

BUSINESS OF THE CITY COUNCIL NORWALK,
IOWA
AGENDA STATEMENT

Item No 6-d
For Meeting of 09/01/2016

ITEM TITLE: Approval of bid for HVAC system replacement for Public Safety building (police department).

CONTACT PERSON(S): Ryan Coburn, Fire Chief

SUMMARY EXPLANATION

This resolution will award contract to Excel Mechanical of 5636 NE 17th St Des Moines IA, for the complete removal of existing units and replacement with 3 new rooftop units. The total bid price for the units and labor totals \$31,688.00.

<p><input checked="" type="checkbox"/> Resolution _____ Ordinance _____ Contract _____ Other (Specify) _____</p> <p>Funding Source _____</p> <p>APPROVED FOR SUBMITTAL _____</p> <p style="text-align: right;">City Administrator</p>

STAFF RECOMMENDATION: By motion and roll call vote, approve the resolution authorizing the appointment and agreement.

COUNCIL ACTION:

—

RESOLUTION NO

A RESOLUTION Approving the bid award and contract between the City of Norwalk and Excel Mechanical for HVAC replacement.

WHEREAS, City of Norwalk requested bids for the replacement of rooftop HVAC units for the Norwalk Police Station located at 100 Chatham Ave.

WHEREAS, the City of Norwalk received bids from three qualified vendors.

WHEREAS, the total contract price for the removal and replacement of the (3) rooftop HVAC units is \$31,688.00.

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Norwalk, Iowa, does hereby authorize a contract between the City of Norwalk and Excel Mechanical for project completion.

Passed and approved 01 September 2016

Tom Phillips, Mayor

ATTEST: Jodi Eddleman, City Clerk

ATTEST:

ROLL CALL VOTE:	Aye	Nay	Abstain	Absent
Isley	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kuhl	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lester	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Livingston	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Riva	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Excel

City of Norwalk Police station Rooftop replacement project

The City Norwalk is seeking a qualified firm to provide HVAC rooftop unit replacement at the Norwalk safety complex police station. The work will include replacement of (3) properly sized rooftop HVAC units. Scope of Services, The City of Norwalk is soliciting bids for a turnkey project to provide and install (3) rooftop HVAC unit replacements at the Police department. Work must be completed as to not adversely affect the 24 hour operation of the building. This work shall be completed prior to Oct 1st 2016. Bids shall also include the removal and disposal of the HVAC units being replaced, controls, start-up support, and training of City Staff.

The HVAC EQUIPMENT SPECIFICATIONS

1. Provide a review of load calculations and zoning as required to replace 3 Carrier packaged rooftop units. Mechanical Contractor is responsible for complete turnkey operation, design, installation and final balancing of correctly sized units.

Proposed Unit Features: Carrier manufactured packaged unit or approved equal, Scroll Compressors with 5 year manufacturer's warranty. Natural gas fired, Single stage cooling and heating Compressor time delay, phase monitors, and outdoor air economisers and 410 refrigerant.

2. Provide and install curb adapt-a-curbs as needed Any roofing needed shall be included.

3. Provide and install initial 2" depth pleated Farr Aeropleat III or equivalent, MERV 8 and MERV-A when evaluated under ASHRAE Testing Standard 52.2 air filters. These filters should be replaced at a minimum of quarterly thereafter by the city.

4 Reuse existing thermostats/controls and control wiring.

5. Reuse existing gas Lines, provide and install Schedule 40, black steel pipe per code to each unit for proper operation.

6. Provide and install trapped Schedule 40, PVC condensate piping per code.

9. Reuse smoke detectors. Assuming units that require them have them already installed.

10. Transfer existing electric circuits to the units and provide new fused weather proof disconnects and piping. Electrical work to be installed per local codes and NEC code specifications.

11. Obtain and provide all permits for HVAC mechanical and electrical work. Mechanical Contractor responsible for all fees.

12. Provide all crane and rigging as required for proper placement of units. Protection of concrete and adjacent areas is the contractor's responsibility.

13. Startup, check and Balance of the system shall be documented and copies provided to the owner

14. Work to be completed during normal business hours.

15. Work to be performed per OSHA Guidelines

16 Contractor to provide owner training, operation and maintenance manual, warranty documents and start up documents

17. provide one source contractor for engineering, mechanical-electrical work, installation, material and labor.

18. Includes 5 year manufacturer's warranty on compressor, 10 year manufacturer's warranty on heat exchanger, 1 year manufacturer's warranty on parts and complete 1 year parts and labor warranty on new installation.

- 20. Maintain operable environment for the building during the duration of the project.
- 21. Daily cleanup and removal of debris.
- 22. Provide all startup, testing and balancing documents to the City.

REMOVAL AND PROPER DISPOSAL OF EXISTING EQUIPMENT; Contractor shall be responsible for the timely removal and disposal of all HVAC units and associated debris.

