposes. For exact dimensions and weights, refer to appropriate product data catalog.

Lines and Filters

Gas Line Size: **1/2**
Condensate Drain Line Size: **3/4**
Return Air Filter Type: **Throwaway**
Return Air Filter Quantity: **2**
Return Air Filter Size: **16 x 25 x 2**

Selection includes construction throwaway filter into the base fan curve. This filter is not MERV Rated.

Unit Configuration

Direct Drive - EcoBlue - Medium Static
Al/Cu - Al/Cu
Base Electromechanical Controls
Standard Packaging

Warranty Information

1-Year parts(std.)
5-Year compressor parts(std.)

No optional warranties were selected.

NOTE: Please see Warranty Catalog 500-089 for explanation of policies and ordering methods.

Ordering Information

Part Number	Description	Quantity
48FCLA06A2A6-0A0A0	Rooftop Unit	2

Performance Summary For AC-35,51

Project: Rocklin High School
Prepared By: Brayden Duncan

11/28/2022
10:30AM

Part Number:48FCLA06A2A6-0A0A0

ARI SEER:	**14.00**	

Base Unit Dimensions

Unit Length:	**74.4**	in
Unit Width:	**46.6**	in
Unit Height:	**33.4**	in

Operating Weight

Base Unit Weight:	**556**	lb
Total Operating Weight:	**556**	lb

Unit

Unit Voltage-Phase-Hertz:	**460-3-60**	
Air Discharge:	**Vertical**	
Fan Drive Type:	**Vane Axial**	
Actual Airflow:	**2000**	CFM
Site Altitude:	**0**	ft

Cooling Performance

Condenser Entering Air DB:	**105.0**	F
Evaporator Entering Air DB:	**80.0**	F
Evaporator Entering Air WB:	**67.0**	F
Entering Air Enthalpy:	**31.44**	BTU/lb
Evaporator Leaving Air DB:	**59.9**	F
Evaporator Leaving Air WB:	**58.5**	F
Evaporator Leaving Air Enthalpy:	**25.33**	BTU/lb
Unit Discharge Air DB:	**61.3**	F
Unit Discharge Air WB:	**59.0**	F
Unit Discharge Air Enthalpy:	**25.66**	BTU/lb
Gross Cooling Capacity:	**55.00**	MBH
Net Cooling Capacity:	**51.98**	MBH
Gross Sensible Capacity:	**43.41**	MBH
Net Sensible Capacity:	**40.39**	MBH
Compressor Power Input:	**4.67**	kW
Coil Bypass Factor:	**0.146**	

Heating Performance

Heating Airflow:	**2000**	CFM
Entering Air Temp:	**70.0**	F
Leaving Air Temp:	**92.7**	F
Gas Heating Input Capacity:	**60.0**	MBH
Gas Heating Output Capacity:	**49.0**	MBH
Temperature Rise:	**22.7**	F
Thermal Efficiency (%):	**81.0**	

Supply Fan

External Static Pressure:	**0.60**	in wg
Fan RPM:	**2131**	
Fan Power:	**1.04**	BHP
NOTE:	**Selected IFM RPM Range: 1478 - 2390**	

Selection includes construction throwaway filter into the base fan curve. This filter is not MERV Rated.

Electrical Data

Voltage Range:	**414 - 506**	
Compressor #1 RLA:	**7.8**	
Compressor #1 LRA:	**52**	

Indoor Fan Motor Type: **MED**
Indoor Fan Motor FLA (Total): **2.1**
Combustion Fan Motor FLA (ea): **0.25**
Power Supply MCA: **13**
Power Supply MOCP (Fuse or HACR): **20**
Disconnect Size FLA: **12**
Disconnect Size LRA: **57**
Electrical Convenience Outlet: **None**
Outdoor Fan [Qty / FLA (ea)]: **1 / 0.8**

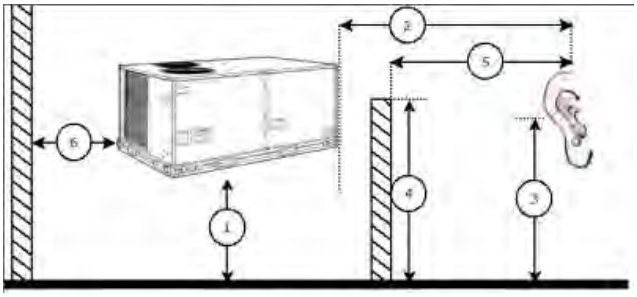
Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

Acoustics

Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	92.9	89.8	85.6
125 Hz	84.2	80.1	84.7
250 Hz	78.3	72.3	80.5
500 Hz	74.6	66.9	76.0
1000 Hz	71.5	68.9	72.4
2000 Hz	68.9	60.3	68.0
4000 Hz	64.8	53.5	62.8
8000 Hz	60.6	47.6	59.3
A-Weighted	78.0	72.8	79.0

Advanced Acoustics



Advanced Accoustics Parameters

1. Unit height above ground: **30.0** ft
2. Horizontal distance from unit to receiver: **50.0** ft
3. Receiver height above ground: **5.7** ft
4. Height of obstruction: **0.0** ft
5. Horizontal distance from obstruction to receiver: **0.0** ft
6. Horizontal distance from unit to obstruction: **0.0** ft

Detailed Acoustics Information

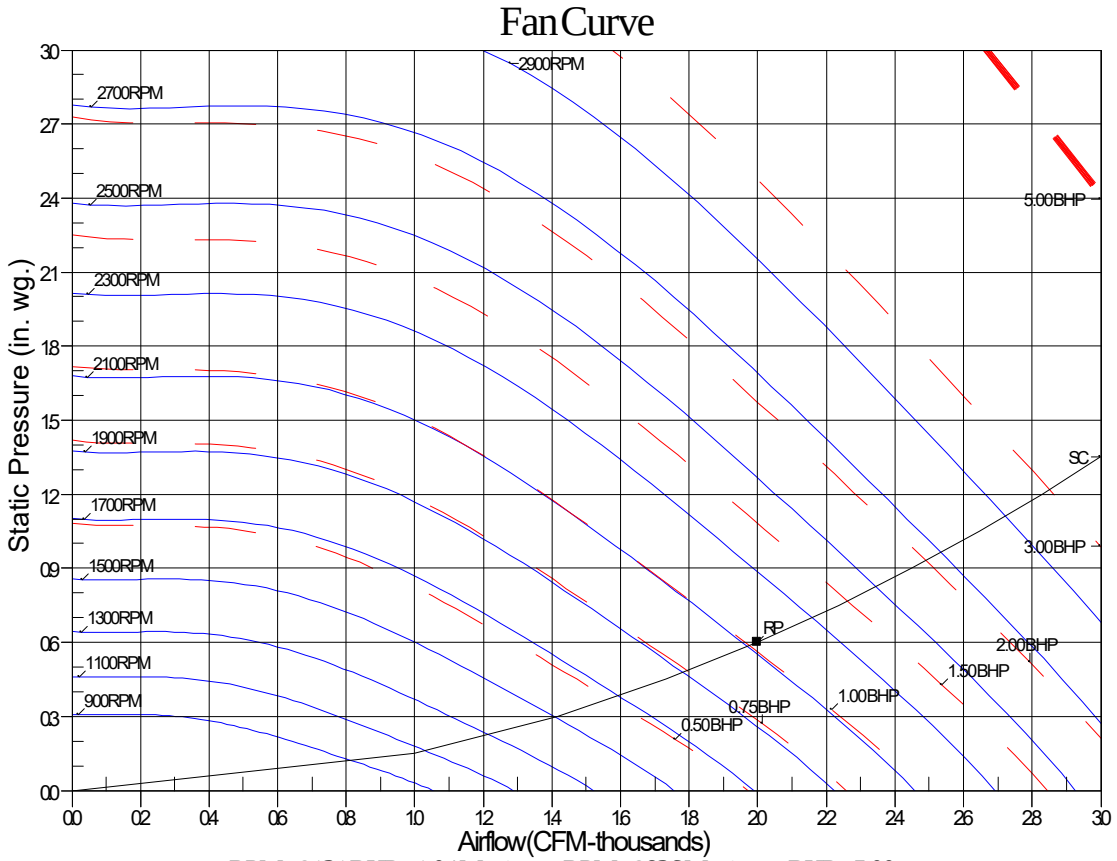
Octave Band Center Freq. Hz	63	125	250	500	1k	2k	4k	8k	Overall
A	85.6	84.7	80.5	76.0	72.4	68.0	62.8	59.3	89.2 Lw
B	59.4	68.6	71.9	72.8	72.4	69.2	63.8	58.2	78.5 LwA
C	53.2	52.3	48.1	43.6	40.0	35.6	30.4	26.9	56.8 Lp
D	27.0	36.2	39.5	40.4	40.0	36.8	31.4	25.8	46.1 LpA

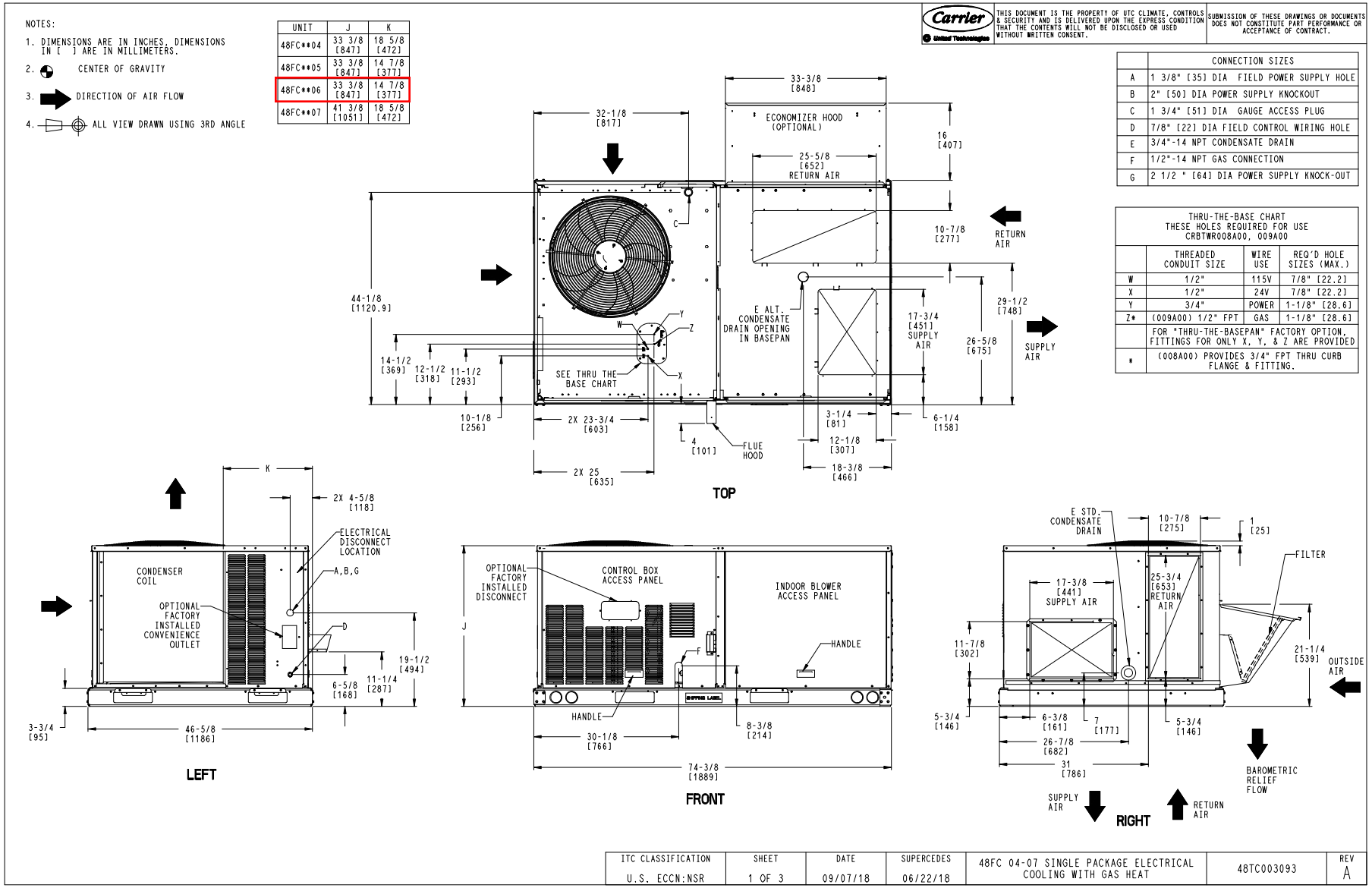
Performance Summary For AC-35,51

Project: Rocklin High School 11/28/2022
Prepared By: Brayden Duncan 10:30AM

Legend
A Sound Power Levels at Unit's Acoustic Center, Lw
B A-Weighted Sound Power Levels at Unit's Acoustic Center, LwA
C Sound Pressure Levels at Specific Distance from Unit, Lp
D A-Weighted Sound Pressure Levels at Specific Distance from Unit, LpA

Calculation methods used in this program are patterned after the ASHRAE Guide; other ASHRAE Publications and the AHRI Acoustical Standards. While a very significant effort has been made to insure the technical accuracy of this program, it is assumed that the user is knowledgeable in the art of system sound estimation and is aware of the tolerances involved in real world acoustical estimation. This program makes certain assumptions as to the dominant sound sources and sound paths which may not always be appropriate to the real system being estimated. Because of this, no assurances can be offered that this software will always generate an accurate sound prediction from user supplied input data. If in doubt about the estimation of expected sound levels in a space, an Acoustical Engineer or a person with sound prediction expertise should be consulted.




NOTES:
1. DIMENSIONS ARE IN INCHES, DIMENSIONS IN [ ] ARE IN MILLIMETERS.
2. CENTER OF GRAVITY
3. DIRECTION OF AIR FLOW
4. ALL VIEW DRAWN USING 3RD ANGLE
UNIT | J | K
48FC**04 | 33 3/8 [847] | 18 5/8 [472]
48FC**05 | 33 3/8 [847] | 14 7/8 [377]
48FC**06 | 33 3/8 [847] | 14 7/8 [377]
48FC**07 | 41 3/8 [1051] | 18 5/8 [472]
Carrier
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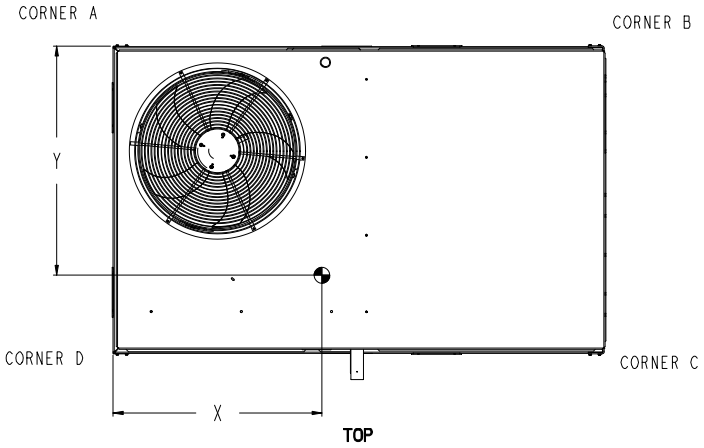
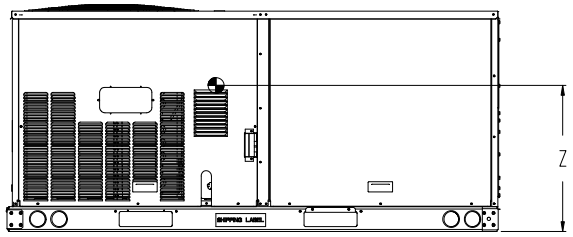
SUBMISSION OF THESE DRAWINGS OR DOCUMENTS DOES NOT CONSTITUTE PART PERFORMANCE OR ACCEPTANCE OF CONTRACT.
CONNECTION SIZES
A 1 3/8" [35] DIA FIELD POWER SUPPLY HOLE
B 2" [50] DIA POWER SUPPLY KNOCKOUT
C 1 3/4" [51] DIA GAUGE ACCESS PLUG
D 7/8" [22] DIA FIELD CONTROL WIRING HOLE
E 3/4"-14 NPT CONDENSATE DRAIN
F 1/2"-14 NPT GAS CONNECTION
G 2 1/2 " [64] DIA POWER SUPPLY KNOCK-OUT
THRU-THE-BASE CHART
THESE HOLES REQUIRED FOR USE CRBTWR008A00, 009A00
W 1/2" 115V 7/8" [22.2]
X 1/2" 24V 7/8" [22.2]
Y 3/4" POWER 1-1/8" [28.6]
Z* (009A00) 1/2" FPT GAS 1-1/8" [28.6]
FOR "THRU-THE-BASEPAN" FACTORY OPTION, FITTINGS FOR ONLY X, Y, & Z ARE PROVIDED
* (008A00) PROVIDES 3/4" FPT THRU CURB FLANGE & FITTING.
33-3/8 [848]
32-1/8 [817]
ECONOMIZER HOOD (OPTIONAL)
25-5/8 [652] RETURN AIR
16 [407]
10-7/8 [277]
RETURN AIR
44-1/8 [1120.9]
E ALT. CONDENSATE DRAIN OPENING IN BASEPAN
17-3/4 [451] SUPPLY AIR
29-1/2 [748]
26-5/8 [675]
SUPPLY AIR
14-1/2 [369]
12-1/2 [318]
11-1/2 [293]
SEE THRU THE BASE CHART
10-1/8 [256]
2X 23-3/4 [603]
3-1/4 [81]
6-1/4 [158]
4 [101]
FLUE HOOD
12-1/8 [307]
2X 25 [635]
18-3/8 [466]
TOP
K
2X 4-5/8 [118]
ELECTRICAL DISCONNECT LOCATION
A,B,G
CONDENSER COIL
OPTIONAL FACTORY INSTALLED CONVENIENCE OUTLET
D
19-1/2 [494]
11-1/4 [287]
6-5/8 [168]
3-3/4 [95]
46-5/8 [1186]
LEFT
OPTIONAL FACTORY INSTALLED DISCONNECT
CONTROL BOX ACCESS PANEL
INDOOR BLOWER ACCESS PANEL
J
HANDLE
F
HANDLE
30-1/8 [766]
8-3/8 [214]
74-3/8 [1889]
FRONT
E STD. CONDENSATE DRAIN
10-7/8 [275]
1 [25]
FILTER
17-3/8 [441] SUPPLY AIR
25-3/4 [653] RETURN AIR
11-7/8 [302]
21-1/4 [539]
OUTSIDE AIR
5-3/4 [146]
6-3/8 [161]
7 [177]
5-3/4 [146]
26-7/8 [682]
31 [786]
BAROMETRIC RELIEF FLOW
SUPPLY AIR
RETURN AIR
RIGHT
ITC CLASSIFICATION U.S. ECCN:NSR
SHEET 1 OF 3
DATE 09/07/18
SUPERCEDES 06/22/18
48FC 04-07 SINGLE PACKAGE ELECTRICAL COOLING WITH GAS HEAT
48TC003093
REV A

UNIT	STD. UNIT WEIGHT *		CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		C.G.		HEIGHT
	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X	Y	Z
48FC**04	482	219	113	51	116	53	128	58	125	57	37 5/8 [956]	24 9/16 [624]	18 1/4 [464]
48FC**05	543	246	138	63	133	60	133	60	138	63	36 1/2 [927]	23 3/8 [594]	18 [457]
48FC**06	556	252	142	64	136	62	136	62	142	64	36 1/2 [927]	23 3/8 [594]	18 [457]
48FC**07	607	275	162	73	152	69	141	64	151	68	36 [914]	22 1/2 [572]	19 3/8 [492]

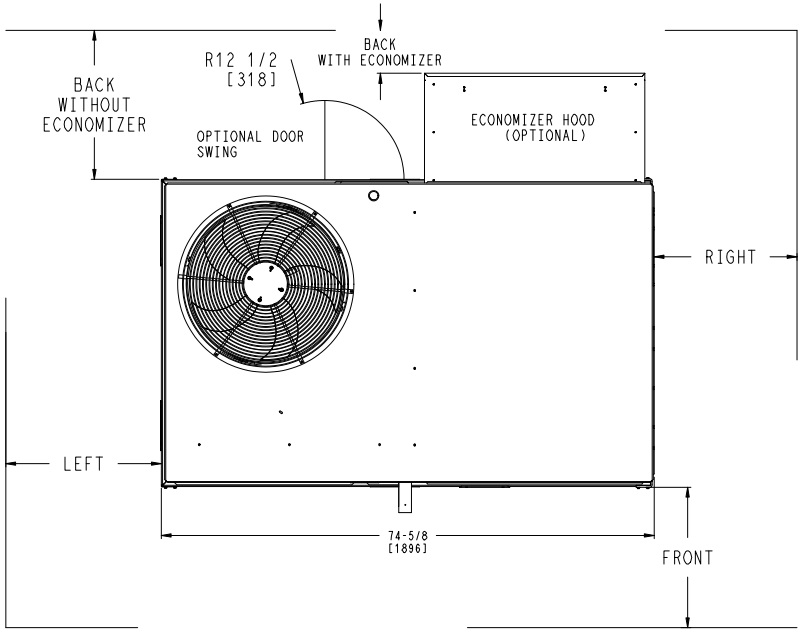
* STANDARD UNIT WEIGHT IS WITH LOW GAS HEAT AND WITHOUT PACKAGING.
FOR OTHER OPTIONS AND ACCESSORIES, REFER TO THE PRODUCT DATA CATALOG.



TOP



FRONT

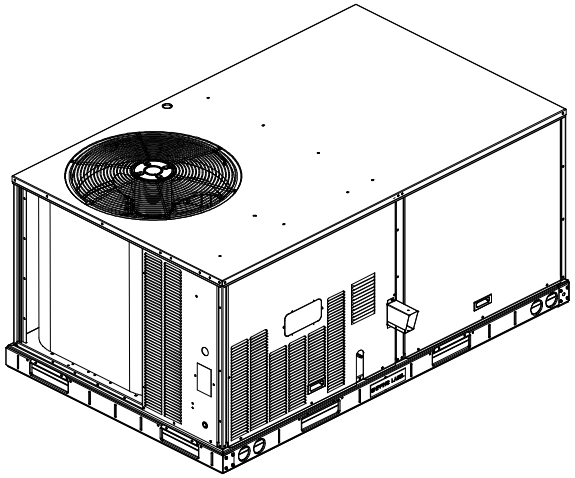


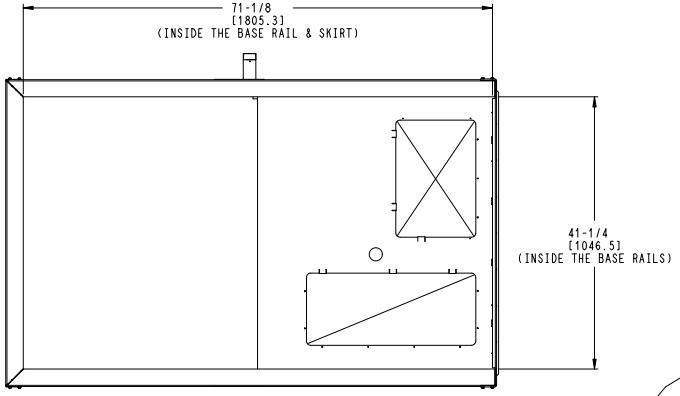
NOTES:

1. FOR ALL MINIMUM CLEARANCES LOCAL CODES OR JURISDICTIONS MAY PREVAIL.

	CLEARANCE		
	SERVICE WITH:	SERVICE WITH:	OPERATING
SURFACE	CONDUCTIVE BARRIER	NONCONDUCTIVE BARRIER	CLEARANCE
FRONT	48 [1219mm]	36 [914mm]	18 [457mm]
LEFT	48 [1219mm]	42 [1067mm]	18 [457mm]
BACK	48 [1219mm]	42 [1067mm]	18 [457mm]
BACK W/HOOD	36 [914mm]	36 [914mm]	18 [457mm]
RIGHT	36 [914mm]	36 [914mm]	18 [457mm]
TOP	72 [1829mm]	72 [1829mm]	72 [1829mm]

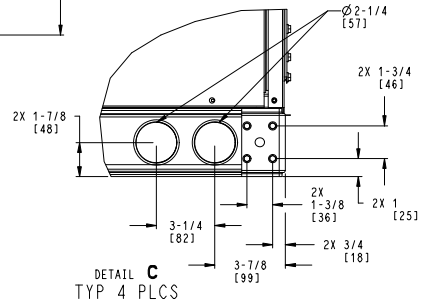
ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES			REV
U.S. ECCN:NSR	2 OF 3	09/07/18	06/22/18	48FC 04-07 SINGLE PACKAGE ELECTRICAL COOLING WITH GAS HEAT	48TC003093	A



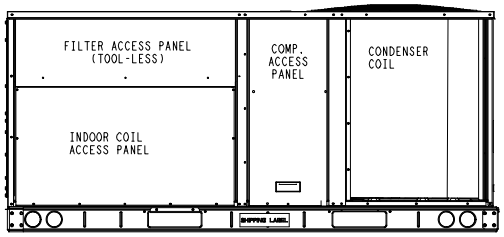


INSIDE BASERAIL DIMENSIONS

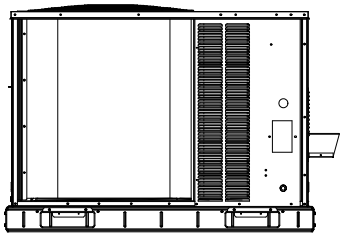
BOTTOM



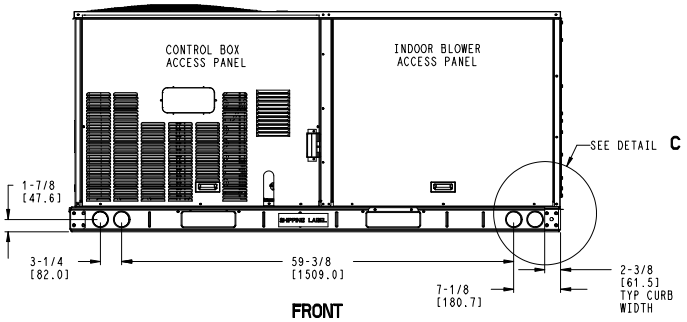
DETAIL **C**
TYP 4 PLCS



BACK



LEFT



FRONT

ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES			REV
U.S. ECCN:NSR	3 OF 3	09/07/18	06/22/18	48FC 04-07 SINGLE PACKAGE ELECTRICAL COOLING WITH GAS HEAT	48TC003093	A

OPTIONS:
INSULATED PANELS (WHERE REQUIRED)
1" 1-1/2LB DUCT INSULATION (R VALUE 3.85)
GASKET PROVIDED WITH CURB

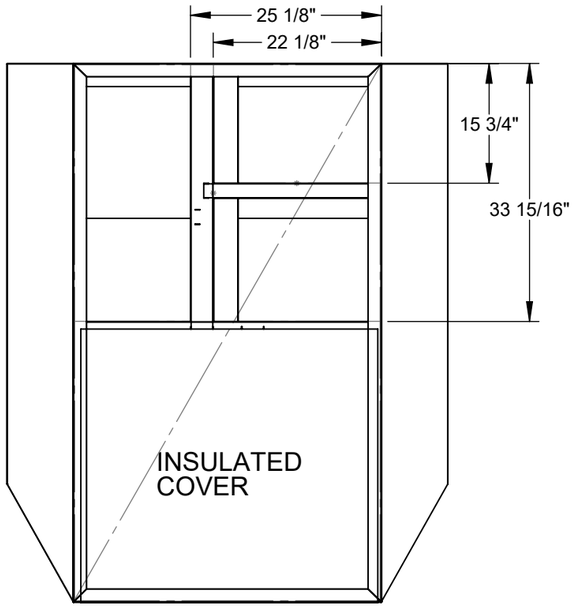
DIMENSIONED AND TOLERENCED PER ANSI Y14.5M-1982

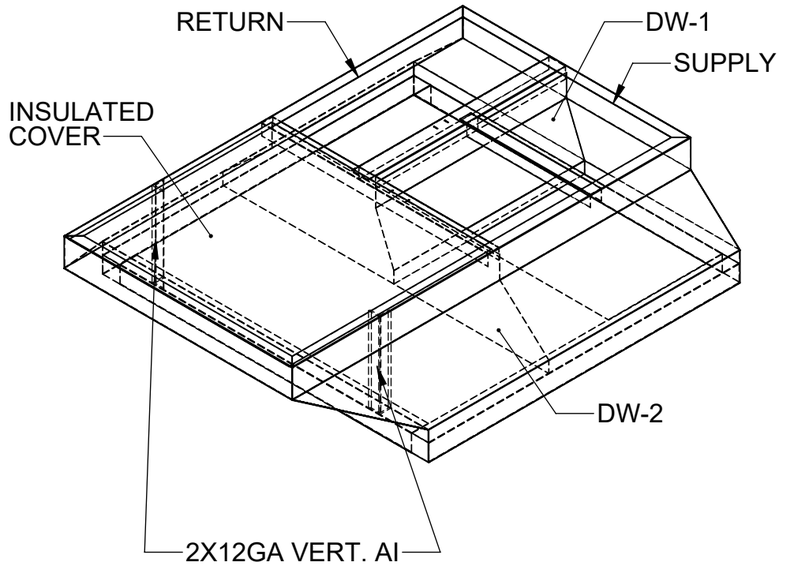
Attn:_____

Approval:_____

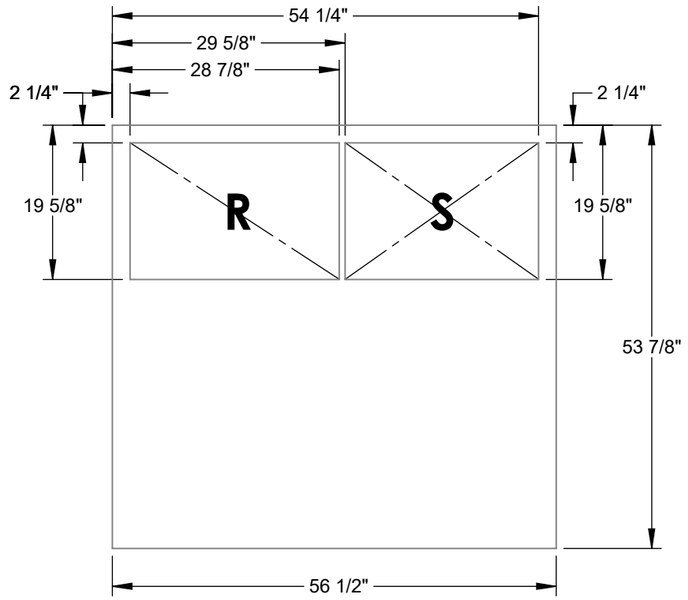
RTU TAG(S):

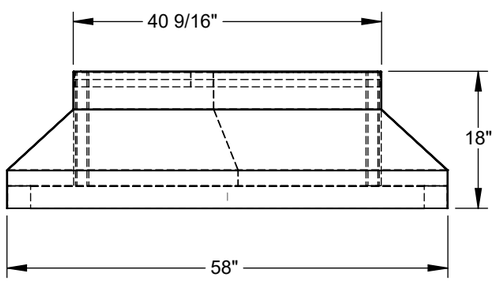
REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
1	INITIAL DRAWING	07/21/2021	NLS

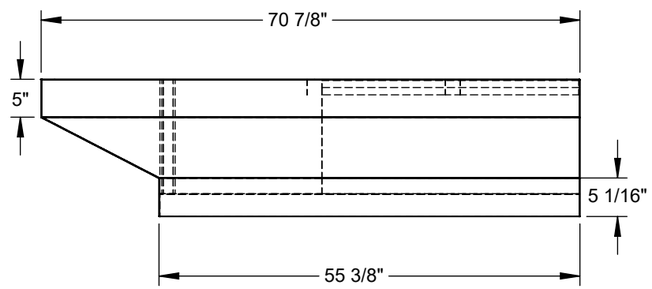




EXISTING CURB







Material: 18 ga. G-90 Galv Steel
Existing Curb Oversized by: 1.5 Inches
Operational Height(Raise unit by):15 Inches

APPROVALS	DATE
DRAWN: driveworks	7/20/2021
CHECKED:	

DIMENSIONS ARE AS FOLLOWS: 1.00 in [25.40 mm]

TITLE/FILE NAME: 1-6515L-4000

*VERIFY EXISTING CURB OD
*VERIFY SUPPLY AND RETURN OPENINGS
*NOTE ANY CHANGES
*CALL WITH ANY QUESTIONS
*FAX BACK IF DRAWING IS OK AS IS

3RD ANGLE PROJECTION

CDI
Contact us @ www.cdicurbs.com or 1-888-234-7001

APPROXIMATE CURB WEIGHT (LBS.): 172.88

ECO #:

REV: 1

SCALE: 1:16

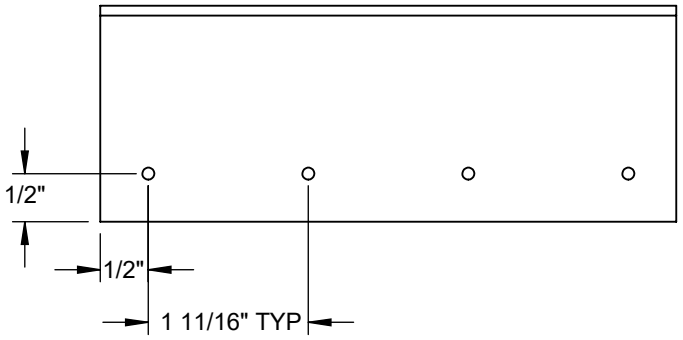
SHEET: 4 OF 4

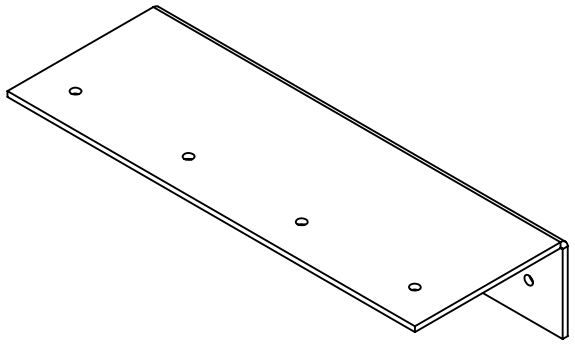
\\crystal.cdicurbs.com\eng\files\CURBS_CURB_ADAPTERS\1-XXXX-XXXX_CURB_ADAPTERS\1-6XXX-XXXX_RHEEM_RUUD\1-6515L-4000

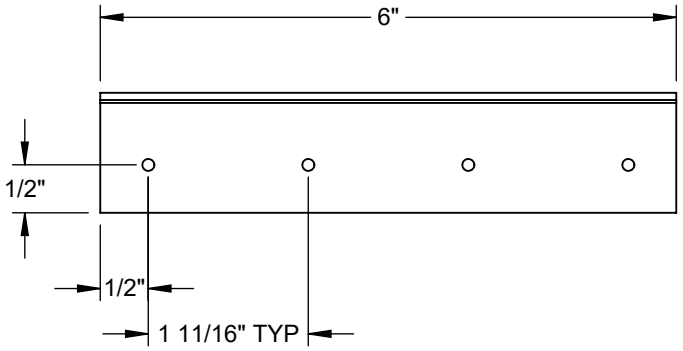
Attn:_____

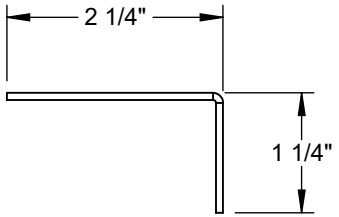
RESTRAINT CLIP FOR USE WITH CDI CURB # 4000 (6 clips total, 3 per long side of unit).

Tag:_____









ADAPTERS NEED 7" TOP KICK

MATERIAL: 14 GA GALVANIZED STEEL

* Verify existing curb OD
* Verify supply and return openings
* Note any changes
* Call with any questions
* Fax back if drawing is OK as is

DIMENSIONS ARE AS FOLLOWS: 1.000 in [25.40 mm]

3RD ANGLE PROJECTION

APPROVALS		DATE
DRAWN:	spickar	2/17/2014
CHECKED:		.
MGMT:		.