MANDATORY SITE VISIT; A site visit is required by all interested parties; and firms interested in bidding should meet Richard Sleeth 515-313-7501 or Ryan Coburn. 515-981-4316

Location of work to be performed
 Norwalk Police department
 1100 chatham ave
 Norwalk Iowa 50211

The following is to be supplied with each proposal;
 Worker's Compensation Certificate (you supply)
 Insurance Certificate (you supply)
 OSHA COMPLIANCE FORM

Additional project costs or fees with description:

Install 3 RTUs as specified
 with Back Net & T's V's
 Rebates available to owner

Bidder Information:

Bidder (company name) Excel Mechanical
 Address of the company 5636 NE 17th St.
 Phone 515-288-1450 Fax 288-4121
 Representative Name Dean Harper / John Rounds
 Title Serv. Man.
 Signature [Signature]
 Email Address jrounds@excelmechanical.net

Bid Amount for the completed turnkey project

31,888.00



Ron Freeman
 Central Iowa Mechanical
 204 SW 2nd Street
 Des Moines, Iowa 50309
 T: 515.243.8126
 F: 515.243.1804
 rfreeman@cimech.com

BID # 150826 - N

August 26, 2015

Mr. Richard Sleeth
 Building Director
 Norwalk Community School District
 515- 981-0917
 515-981-0918
 rsleeth@norwalk.k12.ia.us

Dear, Richard

Central Iowa Mechanical is pleased to offer our pricing for the following replacement:

Norwalk Police Dept – RTU's Replacement

Scope of Work:

1. Remove existing (3) Carrier rooftop units
 - a. Recover refrigerant from existing RTU per EPA guidelines
 - b. Disconnect electric
 - c. Disconnect gas line
 - d. Disconnect and remove rooftop unit
2. Furnish and install (3) new Carrier rooftop units
 - a. Economizer
 - b. Hail Guards
 - c. Run new condensate line over to drain
 - d. Reconnect gas line
 - e. Install (3) new RTU electric disconnects by license electrician
 - f. Reconnect electrical & control wiring
 - g. Have RTU's, boxes & diffusers test & balanced by Certified Balancer
3. Clean all materials and debris off roof and inspect roof for damage.

Exclusions:

1. Overtime/shift work
2. Roof cutting/ patching.
3. Equipment pads.

Total Price RTU with BACnet: \$35,185
Total Price RTU without BACnet: \$33,200

Please call if you have questions or wish for us to proceed.

Sincerely,

Ron Freeman
 Project Manager

Approved by:

Name

Title

Date

City of Norwalk Police station Rooftop replacement project

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3. Provide and install initial 2" depth pleated Farr Aeropleat III or equivalent, MERV 8 and MERV-A when evaluated under ASHRAE Testing Standard 52.2 air filters. These filters should be replaced at a minimum of quarterly thereafter by the city.

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9. Reuse smoke detectors. Assuming units that require them have them already installed.

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11. Obtain and provide all permits for HVAC mechanical and electrical work. Mechanical Contractor responsible for all fees.

12. Provide all crane and rigging as required for proper placement of units. Protection of concrete and adjacent areas is the contractor's responsibility.

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Location of work to be performed
Norwalk Police department
1100 chatham ave
Norwalk Iowa 50211

The following is to be supplied with each proposal;
Worker's Compensation Certificate (you supply)
Insurance Certificate (you supply)
OSHA COMPLIANCE FORM

Additional project costs or fees with description:

Bidder Information;

Bidder (company name) _____
Address of the company _____
Phone _____ Fax _____
Representative Name _____
Title _____
Signature _____
Email Address _____

Bid Amount for the completed turnkey project,



Baker Group
4224 Hubbell Avenue
Des Moines, Iowa 50317
Direct Phone 515-299-4052
Direct Fax 515-299-4053
englishr@thebakergroup.com

Main Phone: 515.262.4000
Main Fax: 515.266.1025
www.thebakergroup.com

8/16/16

Richard Sleeth
City of Norwalk
1100 Chatham Ave.
Norwalk Iowa 50211
rsleeth@norwalk.k12.ia.us

Dear Richard,

Baker Group is pleased to provide you with the requested proposal for the upgrade of the (3) Rooftop units requested for replacement. Our proposal is based on the specified unit selection provided to us on 8/11/16.

Our Scope of work will include the following:

- We will disconnect, remove, and dispose of the (3) old units off site
- We will provide and install (3) new units to meet the specifications provided by owner
- We will reconnect the existing gas piping to the new units
- We will reconnect the existing electrical power to the new units and provide new disconnects
- We will provide a crane and rigging needed to set the new equipment in place
- We will provide and install a new Thermostat for each of the new units and utilize the existing thermostat wire
- We will start and check operation of all new equipment when work is complete
- All work will be completed during normal working hours
- All work will be coordinated with building owner
- Lead time on all equipment (4) weeks
- Work is figured to be completed over a (2) day period

Price for Above Work: \$33,820.00

Thank You,

APPROVED BY: _____

Name: _____

Title: _____

Date: _____

Ryan English
Service Operations Manager
Baker Group
Office 299-4052
Cell 559-3704
englishr@thebakergroup.com

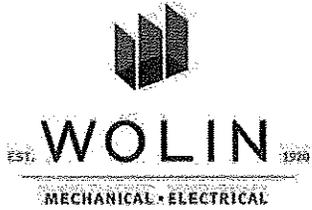
PROJECT TERMS AND CONDITIONS

GENERAL

1. Baker Group agrees to perform all work in a careful and workman-like manner and to furnish only materials of good quality.
2. The customer will provide reasonable access to all areas and equipment, and will allow Baker Group to stop and start equipment as may be necessary to fulfill the terms of the project.
3. All work will be performed during normal working hours, 8:00 AM to 4:30 PM, Monday through Friday.
4. The customer will promptly pay invoices upon receipt. Should a payment become thirty (30) days or more delinquent, Baker Group may stop all work under this project without notice and/or cancel this project, and the entire project amount shall become due and payable immediately upon demand.
5. In addition to any price specified on the face hereof, the customer shall pay and be responsible for the gross amount of any present or future sales, use, excise, value-added, or other similar tax, however designated, applicable to the price, sale or delivery or any products, services or the work furnished hereunder or for their use by Baker Group on behalf of the customer whether such tax shall be local, state, or federal in nature.
6. In the event Baker Group must commence legal action in order to recover any amount payable under this Agreement, the customer shall pay Baker Group all court costs and attorney's fees incurred by Baker Group.
7. Any legal action relating to this agreement, or the breach thereof, shall be commenced within one (1) year from the date of the work.
8. This Proposal valid for a period of 60 days after issuance.
9. Baker Group does accept MasterCard and VISA credit card payments. However, the vendor charges us a 4% processing fee. These charges will be passed on to the customer for invoice amounts exceeding \$2000.