TITLE: **4000 L-CLIPS NS**

CDI
9560 85 TH AVE. N
MAPLE GROVE, MN 55369
(763)391-7790
(763)3917851

FILE NAME: 4000 L-CLIPS NS

DRAWING NO.:

REV: 01

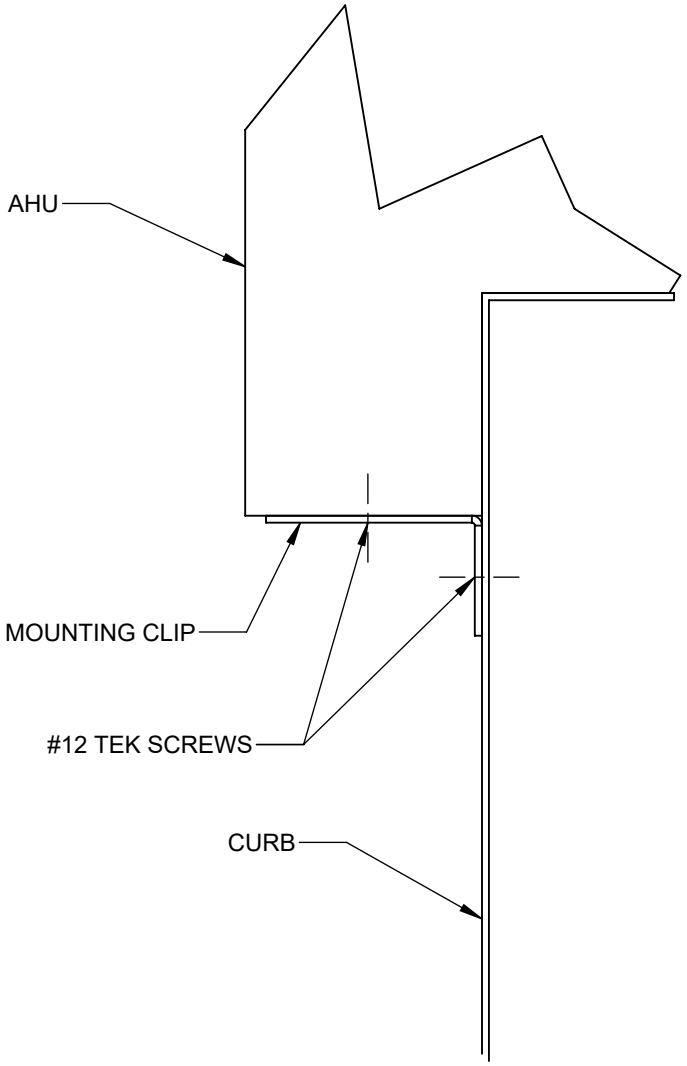
ECO #:

SCALE: 1:2

SHEET: 1 OF 2

Attn:_____

Tag:_____



RESTRAINT CLIP FOR USE WITH
CDI CURB # 4000
(6 clips total, 3 per long side of unit).

* Verify existing curb OD
* Verify supply and return openings
* Note any changes
* Call with any questions
* Fax back if drawing is OK as is

DIMENSIONS ARE AS FOLLOWS: 1.000 in [25.40 mm]	3RD ANGLE PROJECTION

APPROVALS	DATE
DRAWN: spickar	2/17/2014
CHECKED:	.
MGMT:	.

TITLE: **4000 L-CLIPS NS**

CDI
9560 85 TH AVE. N
MAPLE GROVE, MN 55369
(763)391-7790
(763)3917851

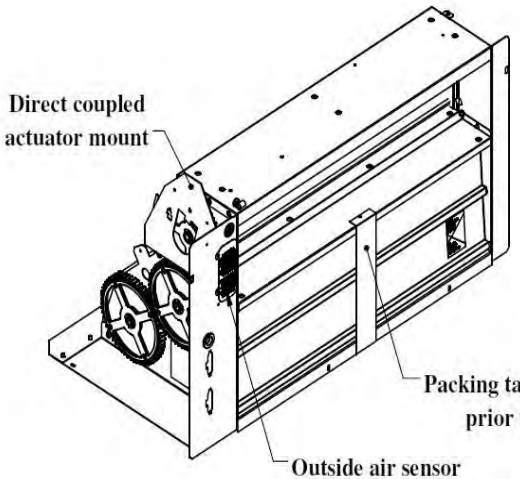
FILE NAME:	DRAWING NO.:	REV:
4000 L-CLIPS NS		01
ECO #:	SCALE: 1:2	SHEET: 2 OF 2

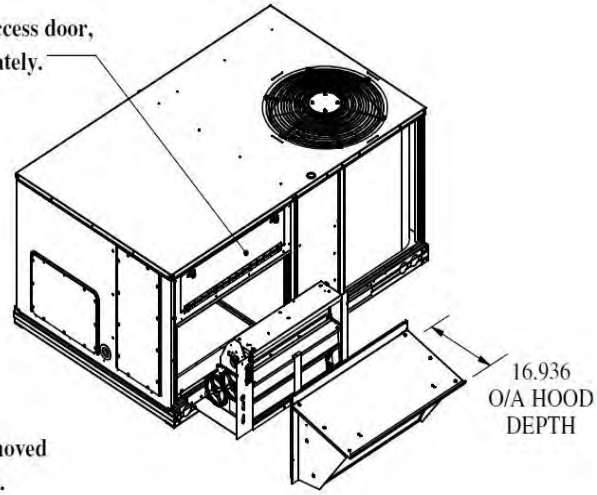
MicroMetl	Date:	Weight: 45lbs (US) 20.41kg (Metric)	Part Number: ECD-SRT12CB-D2DH
	RTU:		
Submitted to:		Approved by:	Notes:

Economizer - Economizer - Genesis Ultra Low Leak Economizer, Vertical Orientation, Honeywell Jade W7220 Single/Multiple Speed Electromechanical Controller, Adjustable Dry Bulb Sensor, Honeywell Actuator. Painted Rain Hood With Aluminum Filter, Barometric Relief, All Necessary Panels And Hardware Included. For Differential Return Air Sensor Please Order 9901-2022-DIFF JC2

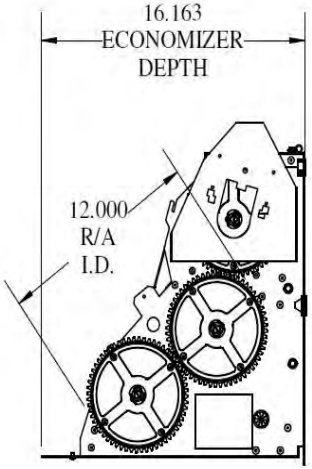
FEATURES:

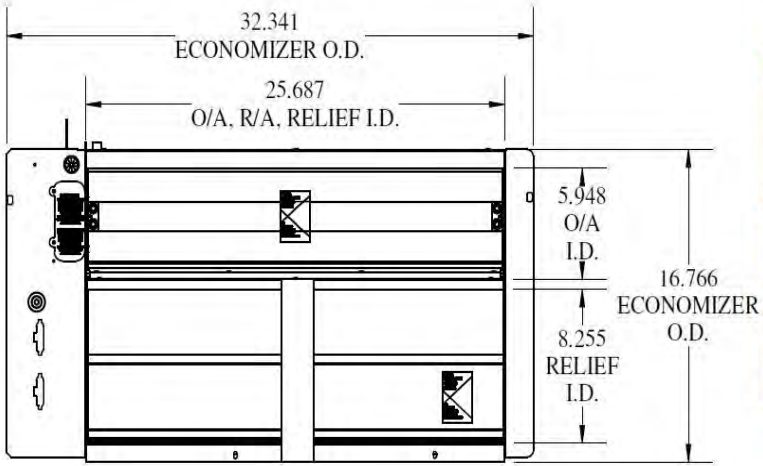
- External gear driven dampers with roll formed blades.
- Designed for vertical applications only.
- Factory assembled rain hood, with aluminum water entrainment filters.
- Filter access door supplied with RTU.
- Hinged filter access door is ordered separately.
  - MMC P/# for Chassis 1 - ECD-SRT1CA-HDOOR
  - MMC P/# for Chassis 2 - ECD-SRT2CA-HDOOR
- Rain hood is sloped for water run off.
- All harnesses and plugs needed are supplied.
- Economizer is class 1A & AMCA rated.
- Relief blades are AMCA rated.
- Uses filter rack with unit.
- Motorized relief available, add -M to end of part number
  - Ex: ECD-SRT12CB-D2DH-M
- Economizer with smoke detector available, add -S to end of part number
  - Ex: ECD-SRT12CB-D2DH-S





-Control Types	
-D2DH	W7220 controller, actuator w/feedback, adjustable drybulb controls
-D2EH	W7220 controller, actuator w/feedback, enthalpy controls





Master Revision 0001A

Page Revision 0001A

MicroMetl	Date:	Weight: 45lbs (US) 20.41kg (Metric)	Part Number: ECD-SRT12CB-D2DH
	RTU:		
Submitted to:		Approved by:	Notes:

Economizer - Economizer - Genesis Ultra Low Leak Economizer, Vertical Orientation, Honeywell Jade W7220 Single/Multiple Speed Electromechanical Controller, Adjustable Dry Bulb Sensor, Honeywell Actuator. Painted Rain Hood With Aluminum Filter, Barometric Relief, All Necessary Panels And Hardware Included. For Differential Return Air Sensor Please Order 9901-2022-DIFF JC2

Compliant Economizer:

1. **Title 24:** Economizers meet California Energy Commission Title 24-2013 / 2016 prescriptive section 140.4 (damper leakage etc.), and mandatory section 120.2.i for Fault Detection and Diagnostic controls (JADE HJW10). 5 Year Warranty for parts and components only.
2. **ASHRAE 90.1:** Economizers meet ASHRAE 90.1-2013 / 2016 damper leakage requirements, and meet 2016 Fault Detection and Diagnosis requirements.
3. **IECC:** Economizers meet IECC 2012, IECC 2015, and IECC 2018 for outside air, return air, and relief damper (when provided) leakage requirements, and IECC 2015 and IECC 2018 for Fault Detection and Diagnostic requirements.
4. **AMCA:** Outside air and return air (volume) dampers are AMCA Class 1A rated at 1" w.g. Refer to MicroMetl NS2 catalog sheet on web site for details. Relief air dampers (when provided) are also AMCA rated. Refer to GR1 series catalog sheet on web site for details.

Features:

- For single or 2 speed indoor fan units with Central Terminal Board (CTB) and Compressor Staging Board. Other control options available.
- Gear driven design for trouble-free operation, eliminating slippage and binding associated with standard linkage.
- Includes assembled rainhood with aluminum water entrainment filters in the outside air section.
- Rainhood is sloped for water run-off.
- Built-in barometric relief damper provided. Power exhaust options available.
- All harnesses and plugs needed are provided.
- Uses standard factory filter access door shipped with HVAC unit.
- If factory hinged access door option is installed on unit, an additional kit is required to seal hinged door properly.
  - OEM part no. CRPECONV003A00 or MicroMetl part number 0640-0100-HDANGL

Notes:

1. Control systems include Honeywell W7220 JADE controller, mixed (supply) air temperature sensor, OA sensor in description, and spring-return communicating actuator (some include differential return sensor as noted).
2. JADE W7220 controller is field mounted in unit's control box.
3. Mixed (supply) air sensor is field installed in indoor blower fan section.
4. Differential return sensor (MicroMetl Part No. 9901-2022-DIFF JC2) is field installed in return duct.
5. ASHRAE, IECC, and Title 24 require the economizer controller be capable of reporting faults to a fault management application accessible by day-to-day operating or service personnel, or annunciated locally on zone thermostats or in some codes other devices are acceptable. Refer to applicable code requirements and to MicroMetl instructions for suggestions.
6. For older single speed models without the Central Terminal Board the "-D2" part number is replaced by "-DJ". (See separate submittal).

MicroMetl Corporation certifies that the models GR1 and NS2 shown herein are licensed to bear the AMCA Seal.
The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with requirements of the AMCA Certified Ratings Programs.
The AMCA Certified Ratings Seal applies to Air Leakage and Air Performance ratings.

Unit Report For AC-41

Project: Rocklin High School
Prepared By: Brayden Duncan

11/28/2022
10:30AM

Unit Parameters

Unit Model: **48FCDM07A2A6-0A0A0**
Unit Size: **07 (6 Tons)**
Volts-Phase-Hertz: **460-3-60**
Heating Type: **Gas**
Heat Control: **Low Heat**
Duct Cfg: **Vertical Supply / Vertical Return**
DX Options: **Single Circuit, Two Stage Cooling (07 only)**

Dimensions (ft. in.) & Weight (lb.) ***

Unit Length: **6' 2.375"**
Unit Width: **3' 10.625"**
Unit Height: **3' 5.375"**
Total Operating Weight: 607 lb

*** Weights and Dimensions are approximate. Weight does not include unit packaging. Approximate dimensions are provided primarily for shipping purposes. For exact dimensions and weights, refer to appropriate product data catalog.

Lines and Filters

Gas Line Size: **1/2**
Condensate Drain Line Size: **3/4**
Return Air Filter Type: **Throwaway**
Return Air Filter Quantity: **4**
Return Air Filter Size: **16 x 16 x 2**

Selection includes construction throwaway filter into the base fan curve. This filter is not MERV Rated.

Unit Configuration

Direct Drive - EcoBlue - Medium Static
Al/Cu - Al/Cu
Base Electromechanical Controls
Standard Packaging

Warranty Information

1-Year parts(std.)
5-Year compressor parts(std.)
10-Year heat exchanger - Aluminized(std.)

No optional warranties were selected.

NOTE: Please see Warranty Catalog 500-089 for explanation of policies and ordering methods.

Ordering Information

Part Number	Description	Quantity
48FCDM07A2A6-0A0A0	Rooftop Unit	1

Performance Summary For AC-41

Project: Rocklin High School
Prepared By: Brayden Duncan

11/28/2022
10:30AM

Part Number:48FCDM07A2A6-0A0A0

ARI EER:	**11.00**	
IEER:	**15.0**	

Base Unit Dimensions

Unit Length:	**74.4**	in
Unit Width:	**46.6**	in
Unit Height:	**41.4**	in

Operating Weight

Base Unit Weight:	**607**	lb
Total Operating Weight:	**607**	lb

Unit

Unit Voltage-Phase-Hertz:	**460-3-60**	
Air Discharge:	**Vertical**	
Fan Drive Type:	**Vane Axial**	
Actual Airflow:	**2400**	CFM
Site Altitude:	**0**	ft

Cooling Performance

Condenser Entering Air DB:	**105.0**	F
Evaporator Entering Air DB:	**80.0**	F
Evaporator Entering Air WB:	**67.0**	F
Entering Air Enthalpy:	**31.44**	BTU/lb
Evaporator Leaving Air DB:	**59.3**	F
Evaporator Leaving Air WB:	**58.1**	F
Evaporator Leaving Air Enthalpy:	**25.13**	BTU/lb
Unit Discharge Air DB:	**60.7**	F
Unit Discharge Air WB:	**58.7**	F
Unit Discharge Air Enthalpy:	**25.46**	BTU/lb
Gross Cooling Capacity:	**68.16**	MBH
Net Cooling Capacity:	**64.55**	MBH
Gross Sensible Capacity:	**53.70**	MBH
Net Sensible Capacity:	**50.09**	MBH
Compressor Power Input:	**5.96**	kW
Coil Bypass Factor:	**0.098**	

Heating Performance

Heating Airflow:	**2400**	CFM
Entering Air Temp:	**70.0**	F
Leaving Air Temp:	**90.8**	F
Gas Heating Input Capacity:	**67.0**	MBH
Gas Heating Output Capacity:	**54.0**	MBH
Temperature Rise:	**20.8**	F
Thermal Efficiency (%):	**81.0**	

Supply Fan

External Static Pressure:	**0.60**	in wg
Fan RPM:	**2271**	
Fan Power:	**1.24**	BHP
NOTE:	**Selected IFM RPM Range: 1596 - 2530**	

Selection includes construction throwaway filter into the base fan curve. This filter is not MERV Rated.

Electrical Data

Voltage Range:	**414 - 506**	
Compressor #1 RLA:	**8.4**	

Compressor #1 LRA: **66**
Indoor Fan Motor Type: **MED**
Indoor Fan Motor FLA (Total): **2.6**
Combustion Fan Motor FLA (ea): **0.25**
Power Supply MCA: **14**
Power Supply MOCP (Fuse or HACR): **20**
Disconnect Size FLA: **14**
Disconnect Size LRA: **72**
Electrical Convenience Outlet: **None**
Outdoor Fan [Qty / FLA (ea)]: **1 / 0.8**

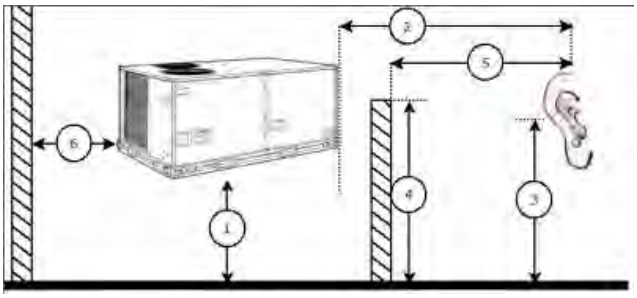
Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

Acoustics

Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	92.6	89.7	85.6
125 Hz	84.2	80.9	84.7
250 Hz	78.5	72.5	80.5
500 Hz	76.1	68.2	76.0
1000 Hz	73.1	70.2	72.4
2000 Hz	70.9	61.7	68.0
4000 Hz	66.1	54.4	62.8
8000 Hz	61.4	48.9	59.3
A-Weighted	79.2	73.7	79.0

Advanced Acoustics



Advanced Accoustics Parameters

1. Unit height above ground: **30.0** ft
2. Horizontal distance from unit to receiver: **50.0** ft
3. Receiver height above ground: **5.7** ft
4. Height of obstruction: **0.0** ft
5. Horizontal distance from obstruction to receiver: **0.0** ft
6. Horizontal distance from unit to obstruction: **0.0** ft