LIMITATIONS OF LIABILITY AND INDEMNITIES

1. Baker Group will not be liable for damage or loss caused by delay in installation or interrupted service due to fire, flood, corrosive substance in the air, strike lockout, dispute with workmen, inability to obtain material or services, commotion, war, act of God, or any other cause beyond Baker Group's reasonable control.
2. In no event, whether as a result of breach of contract, or any tort including negligence or otherwise shall Baker Group or its suppliers, employees or agents be liable for any special, consequential, incidental, or penal damage including, but not limited to loss of profit or revenues, loss of use of any products, machinery, equipment, damage to associated equipment, cost of capital, cost of substitute products, facilities, services or replacement power, down time costs, lost profits, or claims of Buyer's customers for such damages.
3. **No other warranty expressed or other liability is given and no other affirmation of Baker Group, by word or action, shall constitute a warranty. This warranty is expressly in lieu of any other express or implied warranty including any implied warranty of merchantability of fitness, and any other obligation on the part of Baker Group.**
4. Baker Group warrants materials only to the extent and for the time period said materials are warranted to Baker Group by the manufacturer(s) of the same. Baker Group's liability, if any, upon any warranty, either expressed or implied, shall be limited to replacement of defective materials and correction of faulty workmanship which is in violation of local, state, or federal building codes at the time of performance of the work by Baker Group.



August 18, 2016

City of Norwalk
380 Wright Road
Norwalk, IA 50211

Attn: Mr. Richard Sleeth, Facilities Director
Subj: Replacement of (3) Carrier Roof Top Units

Dear Richard,

Per your request, we have prepared a proposal for the replacement of (1) Carrier 5 Ton Packaged Roof Top Unit, and (2) Carrier 7.5 Ton Packaged Roof Top Units.

REPLACEMENT OF (3) PACKAGED ROOF TOP UNITS

- Provide crane service and disconnect, remove, and dispose of (1) existing 5 Ton Carrier RTU, and (2) existing Carrier 7.5 Ton RTUs
- Provide and install (3) new Carrier RTUs, to meet the following description:
 - (1) 5 Ton Carrier High-Efficiency RTU (12.45 EER)
 - (2) 7.5 Ton Carrier High-Efficiency RTUs (12.0 EER)
 - Units to be installed with curb adapters, if necessary
 - Hail guards to be factory-installed on all (3) RTUs
 - Factory-installed, non-fused disconnects on all (3) RTUs
 - Factory-installed BacNET interface to be installed on all (3) RTUs
- Reconnect all gas, electrical, and control wiring to (3) new Carrier RTUs
- Re-pipe PVC condensate lines to roof drain on other side of partition
- Perform in-house comfort balance of areas served by (3) new RTUs
- Perform full startup and verify proper operation

Your investment for the above work is Twenty Nine Thousand, Five Hundred Fifty (\$29,550.00) dollars, excluding sales tax, if applicable.

MID-AMERICAN ENERGY REBATES

If the City of Norwalk is a Mid-American Energy customer for electrical and natural gas, you may qualify for the following rebates due to the high-efficiency of the selected Roof Top Units:

- Rebate for (1) 7.5 Ton RTU-1 (12.0 EER) \$750
- Rebate for (1) 7.5 Ton RTU-1A (12.0 EER) \$750
- Rebate for (1) 5 Ton RTU-2A (12.45 EER) \$500

ALTERNATE OPTIONS

- Add to install (3) Digital Programmable Thermostats & Wiring \$890
- Add for Balancing from Third-Party Test & Balance Contractor \$3,000

EXCLUSIONS & NOTATIONS

- If option to install stand-alone digital programmable thermostats is selected, proposal assumes preferred thermostat locations are easily accessible for installation of control wire between RTU and thermostat (mechanical drawings showing thermostat locations not available during walk-through)

wolin.com

515.243.5191 PHONE
515.243.0908 FAX

1720 Fuller Road
W. Des Moines, IA 50265



August 18, 2016
City of Norwalk.
Mr. Richard Sleeth
Replacement of (3) RTUs
Page two

EXCLUSIONS & NOTATIONS (CONTINUED)

- If units are to be controlled by the existing Building Automation System (BAS), as noted by the base bid scope of work, all controls work is excluded

This proposal is subject to review in thirty days. All work to be performed during normal business hours.

We appreciate the opportunity to be of service to the City of Norwalk. Please advise if you wish to proceed, or call/email if you have additional questions.