Detailed Acoustics Information

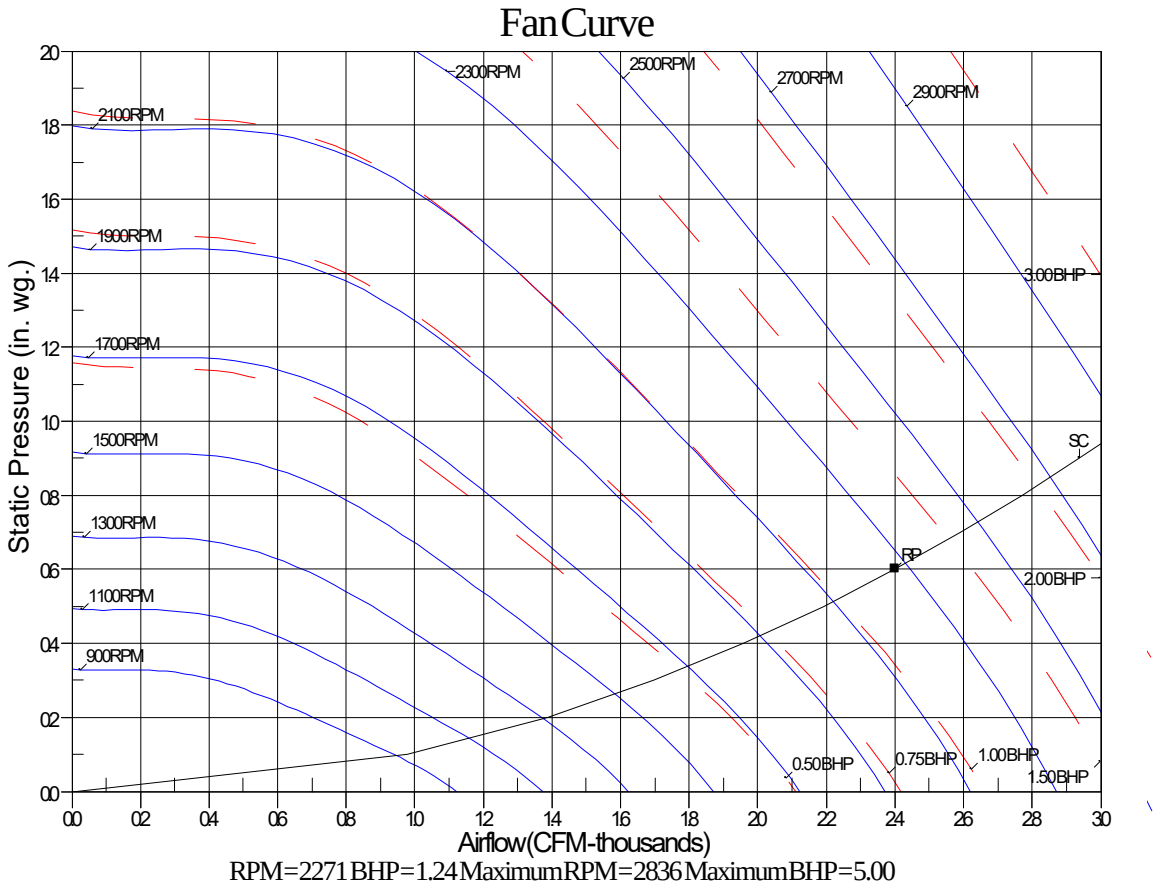
Octave Band Center Freq. Hz	63	125	250	500	1k	2k	4k	8k	Overall
A	85.6	84.7	80.5	76.0	72.4	68.0	62.8	59.3	89.2 Lw
B	59.4	68.6	71.9	72.8	72.4	69.2	63.8	58.2	78.5 LwA
C	53.2	52.3	48.1	43.6	40.0	35.6	30.4	26.9	56.8 Lp
D	27.0	36.2	39.5	40.4	40.0	36.8	31.4	25.8	46.1 LpA

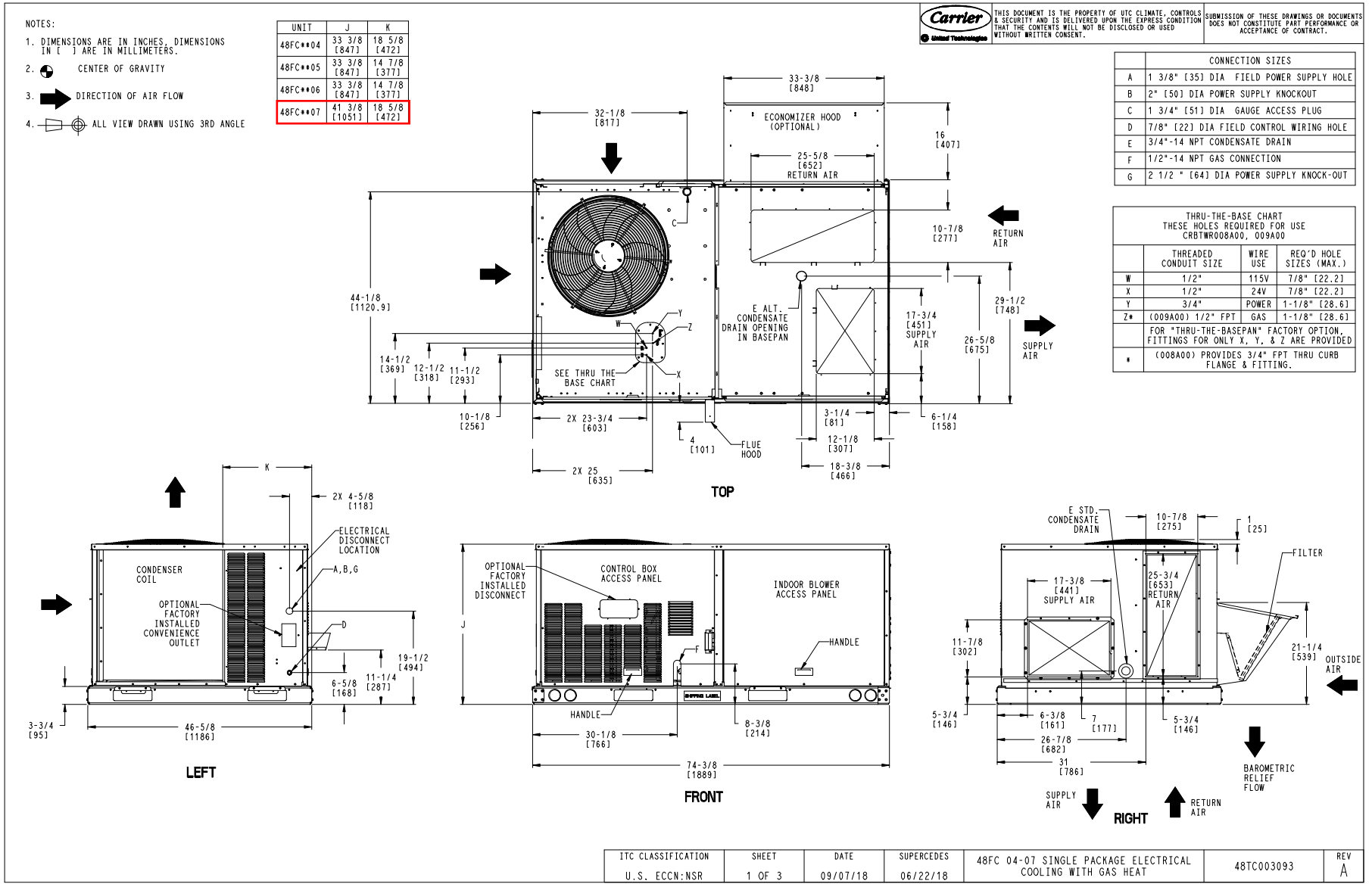
Performance Summary For AC-41

Project: Rocklin High School 11/28/2022
Prepared By: Brayden Duncan 10:30AM

Legend
A Sound Power Levels at Unit's Acoustic Center, Lw
B A-Weighted Sound Power Levels at Unit's Acoustic Center, LwA
C Sound Pressure Levels at Specific Distance from Unit, Lp
D A-Weighted Sound Pressure Levels at Specific Distance from Unit, LpA

Calculation methods used in this program are patterned after the ASHRAE Guide; other ASHRAE Publications and the AHRI Acoustical Standards. While a very significant effort has been made to insure the technical accuracy of this program, it is assumed that the user is knowledgeable in the art of system sound estimation and is aware of the tolerances involved in real world acoustical estimation. This program makes certain assumptions as to the dominant sound sources and sound paths which may not always be appropriate to the real system being estimated. Because of this, no assurances can be offered that this software will always generate an accurate sound prediction from user supplied input data. If in doubt about the estimation of expected sound levels in a space, an Acoustical Engineer or a person with sound prediction expertise should be consulted.




NOTES:
1. DIMENSIONS ARE IN INCHES, DIMENSIONS IN [ ] ARE IN MILLIMETERS.
2. CENTER OF GRAVITY
3. DIRECTION OF AIR FLOW
4. ALL VIEW DRAWN USING 3RD ANGLE
UNIT | J | K
48FC**04 | 33 3/8 [847] | 18 5/8 [472]
48FC**05 | 33 3/8 [847] | 14 7/8 [377]
48FC**06 | 33 3/8 [847] | 14 7/8 [377]
48FC**07 | 41 3/8 [1051] | 18 5/8 [472]
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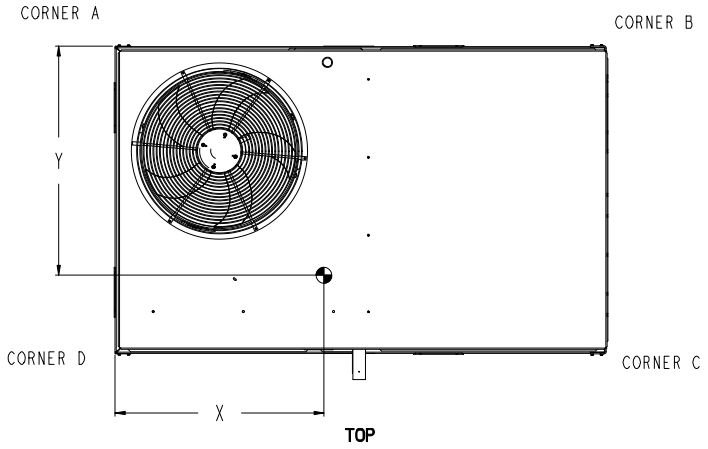
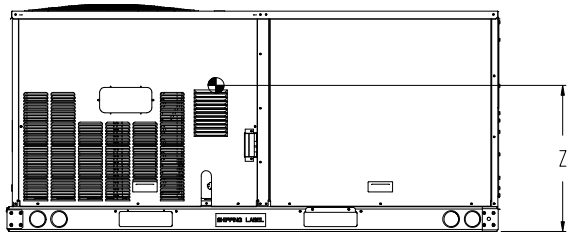
SUBMISSION OF THESE DRAWINGS OR DOCUMENTS DOES NOT CONSTITUTE PART PERFORMANCE OR ACCEPTANCE OF CONTRACT.
CONNECTION SIZES
A 1 3/8" [35] DIA FIELD POWER SUPPLY HOLE
B 2" [50] DIA POWER SUPPLY KNOCKOUT
C 1 3/4" [51] DIA GAUGE ACCESS PLUG
D 7/8" [22] DIA FIELD CONTROL WIRING HOLE
E 3/4"-14 NPT CONDENSATE DRAIN
F 1/2"-14 NPT GAS CONNECTION
G 2 1/2 " [64] DIA POWER SUPPLY KNOCK-OUT
THRU-THE-BASE CHART
THESE HOLES REQUIRED FOR USE CRBTWR008A00, 009A00
THREADED CONDUIT SIZE | WIRE USE | REQ'D HOLE SIZES (MAX.)
W 1/2" | 115V | 7/8" [22.2]
X 1/2" | 24V | 7/8" [22.2]
Y 3/4" | POWER | 1-1/8" [28.6]
Z* (009A00) 1/2" FPT | GAS | 1-1/8" [28.6]
FOR "THRU-THE-BASEPAN" FACTORY OPTION, FITTINGS FOR ONLY X, Y, & Z ARE PROVIDED
* (008A00) PROVIDES 3/4" FPT THRU CURB FLANGE & FITTING.
33-3/8 [848]
32-1/8 [817]
ECONOMIZER HOOD (OPTIONAL)
25-5/8 [652] RETURN AIR
16 [407]
10-7/8 [277]
RETURN AIR
44-1/8 [1120.9]
14-1/2 [369]
12-1/2 [318]
11-1/2 [293]
10-1/8 [256]
SEE THRU THE BASE CHART
E ALT. CONDENSATE DRAIN OPENING IN BASEPAN
17-3/4 [451] SUPPLY AIR
29-1/2 [748]
26-5/8 [675]
SUPPLY AIR
2X 23-3/4 [603]
2X 25 [635]
4 [101]
FLUE HOOD
3-1/4 [81]
12-1/8 [307]
18-3/8 [466]
6-1/4 [158]
TOP
K
2X 4-5/8 [118]
ELECTRICAL DISCONNECT LOCATION
A,B,G
CONDENSER COIL
OPTIONAL FACTORY INSTALLED CONVENIENCE OUTLET
D
19-1/2 [494]
11-1/4 [287]
6-5/8 [168]
3-3/4 [95]
46-5/8 [1186]
LEFT
OPTIONAL FACTORY INSTALLED DISCONNECT
CONTROL BOX ACCESS PANEL
INDOOR BLOWER ACCESS PANEL
J
HANDLE
F
HANDLE
30-1/8 [766]
8-3/8 [214]
74-3/8 [1889]
FRONT
E STD. CONDENSATE DRAIN
10-7/8 [275]
1 [25]
FILTER
17-3/8 [441] SUPPLY AIR
25-3/4 [653] RETURN AIR
21-1/4 [539]
OUTSIDE AIR
11-7/8 [302]
5-3/4 [146]
6-3/8 [161]
7 [177]
5-3/4 [146]
26-7/8 [682]
31 [786]
BAROMETRIC RELIEF FLOW
SUPPLY AIR
RETURN AIR
RIGHT
ITC CLASSIFICATION U.S. ECCN:NSR
SHEET 1 OF 3
DATE 09/07/18
SUPERCEDES 06/22/18
48FC 04-07 SINGLE PACKAGE ELECTRICAL COOLING WITH GAS HEAT
48TC003093
REV A

UNIT	STD. UNIT WEIGHT *		CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		C.G.		HEIGHT
	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X	Y	Z
48FC**04	482	219	113	51	116	53	128	58	125	57	37 5/8 [956]	24 9/16 [624]	18 1/4 [464]
48FC**05	543	246	138	63	133	60	133	60	138	63	36 1/2 [927]	23 3/8 [594]	18 [457]
48FC**06	556	252	142	64	136	62	136	62	142	64	36 1/2 [927]	23 3/8 [594]	18 [457]
48FC**07	607	275	162	73	152	69	141	64	151	68	36 [914]	22 1/2 [572]	19 3/8 [492]

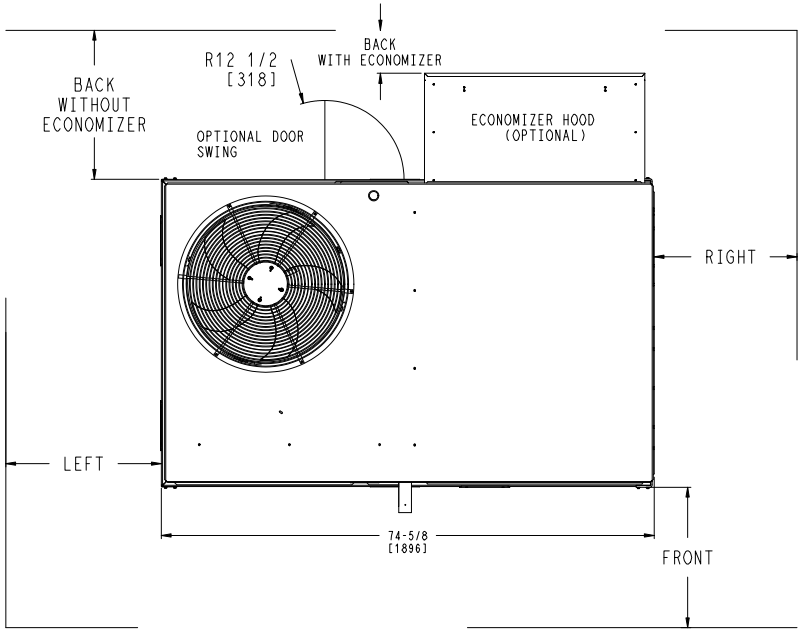
* STANDARD UNIT WEIGHT IS WITH LOW GAS HEAT AND WITHOUT PACKAGING.
FOR OTHER OPTIONS AND ACCESSORIES, REFER TO THE PRODUCT DATA CATALOG.



TOP



FRONT

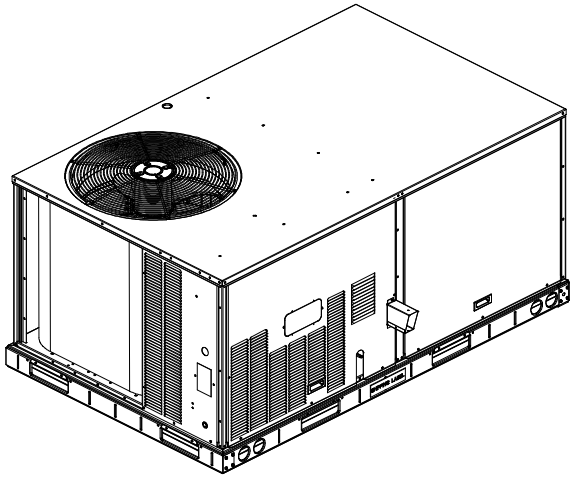


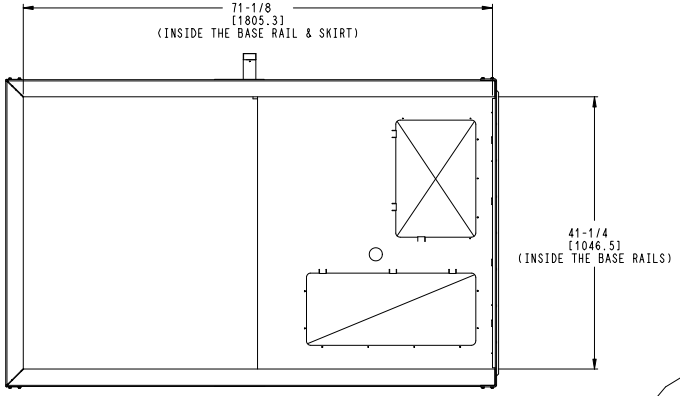
NOTES:

1. FOR ALL MINIMUM CLEARANCES LOCAL CODES OR JURISDICTIONS MAY PREVAIL.

	CLEARANCE		
	SERVICE WITH:	SERVICE WITH:	OPERATING
SURFACE	CONDUCTIVE BARRIER	NONCONDUCTIVE BARRIER	CLEARANCE
FRONT	48 [1219mm]	36 [914mm]	18 [457mm]
LEFT	48 [1219mm]	42 [1067mm]	18 [457mm]
BACK	48 [1219mm]	42 [1067mm]	18 [457mm]
BACK W/HOOD	36 [914mm]	36 [914mm]	18 [457mm]
RIGHT	36 [914mm]	36 [914mm]	18 [457mm]
TOP	72 [1829mm]	72 [1829mm]	72 [1829mm]

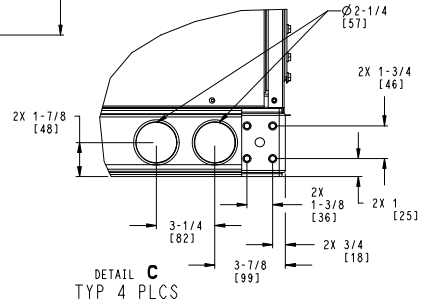
ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES			REV
U.S. ECCN:NSR	2 OF 3	09/07/18	06/22/18	48FC 04-07 SINGLE PACKAGE ELECTRICAL COOLING WITH GAS HEAT	48TC003093	A



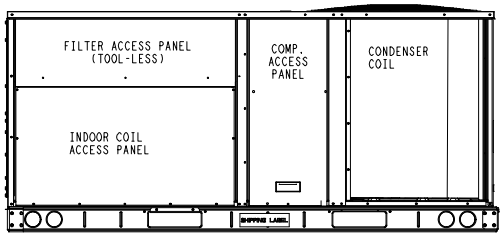


INSIDE BASERAIL DIMENSIONS

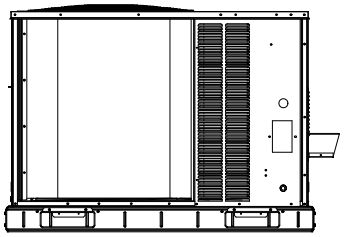
BOTTOM



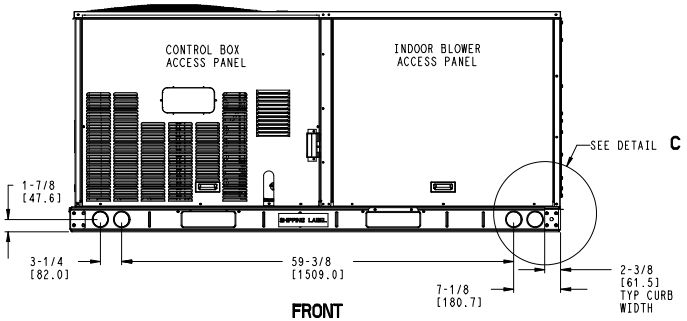
DETAIL **C**
TYP 4 PLCS



BACK



LEFT



FRONT

ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES			REV
U.S. ECCN:NSR	3 OF 3	09/07/18	06/22/18	48FC 04-07 SINGLE PACKAGE ELECTRICAL COOLING WITH GAS HEAT	48TC003093	A

OPTIONS:
MATERIAL: 18ga. GALV STEEL
INSULATED PANELS (WHERE REQUIRED)
1" 1-1/2LB DUCT INSULATION (R VALUE 3.85)
GASKET PROVIDED WITH CURB
1 1/2" ADDED TO EXISTING CURB O.D.

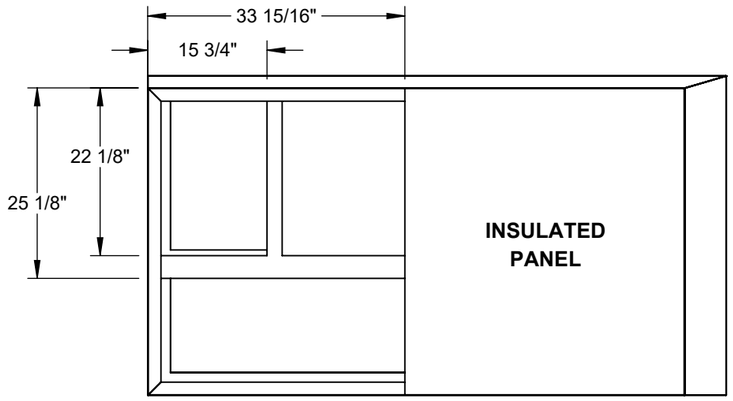
DIMENSIONED AND TOLERENCED PER ANSI Y14.5M-1982

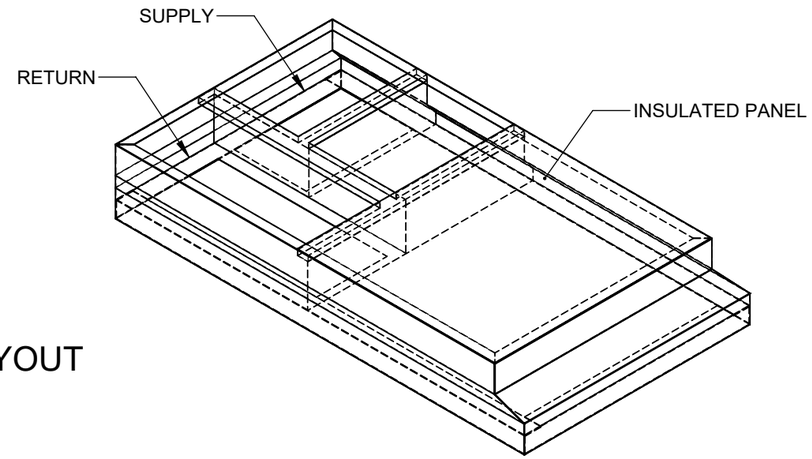
Attn:_____

Tag:_____

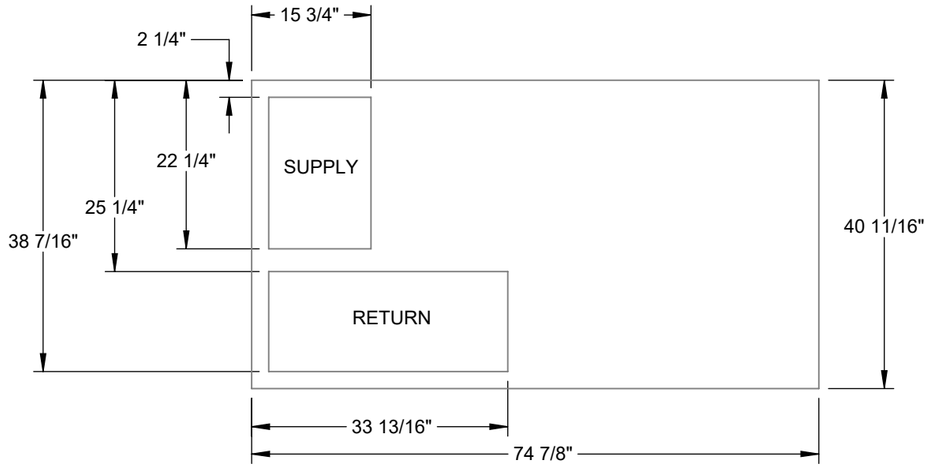
Approval:_____

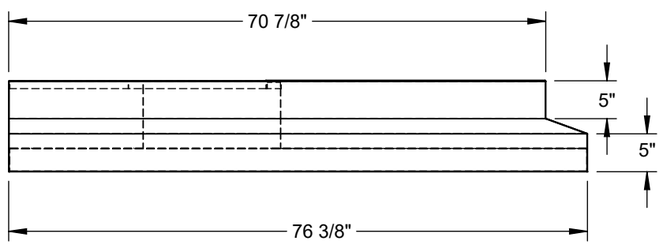
REVISIONS				
REV.	ECO#	DESCRIPTION	DATE	APPROVED
1		INITIAL DRAWING	2/25/2022	NMN

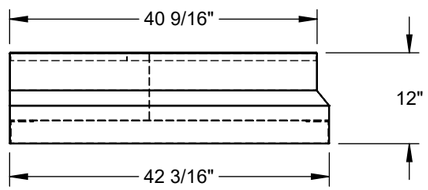




EXISTING CURB LAYOUT







CURB SHOWN IS CDI STANDARD CONFIGURATION CDI RESERVES THE RIGHT TO CHANGE LAYOUT WITHOUT NOTIFICATION. IF CURB IS NEEDED IN A DIFFERENT CONFIGURATION CDI MUST BE NOTIFIED PRIOR TO PLACING AN ORDER.

OPERATIONAL HEIGHT OF CDI ADAPTER IS 3" LESS THAN OVERALL CURB HEIGHT SHOWN.

APPROVALS	DATE
DRAWN: nnelms	2/25/2022
CHECKED:	

DIMENSIONS ARE AS FOLLOWS: 1.00 in [25.40 mm]

TITLE/FILE NAME: 1-6030-4000

*VERIFY EXISTING CURB OD
*VERIFY SUPPLY AND RETURN OPENINGS
*NOTE ANY CHANGES
*CALL WITH ANY QUESTIONS
*FAX BACK IF DRAWING IS OK AS IS

3RD ANGLE PROJECTION

CDI
Contact us @ www.cdicurbs.com or 1-888-234-7001

APPROXIMATE CURB WEIGHT (LBS.): 135.00

ECO #:

REV: 1

SCALE: 1:20

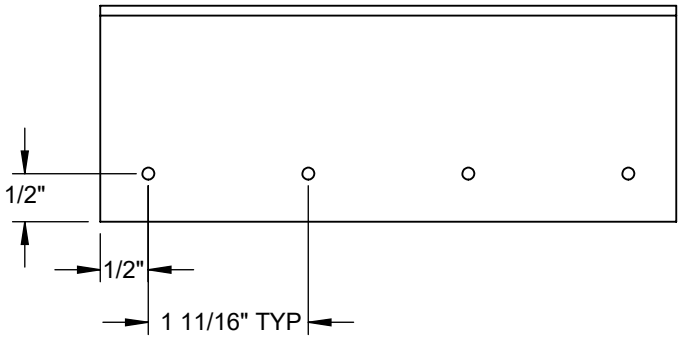
SHEET: 1 OF 5

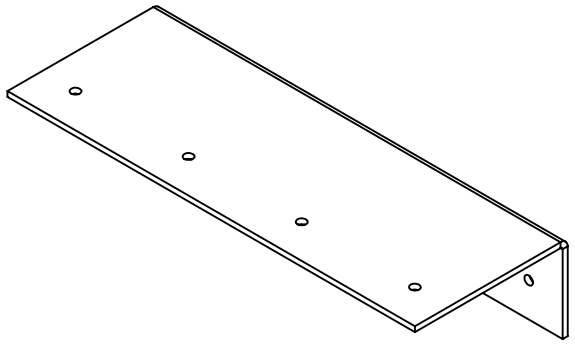
S:\CURBS_CURB_ADAPTERS\1-XXXX-XXXX_CURB_ADAPTERS\1-6XXX-XXXX_RHEEM_RUUD\1-6030-4000\

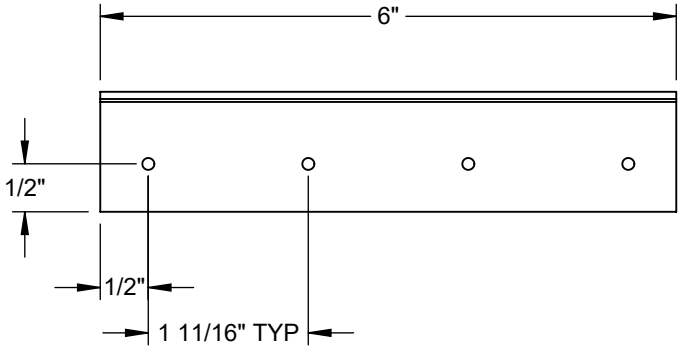
Attn:_____

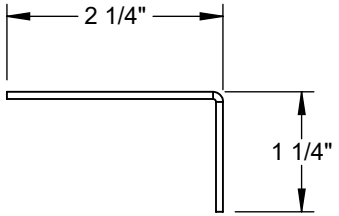
RESTRAINT CLIP FOR USE WITH CDI CURB # 4000 (6 clips total, 3 per long side of unit).

Tag:_____









* Verify existing curb OD
* Verify supply and return openings
* Note any changes
* Call with any questions
* Fax back if drawing is OK as is

ADAPTERS NEED 7" TOP KICK

MATERIAL: 14 GA GALVANIZED STEEL

DIMENSIONS ARE AS FOLLOWS: 1.000 in [25.40 mm]	3RD ANGLE PROJECTION

APPROVALS	DATE
DRAWN: spickar	2/17/2014
CHECKED:	.
MGMT:	.

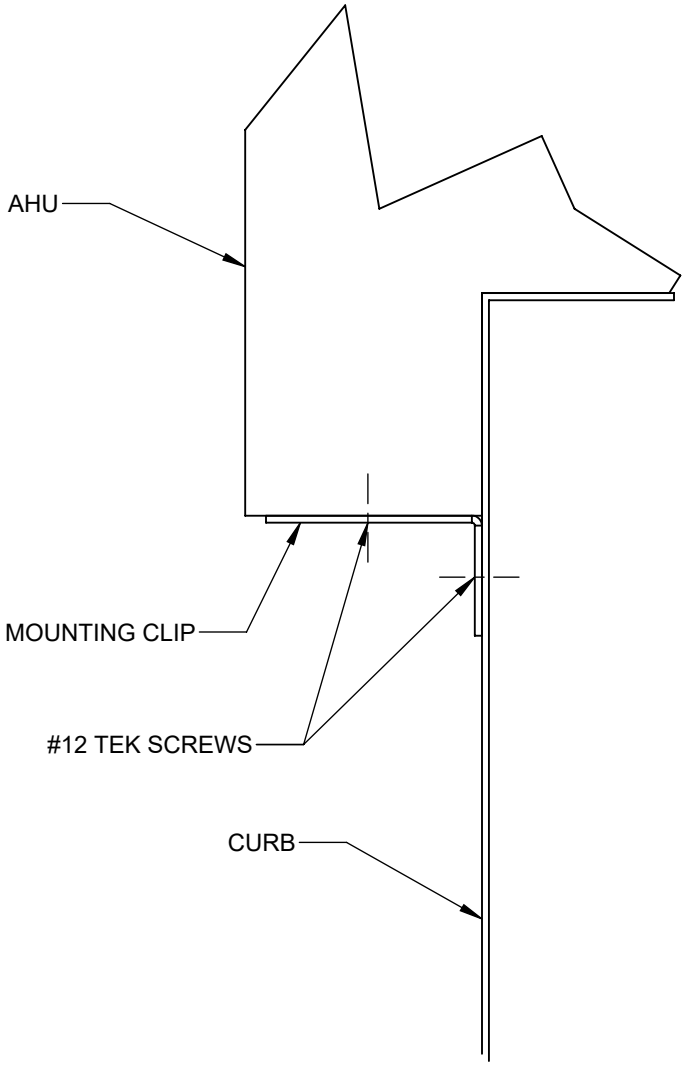
TITLE: **4000 L-CLIPS NS**

CDI
9560 85 TH AVE. N
MAPLE GROVE, MN 55369
(763)391-7790
(763)3917851

FILE NAME: 4000 L-CLIPS NS	DRAWING NO.:	REV: 01	
ECO #:	SCALE: 1:2	SHEET: 1 OF 2	

Attn:_____

Tag:_____



RESTRAINT CLIP FOR USE WITH
CDI CURB # 4000
(6 clips total, 3 per long side of unit).

* Verify existing curb OD
* Verify supply and return openings
* Note any changes
* Call with any questions
* Fax back if drawing is OK as is

DIMENSIONS ARE AS FOLLOWS: 1.000 in [25.40 mm]	3RD ANGLE PROJECTION

APPROVALS	DATE
DRAWN: spickar	2/17/2014
CHECKED:	.
MGMT:	.

TITLE: **4000 L-CLIPS NS**

CDI
9560 85 TH AVE. N
MAPLE GROVE, MN 55369
(763)391-7790
(763)3917851

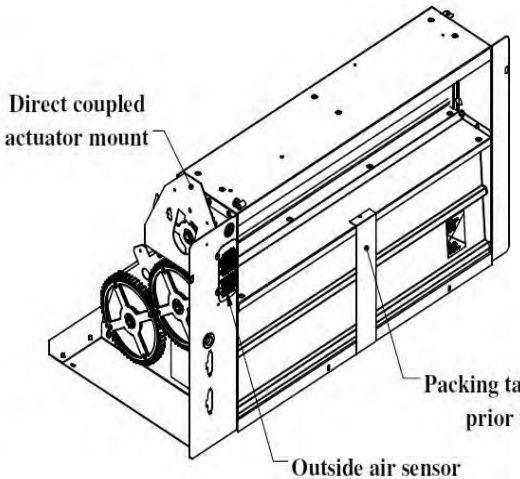
FILE NAME:	DRAWING NO.:	REV:
4000 L-CLIPS NS		01
ECO #:	SCALE: 1:2	SHEET: 2 OF 2

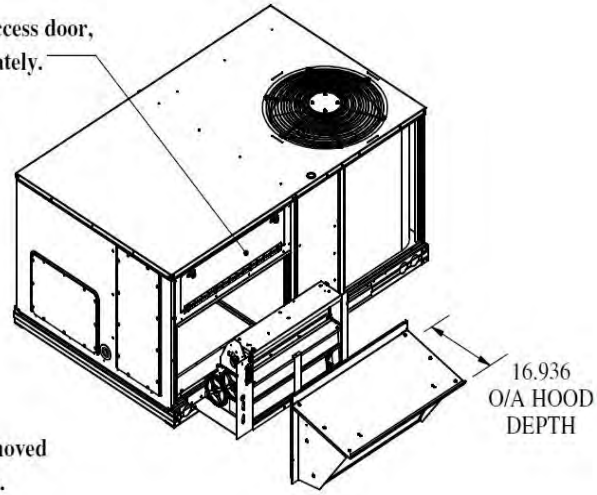
MicroMetl	Date:	Weight: 45lbs (US) 20.41kg (Metric)	Part Number: ECD-SRT12CB-D2DH
	RTU:		
Submitted to:		Approved by:	Notes:

Economizer - Economizer - Genesis Ultra Low Leak Economizer, Vertical Orientation, Honeywell Jade W7220 Single/Multiple Speed Electromechanical Controller, Adjustable Dry Bulb Sensor, Honeywell Actuator. Painted Rain Hood With Aluminum Filter, Barometric Relief, All Necessary Panels And Hardware Included. For Differential Return Air Sensor Please Order 9901-2022-DIFF JC2