Sincerely,

Wolin Mechanical • Electrical

Troy Anderson
Client Manager
515.558.9516 direct
515.240.7664 mobile
tanderson@wolin.com

Unit Report For RTU-1A

Project: ~Untitled6
 Prepared By:

08/11/2016
 09:52AM

Unit Parameters

Unit Model:.....48HCFD08A2M5-2B0A0
 Unit Size:.....08 (7.5 Tons)
 Volts-Phase-Hertz:.....208-3-60
 Heating Type:.....Gas
 Duct Cfg:.....Vertical Supply / Vertical Return
 High Heat
 Two stage cooling models

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

Unit Length:.....7' 4.125"
 Unit Width:.....4' 11.5"
 Unit Height:.....4' 1.375"
 *** Total Operating Weight:.....1079 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:.....4
 Return Air Filter Size:.....20 x 20 x 2

Unit Configuration

Medium Static Option - Belt Drive
 A/Cu - A/Cu - Louvered Hail Guards
 RTU Open Controller
 Temperature Economizer w/ Barometric Relief
 Standard Packaging

Warranty Information

1-Year parts
 5-Year compressor parts
 10-Year heat exchanger - Aluminized

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
48HCFD08A2M5-2B0A0	Rooftop Unit	2
	Base Unit	
	Medium Static Option - Belt Drive	
	A/Cu - A/Cu - Louvered Hail Guards	
	RTU Open controls std. leak Temp Econo 2 with baro relief. Meets Calif. Title 24 FDD	
	None	

Project: ~Untitled6
Prepared By:

Certified Drawing for RTU-1A

08/11/2016
09:52AM

UNITED TECHNOLOGIES
CARRIER

P.O. BOX 100
1400 WILKINSON ROAD, INC. TERMS CONSULTANT ONLY USE
CONSISTENT WITH THE TERMS AND CONDITIONS OF THE
AGREEMENT OF CONTRACT.

THIS DOCUMENT IS THE PROPERTY OF CARRIER CORPORATION
AND IS VALID FOR USE ONLY FOR THE PROJECT AND SITE
IDENTIFIED ON THESE DRAWINGS. IT IS NOT TO BE REPRODUCED OR
USED FOR ANY OTHER PROJECT OR SITE WITHOUT CARRIER'S
WRITTEN CONSENT.

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

REV
A

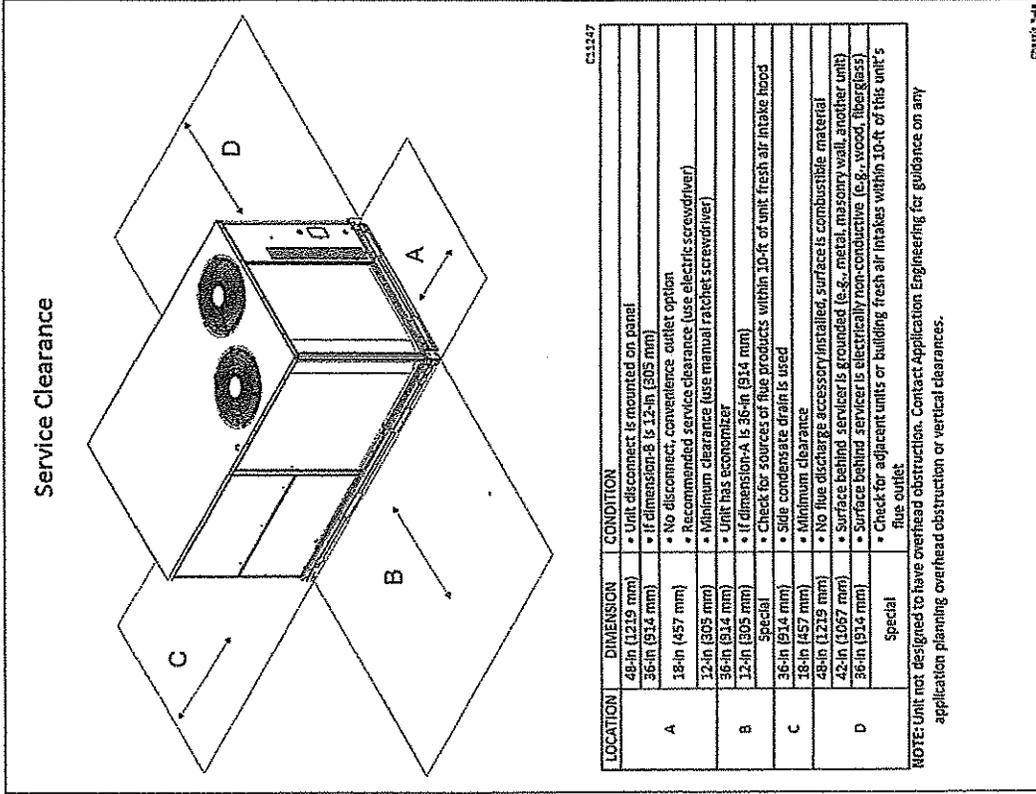
UNIT	CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		C.G.	
	LB.	KG.	LB.	KG.	LB.	KG.	LB.	KG.	X	Y
48HC-AD7	343	155.3	75	33.8	152.7	69.3	31.4	105.4	47.3	21.4
48HC-AD8	419	189.4	82.6	37.5	171.6	77.4	35.1	158.1	52.7	25.7
48HC-AD9	419	189.4	82.6	37.5	171.6	77.4	35.1	158.1	52.7	25.7

SHEET 2 OF 2	DATE 10-05-10	SPONSOR 10-16-09	48HC 08-12 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	48TM502708
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Certified Drawing for RTU-1A

Project: ~Untitled6
Prepared By:

08/11/2016
09:52AM



LOCATION	DIMENSION	CONDITION
A	48-in (1219 mm)	• Unit disconnect is mounted on panel
	36-in (914 mm)	• If dimension-B is 12-in (305 mm)
	18-in (457 mm)	• No disconnect, convenience outlet option
	12-in (305 mm)	• Recommended service clearance (use electric screwdriver)
B	36-in (914 mm)	• Minimum clearance (use manual ratchet screwdriver)
	12-in (305 mm)	• Unit has economizer
	Special	• If dimension-A is 36-in (914 mm)
	Special	• Check for sources of fire products within 10-ft of unit fresh air intake hood
C	36-in (914 mm)	• Side condensate drain is used
	18-in (457 mm)	• Minimum clearance
D	48-in (1219 mm)	• No fire discharge accessory installed, surface is combustible material
	42-in (1067 mm)	• Surface behind service is grounded (e.g., metal, masonry wall, another unit)
	36-in (914 mm)	• Surface behind service is electrically non-conductive (e.g., wood, fiberglass)
	Special	• Check for adjacent units or building fresh air intakes within 10-ft of this unit's fire outlet

NOTE: Unit not designed to have overhead obstruction. Contact Application Engineering for guidance on any application planning overhead obstruction or vertical clearances.

C11247

CHUK 3-4

Performance Summary For RTU-1A

Project: ~Untitled6
Prepared By:

08/11/2016
09:52AM

Part Number: 48HCFD08A2M5-2B0A0

ARI EER: 12.00
IEER: 13.0

Base Unit Dimensions

Unit Length: 88.1 in
Unit Width: 59.5 in
Unit Height: 49.4 in

Operating Weight

Base Unit Weight: 925 lb
High Heat: 29 lb
Medium Static Option - Belt Drive: 15 lb
Al/Cu - Al/Cu - Louvered Hail Guards: 34 lb
RTU Open Controller: 2 lb
Temperature Economizer w/ Barometric Relief: 74 lb

Total Operating Weight: 1079 lb

Unit

Unit Voltage-Phase-Hertz: 208-3-60
Air Discharge: Vertical
Fan Drive Type: Belt
Actual Airflow: 3000 CFM
Site Altitude: 0 ft

Cooling Performance

Condenser Entering Air DB: 95.0 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: 57.7 F
Evaporator Leaving Air WB: 57.2 F
Evaporator Leaving Air Enthalpy: 24.53 BTU/lb
Gross Cooling Capacity: 93.30 MBH
Gross Sensible Capacity: 72.19 MBH
Compressor Power Input: 6.24 kW
Coil Bypass Factor: 0.198

Heating Performance

Heating Airflow: 3000 CFM
Entering Air Temp: 70.0 F
Leaving Air Temp: 126.8 F
Gas Heating Input Capacity: 180.0 / 224.0 MBH
Gas Heating Output Capacity: 147.0 / 184.0 MBH
Temperature Rise: 56.8 F
Thermal Efficiency (%): 82.0

Supply Fan

External Static Pressure: 0.75 in wg
Options / Accessories Static Pressure
Economizer: 0.11 in wg
Total Application Static (ESP + Unit Opts/Acc.): 0.86 in wg
Fan RPM: 838
Fan Power: 1.42 BHP
NOTE: Selected IFM RPM Range: 690 - 936

Electrical Data

Voltage Range: 187 - 253
Compressor #1 RLA: 13.6

Performance Summary For RTU-1A

Project: ~Untitled6
Prepared By:

08/11/2016
09:52AM

Compressor #1 LRA:	83
Compressor #2 RLA:	13.6
Compressor #2 LRA:	83
Indoor Fan Motor Type:	MED
Indoor Fan Motor FLA:	6.9
Combustion Fan Motor FLA (ea):	0.48
Power Supply MCA:	41
Power Supply MOCP (Fuse or HACR):	50
Disconnect Size FLA:	43
Disconnect Size LRA:	229
Electrical Convenience Outlet:	None
Outdoor Fan [Qty / FLA (ea)]:	2 / 1.5

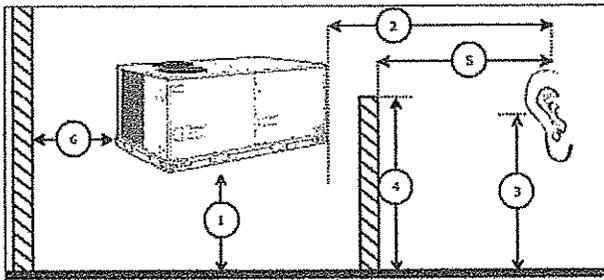
Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

Acoustics

Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	97.1	94.3	90.6
125 Hz	91.2	84.9	84.3
250 Hz	76.1	69.6	80.2
500 Hz	69.6	64.7	79.3
1000 Hz	65.2	62.1	77.1
2000 Hz	63.5	57.3	72.2
4000 Hz	66.2	56.9	67.4
8000 Hz	67.2	56.1	63.7
A-Weighted	78.5	73.0	82.0

Advanced Acoustics



Advanced Acoustics 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	90.6	84.3	80.2	79.3	77.1	72.2	67.4	63.7	92.3 Lw
B	64.4	68.2	71.6	76.1	77.1	73.4	68.4	62.6	81.7 LwA

Performance Summary For RTU-1A

Project: ~Untitled6
Prepared By:

08/11/2016
09:52AM

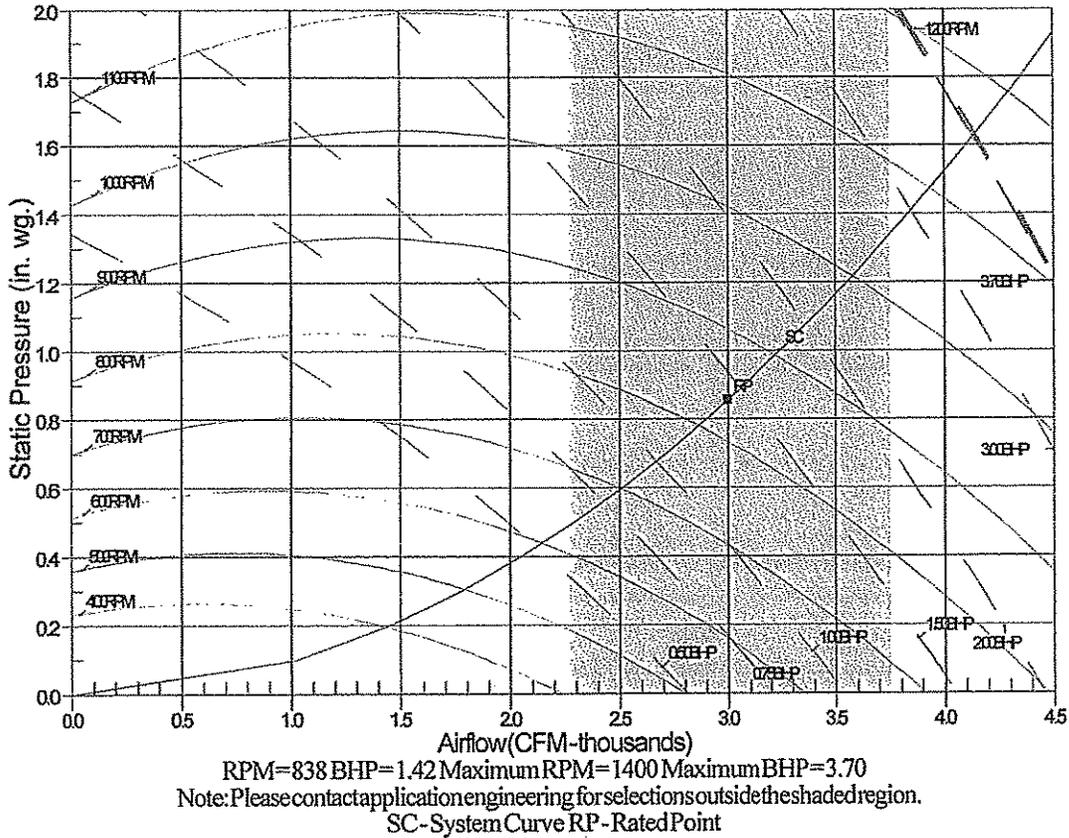
C	58.2	51.9	47.8	46.9	44.7	39.8	35.0	31.3	59.9 Lp
D	32.0	35.8	39.2	43.7	44.7	41.0	36.0	30.2	49.3 LpA

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.

Fan Curve



Unit Report For RTU-2A

Project: ~Untitled6
Prepared By:

08/11/2016
09:52AM

Unit Parameters

Unit Model: 48HCFA06A2M5-2B0A0
 Unit Size: 06 (5 Tons)
 Volts-Phase-Hertz: 208-3-60
 Heating Type: Gas
 Duct Cfg: Vertical Supply / Vertical Return
 High Heat
 Single stage cooling models

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

Unit Length: 6' 2.375"
 Unit Width: 3' 10.75"
 Unit Height: 3' 5.375"
 *** Total Operating Weight: 695 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

Unit Configuration

Medium Static Option - Belt Drive
 A/Cu - A/Cu - Louvered Hail Guards
 RTU Open Controller
 Temperature Economizer w/ Barometric Relief
 Standard Packaging

Warranty Information

1-Year parts
 5-Year compressor parts
 10-Year heat exchanger - Aluminized

No optional warranties were selected.