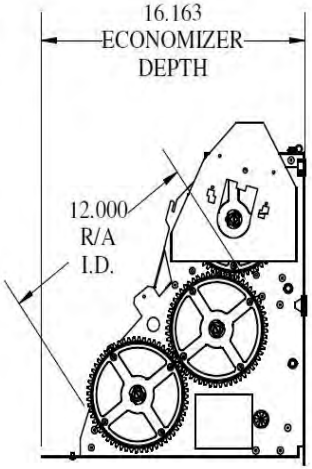
FEATURES:

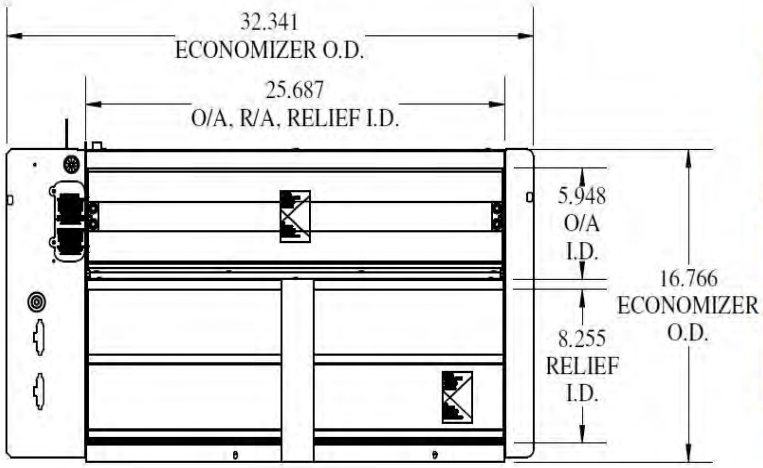
- External gear driven dampers with roll formed blades.
- Designed for vertical applications only.
- Factory assembled rain hood, with aluminum water entrainment filters.
- Filter access door supplied with RTU.
- Hinged filter access door is ordered separately.
  - MMC P/# for Chassis 1 - ECD-SRT1CA-HDOOR
  - MMC P/# for Chassis 2 - ECD-SRT2CA-HDOOR
- Rain hood is sloped for water run off.
- All harnesses and plugs needed are supplied.
- Economizer is class 1A & AMCA rated.
- Relief blades are AMCA rated.
- Uses filter rack with unit.
- Motorized relief available, add -M to end of part number
  - Ex: ECD-SRT12CB-D2DH-M
- Economizer with smoke detector available, add -S to end of part number
  - Ex: ECD-SRT12CB-D2DH-S





-Control Types	
-D2DH	W7220 controller, actuator w/feedback, adjustable drybulb controls
-D2EH	W7220 controller, actuator w/feedback, enthalpy controls





MicroMetl	Date:	Weight: 45lbs (US) 20.41kg (Metric)	Part Number: ECD-SRT12CB-D2DH
	RTU:		
Submitted to:		Approved by:	Notes:

Economizer - Economizer - Genesis Ultra Low Leak Economizer, Vertical Orientation, Honeywell Jade W7220 Single/Multiple Speed Electromechanical Controller, Adjustable Dry Bulb Sensor, Honeywell Actuator. Painted Rain Hood With Aluminum Filter, Barometric Relief, All Necessary Panels And Hardware Included. For Differential Return Air Sensor Please Order 9901-2022-DIFF JC2

Compliant Economizer:

1. **Title 24:** Economizers meet California Energy Commission Title 24-2013 / 2016 prescriptive section 140.4 (damper leakage etc.), and mandatory section 120.2.i for Fault Detection and Diagnostic controls (JADE HJW10). 5 Year Warranty for parts and components only.
2. **ASHRAE 90.1:** Economizers meet ASHRAE 90.1-2013 / 2016 damper leakage requirements, and meet 2016 Fault Detection and Diagnosis requirements.
3. **IECC:** Economizers meet IECC 2012, IECC 2015, and IECC 2018 for outside air, return air, and relief damper (when provided) leakage requirements, and IECC 2015 and IECC 2018 for Fault Detection and Diagnostic requirements.
4. **AMCA:** Outside air and return air (volume) dampers are AMCA Class 1A rated at 1" w.g. Refer to MicroMetl NS2 catalog sheet on web site for details. Relief air dampers (when provided) are also AMCA rated. Refer to GR1 series catalog sheet on web site for details.

Features:

- For single or 2 speed indoor fan units with Central Terminal Board (CTB) and Compressor Staging Board. Other control options available.
- Gear driven design for trouble-free operation, eliminating slippage and binding associated with standard linkage.
- Includes assembled rainhood with aluminum water entrainment filters in the outside air section.
- Rainhood is sloped for water run-off.
- Built-in barometric relief damper provided. Power exhaust options available.
- All harnesses and plugs needed are provided.
- Uses standard factory filter access door shipped with HVAC unit.
- If factory hinged access door option is installed on unit, an additional kit is required to seal hinged door properly.
  - OEM part no. CRPECONV003A00 or MicroMetl part number 0640-0100-HDANGL

Notes:

1. Control systems include Honeywell W7220 JADE controller, mixed (supply) air temperature sensor, OA sensor in description, and spring-return communicating actuator (some include differential return sensor as noted).
2. JADE W7220 controller is field mounted in unit's control box.
3. Mixed (supply) air sensor is field installed in indoor blower fan section.
4. Differential return sensor (MicroMetl Part No. 9901-2022-DIFF JC2) is field installed in return duct.
5. ASHRAE, IECC, and Title 24 require the economizer controller be capable of reporting faults to a fault management application accessible by day-to-day operating or service personnel, or annunciated locally on zone thermostats or in some codes other devices are acceptable. Refer to applicable code requirements and to MicroMetl instructions for suggestions.
6. For older single speed models without the Central Terminal Board the "-D2" part number is replaced by "-DJ". (See separate submittal).

MicroMetl Corporation certifies that the models GR1 and NS2 shown herein are licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with requirements of the AMCA Certified Ratings Programs. The AMCA Certified Ratings Seal applies to Air Leakage and Air Performance ratings.

Master Revision 0001A

Page Revision 0001A

Unit Parameters

Unit Model: **48FCDM08A2A6-0A0A0**
Unit Size: **08 (7.5 Tons)**
Volts-Phase-Hertz: **460-3-60**
Heating Type: **Gas**
Heat Control: **Low Heat**
Duct Cfg: **Vertical Supply / Vertical Return**
DX Options: **Single Circuit, Two Stage Cooling**

Dimensions (ft. in.) & Weight (lb.) ***

Unit Length: **7' 4.125"**
Unit Width: **4' 11.5"**
Unit Height: **3' 5.25"**
Total Operating Weight: **743** lb

*** Weights and Dimensions are approximate. Weight does not include unit packaging. Approximate dimensions are provided primarily for shipping purposes. For exact dimensions and weights, refer to appropriate product data catalog.

Lines and Filters

Gas Line Size: **1/2**
Condensate Drain Line Size: **3/4**
Return Air Filter Type: **Throwaway**
Return Air Filter Quantity: **4**
Return Air Filter Size: **16 x 20 x 2**

Selection includes construction throwaway filter into the base fan curve. This filter is not MERV Rated.

Unit Configuration

Standard/Medium Static (EcoBlue)
Al/Cu - Al/Cu
Base Electromechanical Controls
Standard Packaging

Warranty Information

1-Year parts(std.)
5-Year compressor parts(std.)
10-Year heat exchanger - Aluminized(std.)

No optional warranties were selected.

NOTE: Please see Warranty Catalog 500-089 for explanation of policies and ordering methods.

Ordering Information

Part Number	Description	Quantity
48FCDM08A2A6-0A0A0	Rooftop Unit	4

Performance Summary For AC-52,66,68,69

Project: Rocklin High School 11/28/2022
Prepared By: Brayden Duncan 10:30AM

Part Number:48FCDM08A2A6-0A0A0

ARI EER:	**11.20**	
IEER:	**15.0**	
Base Unit Dimensions		
Unit Length:	**88.1**	in
Unit Width:	**59.5**	in
Unit Height:	**41.3**	in
Operating Weight		
Base Unit Weight:	**743**	lb
Total Operating Weight:	**743**	lb
Unit		
Unit Voltage-Phase-Hertz:	**460-3-60**	
Air Discharge:	**Vertical**	
Fan Drive Type:	**Vane Axial**	
Actual Airflow:	**3000**	CFM
Site Altitude:	**0**	ft
Cooling Performance		
Condenser Entering Air DB:	**105.0**	F
Evaporator Entering Air DB:	**80.0**	F
Evaporator Entering Air WB:	**67.0**	F
Entering Air Enthalpy:	**31.44**	BTU/lb
Evaporator Leaving Air DB:	**60.6**	F
Evaporator Leaving Air WB:	**58.2**	F
Evaporator Leaving Air Enthalpy:	**25.18**	BTU/lb
Unit Discharge Air DB:	**61.7**	F
Unit Discharge Air WB:	**58.6**	F
Unit Discharge Air Enthalpy:	**25.44**	BTU/lb
Gross Cooling Capacity:	**84.52**	MBH
Net Cooling Capacity:	**80.96**	MBH
Gross Sensible Capacity:	**63.00**	MBH
Net Sensible Capacity:	**59.44**	MBH
Compressor Power Input:	**7.17**	kW
Coil Bypass Factor:	**0.145**	
Heating Performance		
Heating Airflow:	**3000**	CFM
Entering Air Temp:	**70.0**	F
Leaving Air Temp:	**101.8**	F
Gas Heating Input Capacity:	**125.0**	MBH
Gas Heating Output Capacity:	**103.0**	MBH
Temperature Rise:	**31.8**	F
Supply Fan		
External Static Pressure:	**0.60**	in wg
Fan RPM:	**1495**	
Fan Power:	**1.22**	BHP
NOTE:	**Selected IFM RPM Range: 1040 - 2000**	

Selection includes construction throwaway filter into the base fan curve. This filter is not MERV Rated.

Electrical Data		
Voltage Range:	**414 - 506**	
Compressor #1 RLA:	**6.1**	
Compressor #1 LRA:	**60**	

Compressor #2 RLA: **6.1**
Compressor #2 LRA: **60**
Indoor Fan Motor Type: **MED**
Indoor Fan Motor FLA (Total): **3**
Combustion Fan Motor FLA (ea): **0.25**
Power Supply MCA: **19**
Power Supply MOCP (Fuse or HACR): **20**
Disconnect Size FLA: **19**
Disconnect Size LRA: **128**
Electrical Convenience Outlet: **None**
Outdoor Fan [Qty / FLA (ea)]: **2 / 0.8**

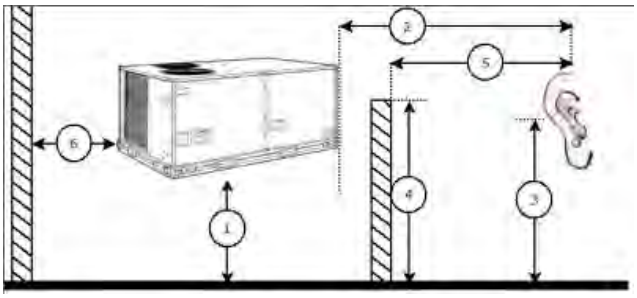
Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

Acoustics

Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	96.8	93.9	85.6
125 Hz	90.7	84.3	84.7
250 Hz	75.5	68.5	80.5
500 Hz	69.1	64.2	76.0
1000 Hz	64.4	61.5	72.4
2000 Hz	62.6	56.6	68.0
4000 Hz	65.1	55.9	62.8
8000 Hz	65.7	55.3	59.3
A-Weighted	77.9	72.4	79.0

Advanced Acoustics



Advanced Accoustics Parameters

1. Unit height above ground: **30.0** ft
2. Horizontal distance from unit to receiver: **50.0** ft
3. Receiver height above ground: **5.7** ft
4. Height of obstruction: **0.0** ft
5. Horizontal distance from obstruction to receiver: **0.0** ft
6. Horizontal distance from unit to obstruction: **0.0** ft

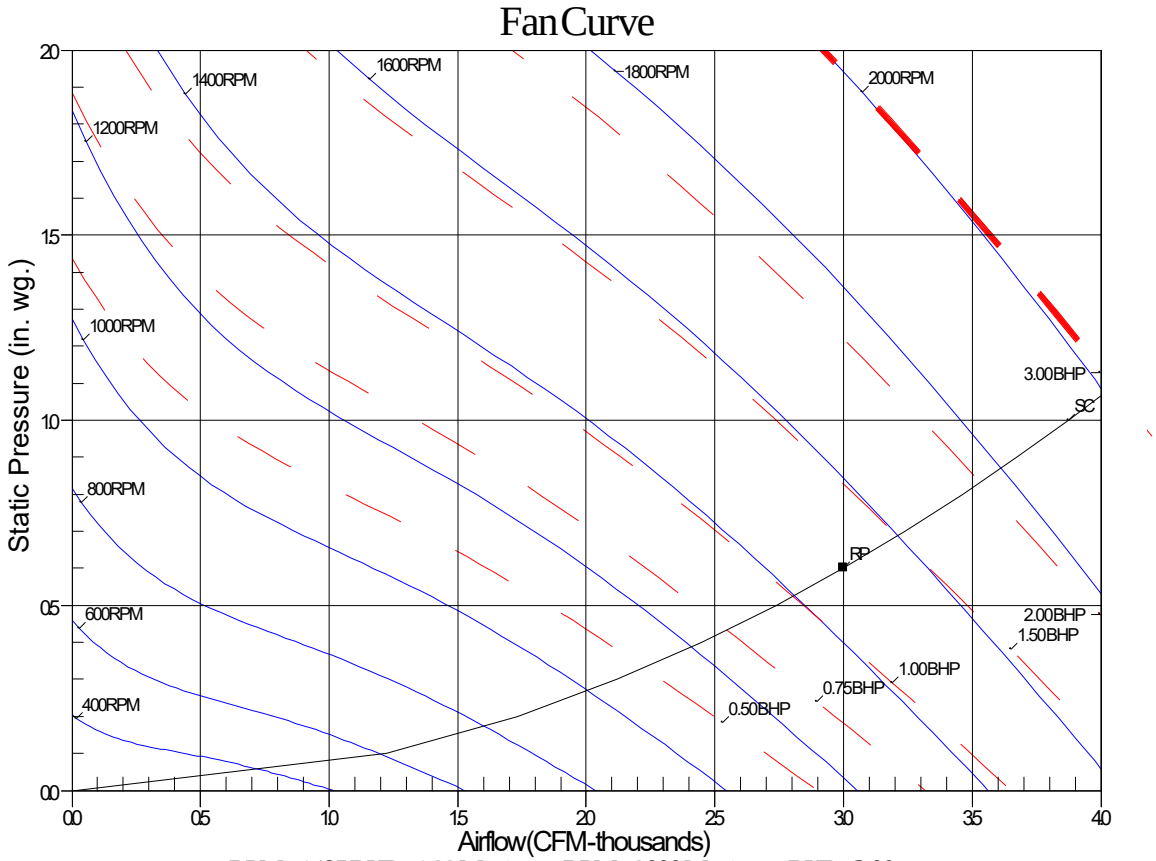
Detailed Acoustics Information

Octave Band Center Freq. Hz	63	125	250	500	1k	2k	4k	8k	Overall
A	85.6	84.7	80.5	76.0	72.4	68.0	62.8	59.3	89.2 Lw
B	59.4	68.6	71.9	72.8	72.4	69.2	63.8	58.2	78.5 LwA
C	53.2	52.3	48.1	43.6	40.0	35.6	30.4	26.9	56.8 Lp

D	27.0	36.2	39.5	40.4	40.0	36.8	31.4	25.8	46.1 LpA

Legend
A Sound Power Levels at Unit's Acoustic Center, Lw
B A-Weighted Sound Power Levels at Unit's Acoustic Center, LwA
C Sound Pressure Levels at Specific Distance from Unit, Lp
D A-Weighted Sound Pressure Levels at Specific Distance from Unit, LpA

Calculation methods used in this program are patterned after the ASHRAE Guide; other ASHRAE Publications and the AHRI Acoustical Standards. While a very significant effort has been made to insure the technical accuracy of this program, it is assumed that the user is knowledgeable in the art of system sound estimation and is aware of the tolerances involved in real world acoustical estimation. This program makes certain assumptions as to the dominant sound sources and sound paths which may not always be appropriate to the real system being estimated. Because of this, no assurances can be offered that this software will always generate an accurate sound prediction from user supplied input data. If in doubt about the estimation of expected sound levels in a space, an Acoustical Engineer or a person with sound prediction expertise should be consulted.