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

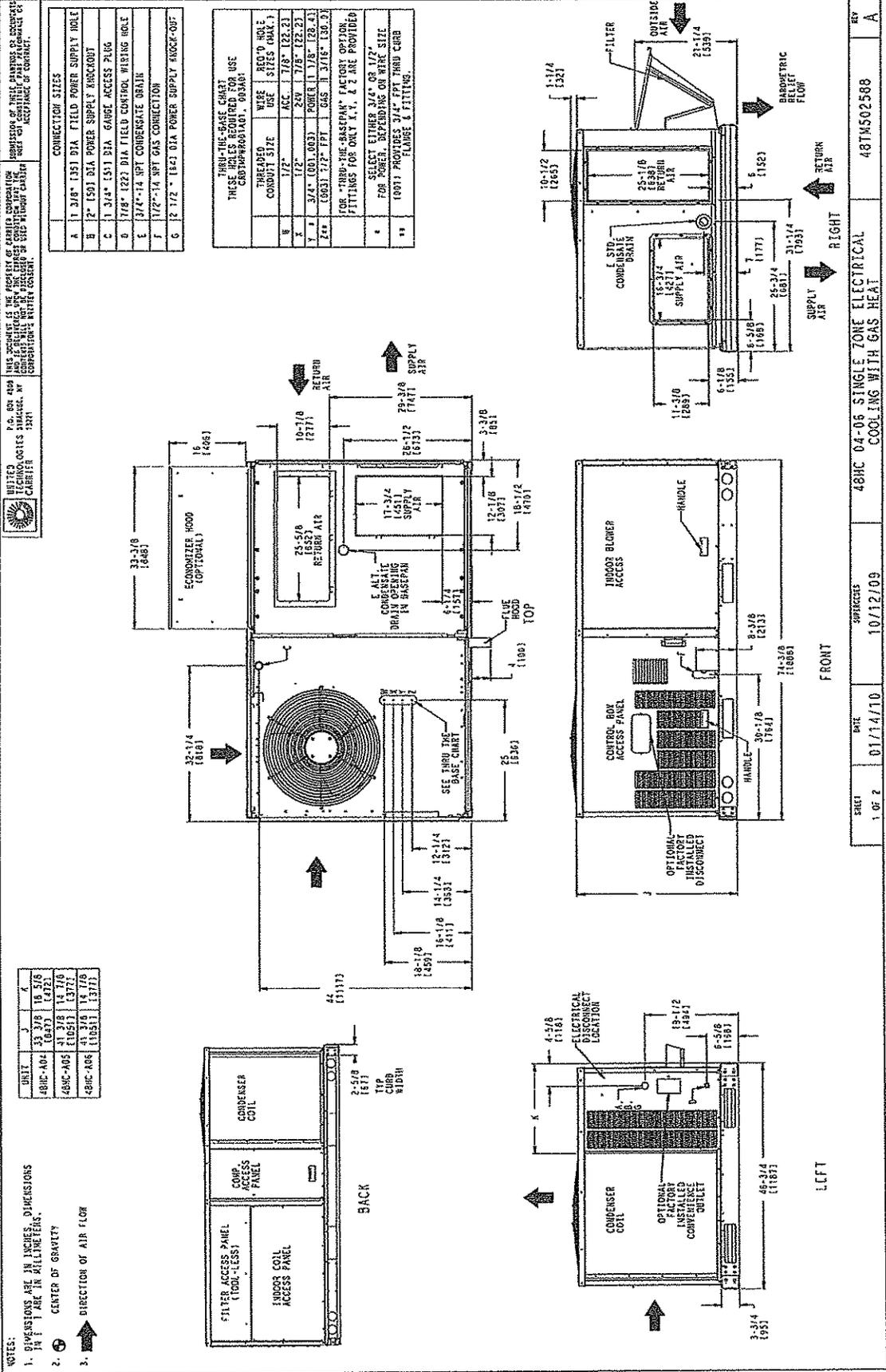
Ordering Information

Part Number	Description	Quantity
48HCFA06A2M5-2B0A0	Rooftop Unit	1
	Base Unit	
	Medium Static Option - Belt Drive	
	A/Cu - A/Cu - Louvered Hail Guards	
	RTU Open controls std. leak Temp Econo 2 with baro relief. Meets Calif. Title 24 FDD	
	None	

Certified Drawing for RTU-2A

Project: ~Untitled6
Prepared By:

08/11/2016
09:52AM



Certified Drawing for RTU-2A

Project: ~Untitled6
Prepared By:

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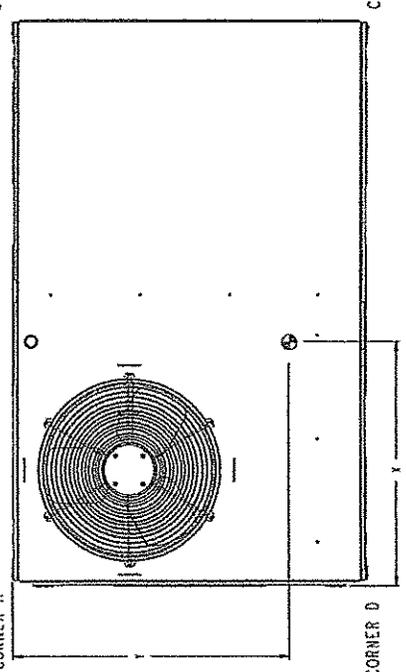
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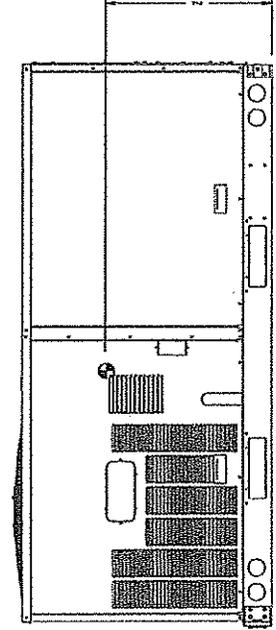
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UNIT	STD. UNIT WEIGHT (LBS.)	CORNER WEIGHT (LBS.)		CORNER WEIGHT (KG.)		C.O.		HEIGHT (IN)										
		(A)	(B)	(C)	(D)	(X)	(Y)											
48HC-004	505	229	124	56	117	53	120	50	136	82	38	176	19103	24	31/8	16191	18	(483)
48HC-005	500	268	151	68	144	65	144	65	151	69	36	174	19211	23	3/8	15047	20	178 (531)
48HC-006	600	271	158	71	125	68	144	65	155	70	35	176	19111	23	3/4	15913	19	172 (495)



TOP



FRONT

SHEET 2 of 2	DATE 07/14/10	SUBMITTED 10/12/09	REV A
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Certified Drawing for RTU-2A

Project: ~Untitled6
Prepared By:

08/11/2016
09:52AM

Service Clearance

LOCATION	DIMENSION	CONDITION
A	48-in (1219 mm) 18-in (457 mm) 12-in (305 mm) 42-in (1067 mm) 36-in (914 mm) Special	<ul style="list-style-type: none"> • Unit disconnect is mounted on panel • No disconnect, convenience outlet option • Recommended service clearance • Minimum clearance • Surface behind service is grounded (e.g., metal, masonry wall) • Surface behind service is electrically non-conductive (e.g., wood, fiberglass) • Check for sources of flue products within 10-ft. of unit fresh air intake hood • Sids condensate drain is used
B	36-in (914 mm) Special	<ul style="list-style-type: none"> • Minimum clearance
C	48-in (1219 mm) 42-in (1067 mm) 36-in (914 mm) Special	<ul style="list-style-type: none"> • No flue discharge accessory installed, surface is combustible material • Surface behind service is grounded (e.g., metal, masonry wall, another unit) • Surface behind service is electrically non-conductive (e.g., wood, fiberglass) • Check for adjacent units or building fresh air intakes within 10-ft. of this unit's flue outlet
D	Special	<ul style="list-style-type: none"> • Check for adjacent units or building fresh air intakes within 10-ft. of this unit's flue outlet

NOTE: Unit not designed to have overhead obstruction. Contact Application Engineering for guidance on any application planning overhead obstruction or vertical clearances.