RPM=1495 BHP=1.22 Maximum RPM=2000 Maximum BHP=3.00
SC-System Curve RP-Rated Point

NOTES:

1. DIMENSIONS ARE IN INCHES, DIMENSIONS IN [ ] ARE IN MILLIMETERS.
2. CENTER OF GRAVITY
3. DIRECTION OF AIR FLOW
4. ALL VIEW DRAWN USING 3RD ANGLE

UNIT	OUTDOOR COIL TYPE	J	K	H
48FC-M08	RTPF	41 1/4 [1048]	33 3/4 [857]	15 7/8 [403]
48FC-M09	RTPF	49 3/8 [1253]	36 3/8 [925]	15 7/8 [403]
48FC-M12	RTPF	49 3/8 [1253]	36 3/8 [925]	15 7/8 [403]

RTPF - ROUND TUBE, PLATE FIN (COPPER/ALUM)

	CONNECTION SIZES
A	1 3/8" [35] DIA FIELD POWER SUPPLY HOLE
B	2 1/2" [64] DIA POWER SUPPLY KNOCKOUT
C	1 3/4" [51] DIA GAUGE ACCESS PLUG
D	7/8" [22] DIA FIELD CONTROL WIRING HOLE
E	3/4"-14 NPT CONDENSATE DRAIN
F	1/2"-14 NPT GAS CONNECTION 3/4"-14 NPT GAS CONNECTION
G	2 " [51] DIA POWER SUPPLY KNOCK-OUT

THRU-THE-BASE CHART (FIELD INST)

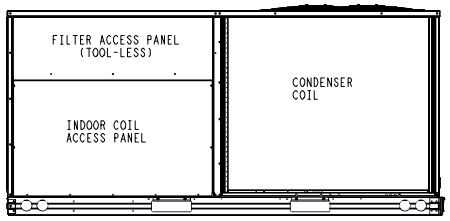
THESE HOLES REQUIRED FOR USE WITH ACCY KITS:
CRBTMPWR002A01: GAS THRU CURB
CRBTMPWR004A01: GAS THRU BASEPAN

	THREADED CONDUIT SIZE	WIRE USE	REQ'D HOLE SIZES (MAX.)
W	1/2"	ACC.	7/8" [22.2]
X	1/2"	24V	7/8" [22.2]
Y	1 1/4" (002,004)	POWER	1 3/4" [44.4]
Z *	(004) 3/4" FPT	GAS	1 3/4" [44.4]
*	(002) PROVIDES 3/4" FPT THRU CURB FLANGE & FITTING. HOLE SIZE: 2" [50.8]		

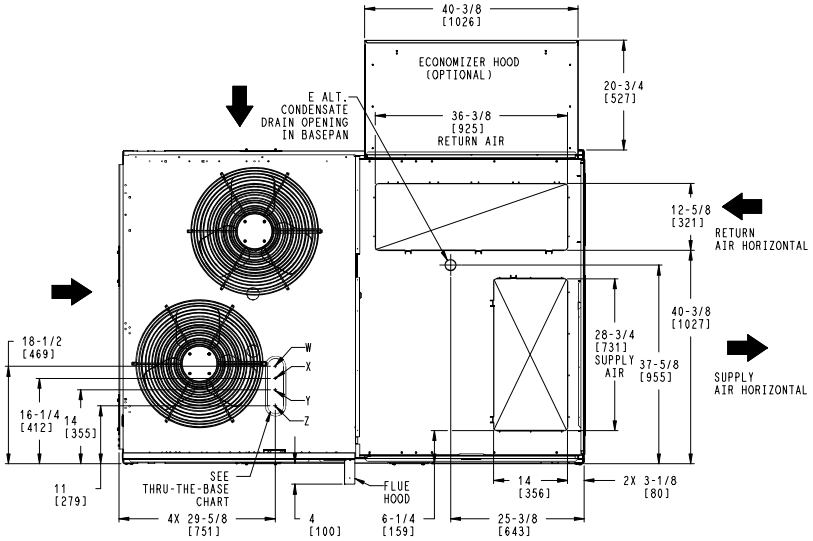
THRU-THE-BASE CHART (FIOP)

FOR "THRU-THE-BASEPAN" FACTORY OPTION, FITTINGS FOR ONLY X, Y, & Z ARE PROVIDED. **

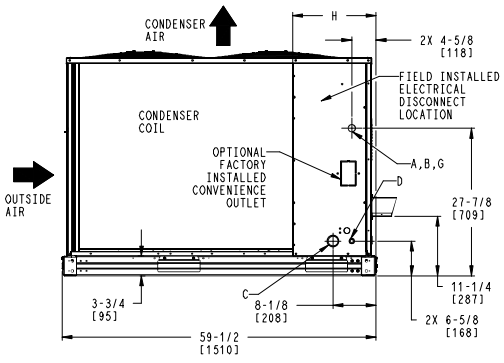
**	FOR BELOW LISTED MODELS, A FIELD SUPPLIED 1/2" ADAPTER IS REQUIRED BETWEEN BASE PAN FITTING AND GAS VALVE: 48FCD,S*08,09



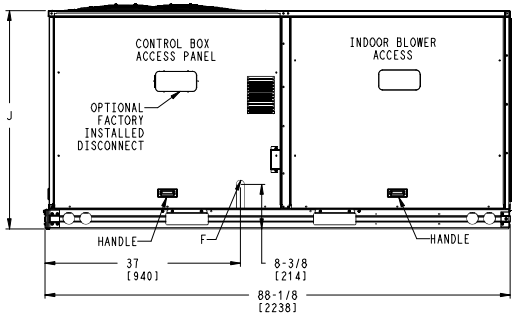
BACK



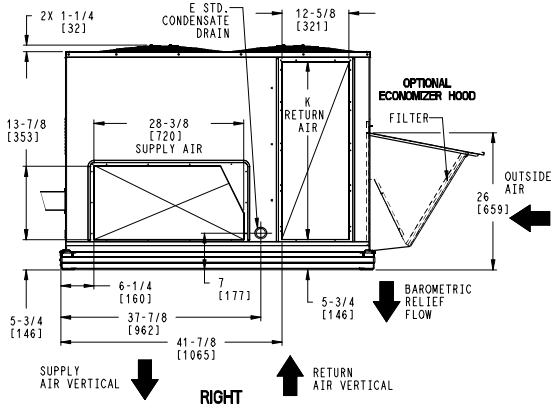
TOP



LEFT



FRONT



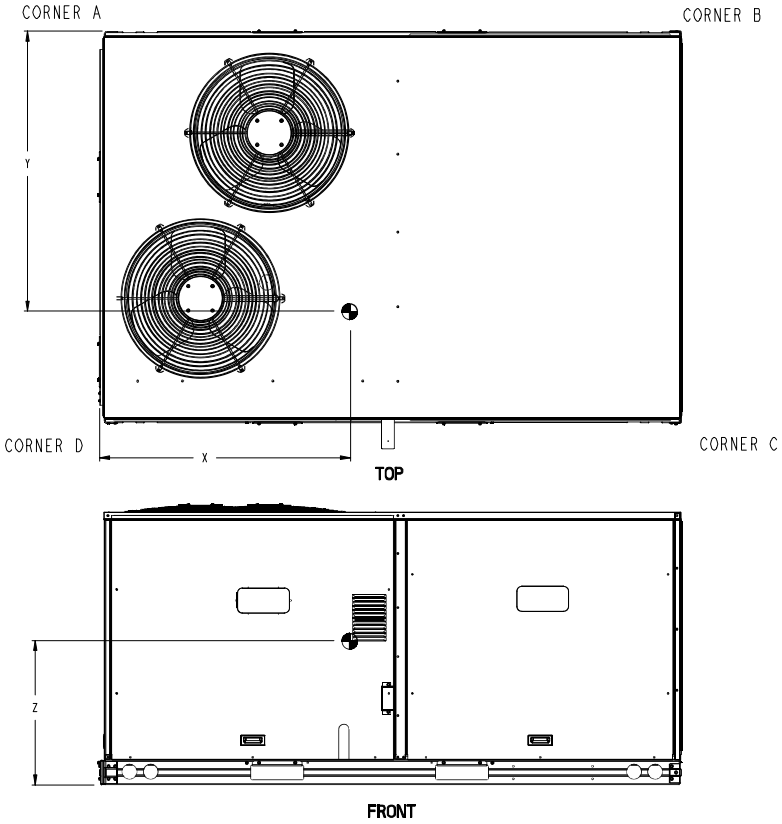
RIGHT

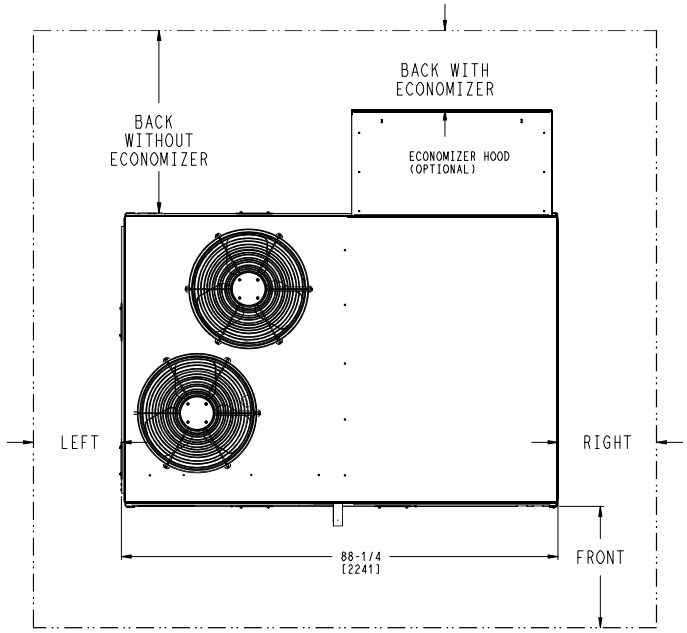
ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES			REV
U.S. ECCN:NSR	1 OF 3	03/12/21	-	48FC 08-12 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	48TM006295	-

UNIT	OUTDOOR COIL TYPE	STD. UNIT WEIGHT ***		CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		C.G.		
		LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X	Y	Z
48FC-M08	RTPF	787	357	181	82	150	68	207	94	249	113	40 [1016]	34 1/2 [876]	19 3/8 [492]
48FC-M09	RTPF	868	394	197	89	160	73	229	104	282	128	39 1/2 [1003]	35 [889]	18 5/8 [473]
48FC-M12	RTPF	878	398	213	97	175	80	221	100	268	121	39 7/8 [1013]	33 1/4 [841]	18 1/2 [470]

RTPF - ROUND TUBE, PLATE FIN (COPPER/ALUM)

*** STANDARD UNIT WEIGHT IS WITH LOW GAS HEAT AND WITHOUT PACKAGING.
FOR OTHER OPTIONS AND ACCESSORIES, REFER TO THE PRODUCT DATA CATALOG.



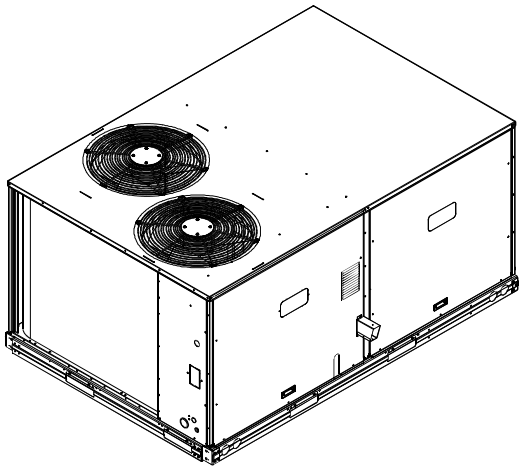


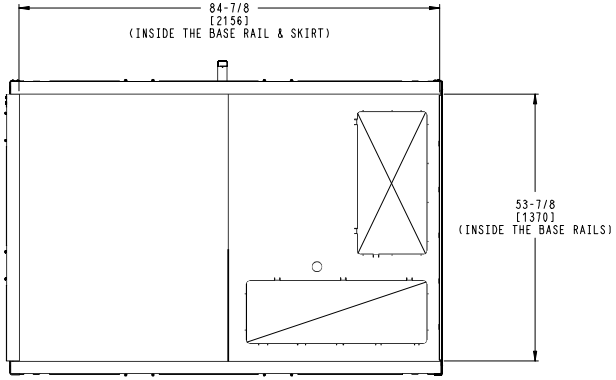
NOTE:

1. FOR ALL MINIMUM CLEARANCES LOCAL CODES OR JURISDICTIONS MAY PREVAIL.

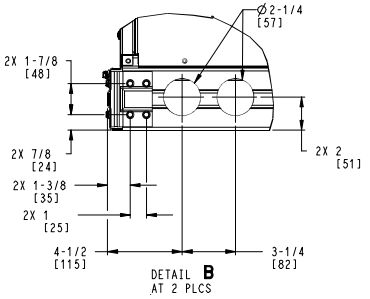
	CLEARANCE		
	SERVICE WITH:	SERVICE WITH:	OPERATING
SURFACE	CONDUCTIVE BARRIER	NONCONDUCTIVE BARRIER	CLEARANCE
FRONT	48 [1219mm]	36 [914mm]	18 [457mm]
LEFT	48 [1219mm]	42 [1067mm]	18 [457mm]
BACK W/O ECON	48 [1219mm]	42 [1067mm]	18 [457mm]
BACK W/ECON	36 [914mm]	36 [914mm]	18 [457mm]
RIGHT	36 [914mm]	36 [914mm]	18 [457mm]
TOP	72 [1829mm]	72 [1829mm]	72 [1829mm]

ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES			REV
U.S. ECCN:NSR	2 OF 3	03/12/21	-	48FC 08-12 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	48TM006295	-

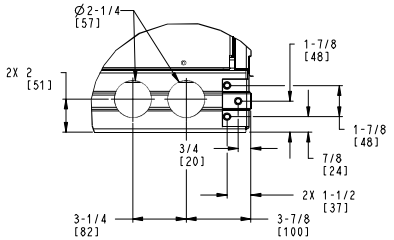




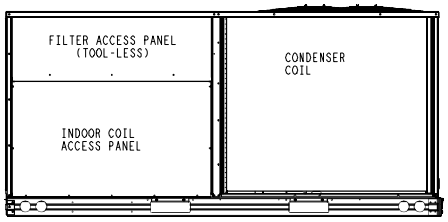
INSIDE BASERAIL DIMENSIONS
BOTTOM



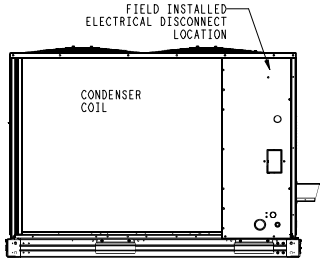
DETAIL **B**
AT 2 PLCS



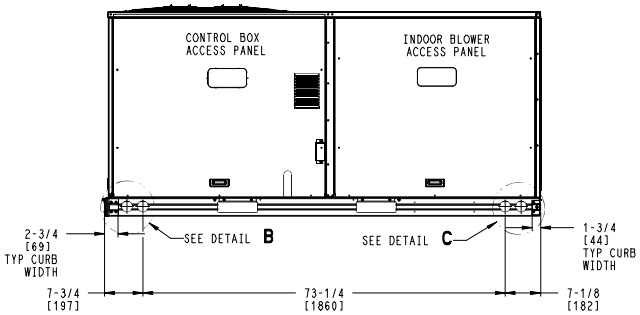
DETAIL **C**
AT 2 PLCS



BACK



LEFT



FRONT

ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES			REV
U.S. ECCN: NSR	3 OF 3	03/12/21	-	48FC 08-12 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	48TM006295	-

OPTIONS:
INSULATED PANELS (WHERE REQUIRED)
1" 1-1/2LB DUCT INSULATION (R VALUE 3.85)
GASKET PROVIDED WITH CURB

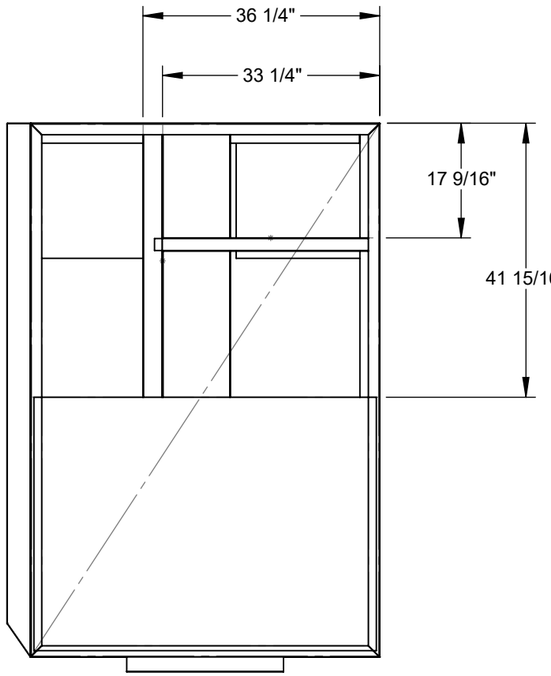
DIMENSIONED AND TOLERENCED PER ANSI Y14.5M-1982

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
1	INITIAL DRAWING		

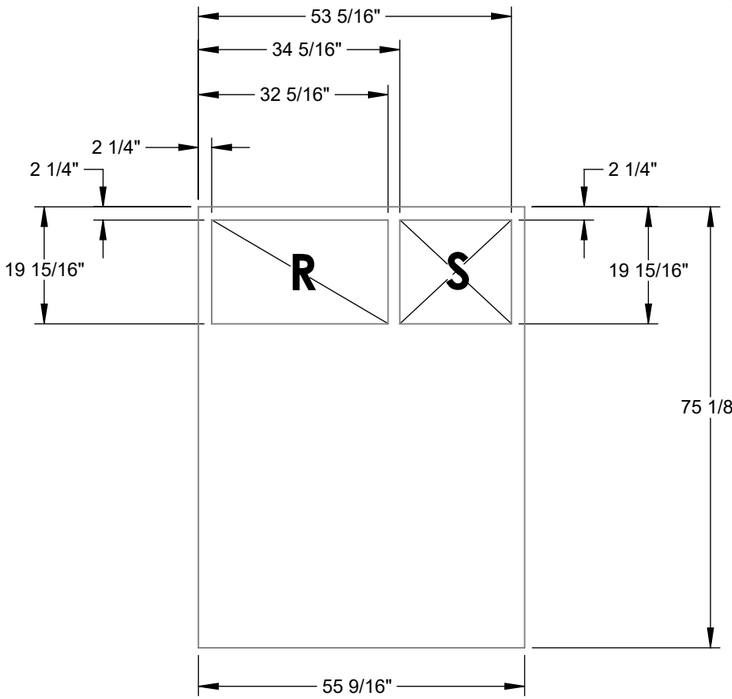
Attn:_____

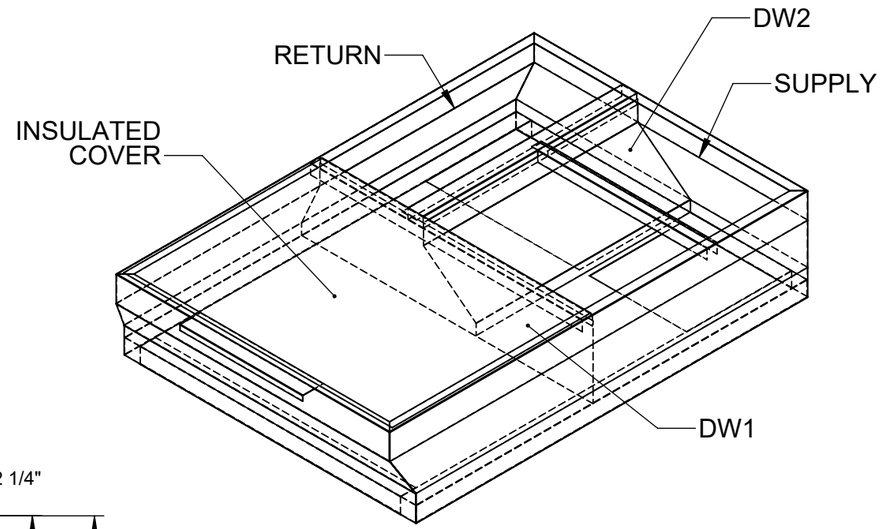
Approval:_____

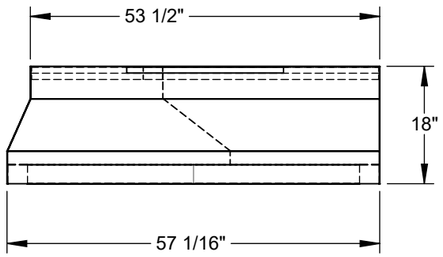
RTU TAG(S):