C09337

sheet 1 of 2

Performance Summary For RTU-2A

Project: ~Untitled6
Prepared By:

08/11/2016
09:52AM

Part Number: 48HCFA06A2M5-2B0A0

ARI SEER: 15.20

Base Unit Dimensions

Unit Length: 74.4 in
Unit Width: 46.8 in
Unit Height: 41.4 in

Operating Weight

Base Unit Weight: 600 lb
High Heat: 17 lb
Medium Static Option - Belt Drive: 10 lb
Al/Cu - Al/Cu - Louvered Hail Guards: 16 lb
RTU Open Controller: 2 lb
Temperature Economizer w/ Barometric Relief: 50 lb

Total Operating Weight: 695 lb

Unit

Unit Voltage-Phase-Hertz: 208-3-60
Air Discharge: Vertical
Fan Drive Type: Belt
Actual Airflow: 2000 CFM
Site Altitude: 0 ft

Cooling Performance

Condenser Entering Air DB: 95.0 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: 57.8 F
Evaporator Leaving Air WB: 57.5 F
Evaporator Leaving Air Enthalpy: 24.72 BTU/lb
Gross Cooling Capacity: 60.42 MBH
Gross Sensible Capacity: 47.99 MBH
Compressor Power Input: 3.96 kW
Coil Bypass Factor: 0.198

Heating Performance

Heating Airflow: 2000 CFM
Entering Air Temp: 70.0 F
Leaving Air Temp: 125.6 F
Gas Heating Input Capacity: 120.0 / 150.0 MBH
Gas Heating Output Capacity: 96.0 / 120.0 MBH
Temperature Rise: 55.6 F
Thermal Efficiency (%): 80.0

Supply Fan

External Static Pressure: 0.75 in wg
Options / Accessories Static Pressure
Economizer: 0.12 in wg
Total Application Static (ESP + Unit Opts/Acc.): 0.87 in wg
Fan RPM: 1349
Fan Power: 1.44 BHP
NOTE: Selected IFM RPM Range: 1035 - 1466

Electrical Data

Voltage Range: 187 - 253
Compressor #1 RLA: 15.9
Compressor #1 LRA: 110

Performance Summary For RTU-2A

Project: ~Untitled6
Prepared By:

08/11/2016
09:52AM

Indoor Fan Motor Type:	MED
Indoor Fan Motor FLA:	6.9
Combustion Fan Motor FLA (ea):	0.48
Power Supply MCA:	29
Power Supply MOCP (Fuse or HACR):	40
Disconnect Size FLA:	28
Disconnect Size LRA:	170
Electrical Convenience Outlet:	None
Outdoor Fan [Qty / FLA (ea)]:	1 / 1.4

Electrical Data (Unit produced on or after May 18, 2015)

Indoor Fan Motor FLA:	8.4
Power Supply MCA:	30
Power Supply MOCP (Fuse or HACR):	45
Disconnect Size FLA:	30
Disconnect Size LRA:	185

May 18th and beyond units can be identified by serial number 2115XXXXXXXXX and higher

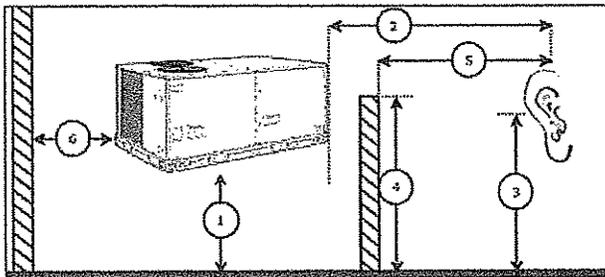
Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

Acoustics

Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	88.5	87.8	87.5
125 Hz	83.7	80.8	82.5
250 Hz	76.9	68.0	76.1
500 Hz	72.5	64.9	73.6
1000 Hz	68.9	64.2	71.3
2000 Hz	63.5	58.4	67.1
4000 Hz	65.3	54.2	64.1
8000 Hz	61.0	47.2	60.0
A-Weighted	75.9	70.3	77.0

Advanced Acoustics



Advanced Acoustics 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

Performance Summary For RTU-2A

Project: ~Untitled6
 Prepared By:

08/11/2016
 09:52AM

Octave Band Center Freq. Hz	63	125	250	500	1k	2k	4k	8k	Overall
A	87.5	82.5	76.1	73.6	71.3	67.1	64.1	60.0	89.2 Lw
B	61.3	66.4	67.5	70.4	71.3	68.3	65.1	58.9	76.7 LwA
C	55.1	50.1	43.7	41.2	38.9	34.7	31.7	27.6	56.8 Lp
D	28.9	34.0	35.1	38.0	38.9	35.9	32.7	26.5	44.3 LpA

Legend

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Fan Curve