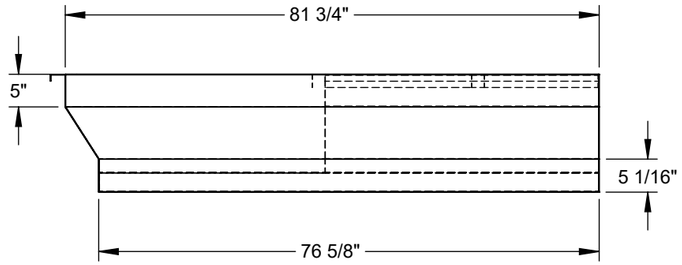


EXISTING CURB









Material: 18 ga. G-90 Galv Steel
Existing Curb Oversized by: 1.5 Inches
Operational Height(Raise unit by):11 Inches

APPROVALS		DATE
DRAWN:	janderson	7/5/2022
CHECKED:		

DIMENSIONS ARE AS FOLLOWS: 1.00 in [25.40 mm]

TITLE/FILE NAME: 1-6530-4009

*VERIFY EXISTING CURB OD
*VERIFY SUPPLY AND RETURN OPENINGS
*NOTE ANY CHANGES
*CALL WITH ANY QUESTIONS
*FAX BACK IF DRAWING IS OK AS IS

3RD ANGLE PROJECTION

CDI
Contact us @ www.cdicurbs.com or 1-888-234-7001

APPROXIMATE CURB WEIGHT (LBS.): 203.79

ECO #:

REV: 1

SCALE: 1:16

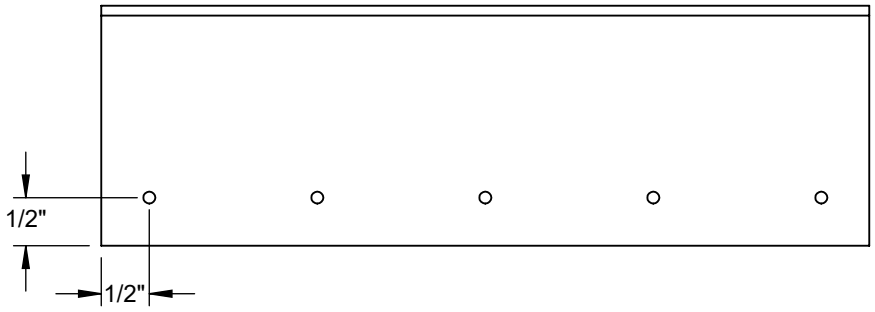
SHEET: 1 OF 4

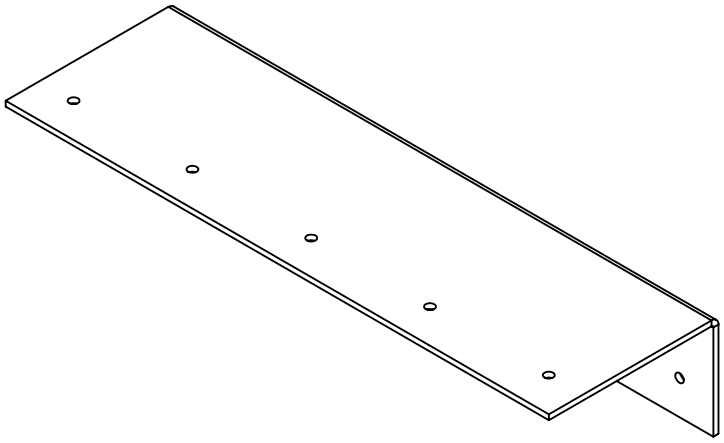
\\crystal.cdicurbs.com\eng\files\CURBS_CURB_ADAPTERS\1-XXXX-XXXX_CURB_ADAPTERS\1-6XXX-XXXX_RHEEM_RUUD\1-6530-4009

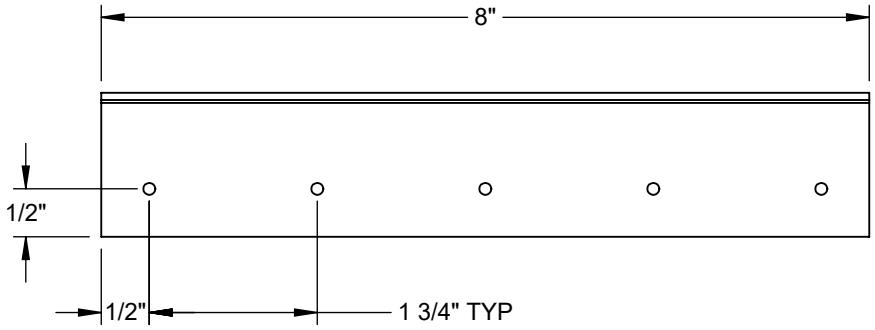
Attn:_____

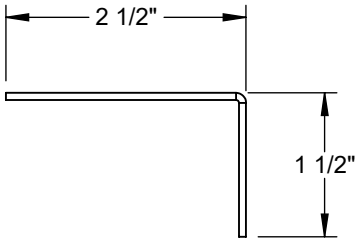
RESTRAINT CLIP FOR USE WITH CDI CURB # 4009 (6 clips total, 3 per long side of unit).

Tag:_____









* Verify existing curb OD
* Verify supply and return openings
* Note any changes
* Call with any questions
* Fax back if drawing is OK as is

DIMENSIONS ARE AS FOLLOWS: 1.000 in [25.40 mm]

3RD ANGLE PROJECTION

APPROVALS		DATE
DRAWN:	spickar	9/25/2017
CHECKED:		.
MGMT:		.

TITLE: **4009 L-CLIPS NS**

MATERIAL: 14 GA GALVANIZED STEEL

CDI
9560 85 TH AVE. N
MAPLE GROVE, MN 55369
(763)391-7790
(763)3917851

FILE NAME: 4009 L-CLIPS NS

DRAWING NO.:

REV: 01

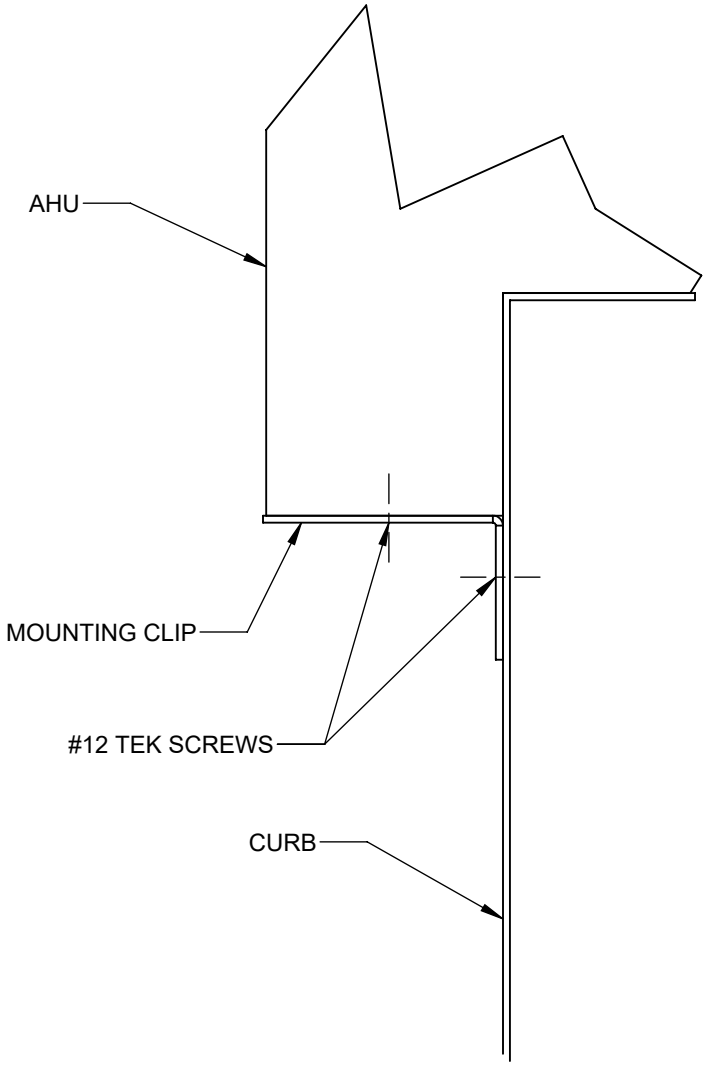
ECO #:

SCALE: 1:2

SHEET: 1 OF 2

Attn:_____

Tag:_____



RESTRAINT CLIP FOR USE WITH
CDI CURB # 4009
(6 clips total, 3 per long side of unit).

* Verify existing curb OD
* Verify supply and return openings
* Note any changes
* Call with any questions
* Fax back if drawing is OK as is

DIMENSIONS ARE AS FOLLOWS: 1.000 in [25.40 mm]	3RD ANGLE PROJECTION

APPROVALS	DATE
DRAWN: spickar	9/25/2017
CHECKED:	.
MGMT:	.

TITLE: **4009 L-CLIPS NS**

CDI
9560 85 TH AVE. N
MAPLE GROVE, MN 55369
(763)391-7790
(763)3917851

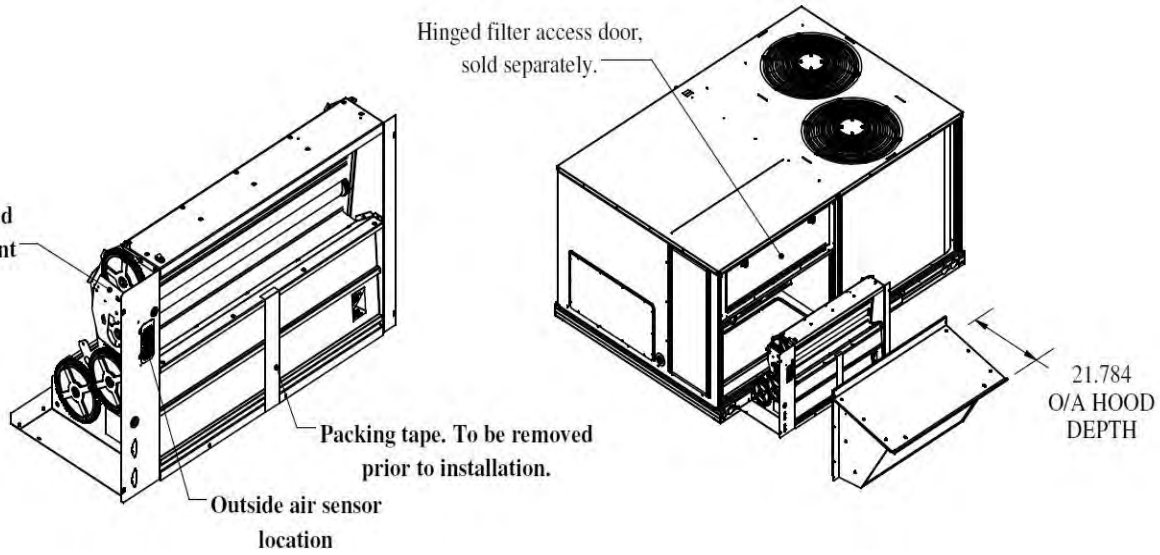
FILE NAME:	DRAWING NO.:	REV:
4009 L-CLIPS NS		01
ECO #:	SCALE: 1:2	SHEET: 2 OF 2

MicroMetl	Date:	Weight: 68lbs (US) 30.84kg (Metric)	Part Number: ECD-SRT34CB-D2DH
	RTU:		
Submitted to:		Approved by:	Notes:

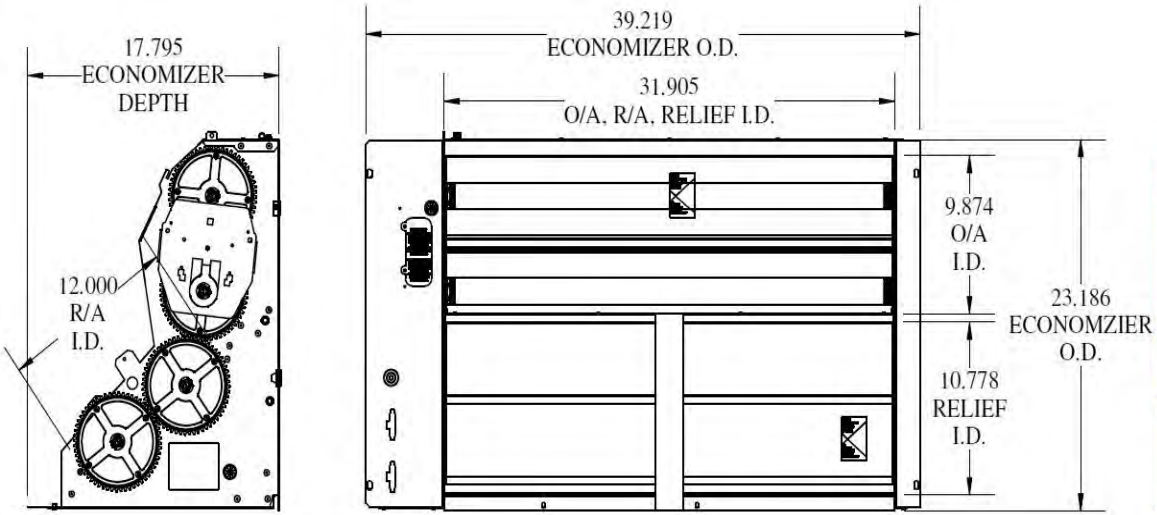
Economizer - Economizer - Genesis Ultra Low Leak Economizer, Vertical Orientation, Honeywell Jade W7220 Single/Multiple Speed Electromechanical Controller, Adjustable Dry Bulb Sensor, Honeywell Actuator. Painted Rain Hood With Aluminum Filter, Barometric Relief, All Necessary Panels And Hardware Included. For Differential Return Air Sensor Please Order 9901-2022-DIFF JC2

FEATURES:

- External gear driven dampers with roll formed blades.
- Designed for vertical applications only.
- Factory assembled rain hood, with aluminum water entrainment filters.
- Filter access door supplied with RTU.
- Hinged filter access door is ordered separately.
  - MMC P/# for Chassis 3 - ECD-SRT3CA-HDOOR
  - MMC P/# for Chassis 4 - ECD-SRT4CA-HDOOR
- Rain hood is sloped for water run off.
- All harnesses and plugs needed are supplied.
- Economizer is class 1A & AMCA rated.
- Relief blades are AMCA rated.
- Uses filter rack with unit.
- Motorized relief available, add -M to end of part number
  - Ex: ECD-SRT34CB-D2DH-M
- Economizer with smoke detector available, add -S to end of part number
  - Ex: ECD-SRT34CB-D2DH-S



-Control Types	
-D2DH	W7220 controller, actuator w/feedback, adjustable drybulb controls
-D2EH	W7220 controller, actuator w/feedback, enthalpy controls



Master Revision 0001A

Page Revision 0001A

MicroMetl	Date:	Weight: 68lbs (US) 30.84kg (Metric)	Part Number: ECD-SRT34CB-D2DH
	RTU:		
Submitted to:		Approved by:	Notes:

Economizer - Economizer - Genesis Ultra Low Leak Economizer, Vertical Orientation, Honeywell Jade W7220 Single/Multiple Speed Electromechanical Controller, Adjustable Dry Bulb Sensor, Honeywell Actuator. Painted Rain Hood With Aluminum Filter, Barometric Relief, All Necessary Panels And Hardware Included. For Differential Return Air Sensor Please Order 9901-2022-DIFF JC2

Compliant Economizer:

1. **Title 24:** Economizers meet California Energy Commission Title 24-2013 / 2016 prescriptive section 140.4 (damper leakage etc.), and mandatory section 120.2.i for Fault Detection and Diagnostic controls (JADE HJW10). 5 Year Warranty for parts and components only.
2. **ASHRAE 90.1:** Economizers meet ASHRAE 90.1-2013 / 2016 damper leakage requirements, and meet 2016 Fault Detection and Diagnosis requirements.
3. **IECC:** Economizers meet IECC 2012, IECC 2015, and IECC 2018 for outside air, return air, and relief damper (when provided) leakage requirements, and IECC 2015 and IECC 2018 for Fault Detection and Diagnostic requirements.
4. **AMCA:** Outside air and return air (volume) dampers are AMCA Class 1A rated at 1" w.g. Refer to MicroMetl NS2 catalog sheet on web site for details. Relief air dampers (when provided) are also AMCA rated. Refer to GR1 series catalog sheet on web site for details.

Features:

- For single or 2 speed indoor fan units with Central Terminal Board (CTB) and Compressor Staging Board. Other control options available.
- Gear driven design for trouble-free operation, eliminating slippage and binding associated with standard linkage.
- Includes assembled rainhood with aluminum water entrainment filters in the outside air section.
- Rainhood is sloped for water run-off.
- Built-in barometric relief damper provided. Power exhaust options available.
- All harnesses and plugs needed are provided.
- Uses standard factory filter access door shipped with HVAC unit.
- If factory hinged access door option is installed on unit, an additional kit is required to seal hinged door properly.
  - OEM part no. CRPECONV004A00 or MicroMetl part number 0640-0200-HDANGL

Notes:

1. Control systems include Honeywell W7220 JADE controller, mixed (supply) air temperature sensor, OA sensor in description, and spring-return communicating actuator (some include differential return sensor as noted).
2. JADE W7220 controller is field mounted in unit's control box.
3. Mixed (supply) air sensor is field installed in indoor blower fan section.
4. Differential return sensor (MicroMetl Part No. 9901-2022-DIFF JC2) is field installed in return duct.
5. ASHRAE, IECC, and Title 24 require the economizer controller be capable of reporting faults to a fault management application accessible by day-to-day operating or service personnel, or annunciated locally on zone thermostats or in some codes other devices are acceptable. Refer to applicable code requirements and to MicroMetl instructions for suggestions.
6. For older single speed models without the Central Terminal Board the "-D2" part number is replaced by "-DJ". (See separate submittal).

MicroMetl Corporation certifies that the models GR1 and NS2 shown herein are licensed to bear the AMCA Seal.
The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with requirements of the AMCA Certified Ratings Programs.
The AMCA Certified Ratings Seal applies to Air Leakage and Air Performance ratings.

Master Revision 0001A

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