

SUBMITTAL *FOR APPROVAL*****

TAG: AH_CU-1A

MODEL: 40RUAA08A2A6-0A0A0_38AUZA07A0A5-0A0A0

SPLIT SYSTEM AIR HANDLER_CONDENSING UNIT

Project

66 Orland Square Dr. Landlord Renovations

Location

Orland Park, IL

Contractor

Classic Air, Inc.

Engineer

Cartland Kraus

<u>Date</u>

June 22, 2015

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Prepared By: 12:06PM

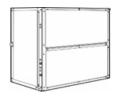
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Performance Summary	
Acoustic Summary	
Certified Drawing	
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AH_CU-1A

Submittal Cover Sheet
Unit Report
Performance Summary Report
Acoustic Summary
Certified Drawings

Prepared By:





Outdoor Unit Parameters

Unit Quantity:	1	
Unit Model:	38AUZ	
Unit Size:	6 Tons	
Voltage:	208-3-60	V-Ph-Hz
Condenser Coil:	AI/Cu	
No. of DX Circuits:	1	
System Parameter		
System Quantity:	1	
Refrigerant Type:	PURON	
Compressor Quantity:	1	
Compressor Type:	Scroll	
Std. Capacity Steps:	100	
Std. Min. Outdoor Temp(Cooling):		°F
No. of Outdoor fans:	2	

Indoor Unit Parameters

Unit Model:	40RUA	
Unit Size:	7.5 Tons	
No. of Splits:	1	
Voltage:		V-Ph-Hz

Outdoor Unit Dimensions and Weight

Unit Ler	ngth:	4' 11.4"	
Unit Wid	dth:	3' 9.9"	
Unit Hei	ight:	3' 6.4"	
Unit Shi	ipping Weight:	389	lb
	erating Weight:		

Indoor Unit Dimensions and Weight

Unit Length:	4' 1.0"	
Unit Width:		
Unit Height:	4' 8.1"	
Unit Shipping Weight:	404	lb
Unit Operating Weight:	404	

Warranty Information (Note: for US & Canada only)

NOTE: Please see Warranty Catalog 808-218 for explanation of policies and ordering methods.

Ordering Information

Part Number	Description	Quantity
Base Unit - Outdoor		
38AUZA07A0A5-0A0A0		1
	Base Unit	
	Al/Cu Condensing Coil	1
	Standard Refrigerant Options	1
	Service Options - None	1
	Electrical Options - None	1
	Packaging Options - Standard	1
	Standard Electrical Mechanical Controls	1
	Single Stage	1
Base Unit - Indoor		
40RUAA08A2A6-0A0A0		1
	Base Unit	
	Std Static, Std Eff Motor/ Medium Drive	1
	Cabinet Paint - None	1
	None- No Controller	1
Accessories		
VST2800	Venstar Commercial Programmable Thermostat	1

Unit Report For AH_CU-1A

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CAECOMZR001B00	Economzer - Enthalpy Controlled for Indoor Unit	1
CASUSPEN001A00	Overhead Suspension Brackets for Indoor Unit	1
CAELHEAT013A00	35.0 kW, 240-3-60 Electric Heater	1

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System: 38AUZ007/40RUA008 Suction Line Loss: 1.4 °F System meets the Energy Star EER rating.

Liquid and Suction Line Sizing

Pipe Length	Liquid Line Size	Suction Line Size
0 - 25	3/8	7/8
26 - 50	3/8	7/8
51 - 75	1/2	1 1/8
76 - 100	1/2	1 1/8
101 - 125	1/2	1 1/8

Outdoor Unit Parameters

Unit Quantity: 1

PartNumber: 38AUZA07A0A5-0A0A0

Unit Model: 38AUZ 6 Tons Unit Size:

Condenser Coil: AI/Cu

No. of DX Circuits: 1

V-Ph-Hz Voltage: 208-3-60 Clg Ent Air DB: 95.0 °F

Outdoor Electrical Data

Unit Voltage: 208-3-60 V-Ph-Hz Total Compressor Power of Unit #1:

Voltage Range Min: 187 Voltage Range Max: 253 V

Compressor Quantity: 1 Fan Motors Qtv:

Notice: Outdoor unit elect. data is based on 208-3-60

Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

Outdoor Electrical Data on Units produced on or prior to 02/08/2015

Unit#1 MCA: 27.0 **Amps**

Unit#1 MOCP: 45.0 Amps

Compressor RLA: 19 Compressor LRA: 123

Outdoor Electrical Data on Units produced on or after 02/09/2015

Unit#1 MCA: 28.0 **Amps**

Unit#1 MOCP: 45.0 Amps

Compressor RLA: 19.6 Compressor LRA: 136

Indoor Unit Parameters

PartNumber: 40RUAA08A2A6-0A0A0

Unit Model: 40RUA Unit Size: 7.5 Tons Coil Rows:

No. of Splits: 1

Voltage: 208-3-60 V-Ph-Hz Actual Airflow: 2400.0 CFM Standard Airflow: 2400.0 CFM Total Clg Cap.(Gross): 75.4 MBH Sensible Clg Cap.(Gross): 59.3

MBH

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°F Ent Air DB: **80.0** Ent Air WB: **67.0** °F Ent Enthalpy: 31.44 BTU/lb Lvg Air DB: **57.1** °F ٥F Lvg Air WB: **57.1** Lvg Enthalpy: 24.45 BTU/lb Coil Bypass Factor: NA

Accessory Heating

Heating Type: Electric

Acc Htg Capacity: 89.74 **MBH** Acc Htg Ent. Air Temp: 60.0 °F °F Acc Htg Lvg. Air Temp: 94.6 Acc Heater Nominal Voltage: 208-3-60 Acc Heater Nominal kW: 35.0 kW Acc Heater Actual Voltage: 208-3-60 Acc Heater FLA: 73.0 amps Acc Stage 1 Actual kW: 15.0 kW Acc Stage 2 Actual kW: 11.3 kW

Indoor Supply Fan

Indoor Unit External Static: 0.75 in wg

Economizer Loss: 0.07 in wg

Grille Loss: 0.00 in wg Plenum Loss: 0.00 in wg

Acc. Heating Loss: 0.07 in wg in wg

Total Ext Static: 0.89 Fan Speed: 783 **RPM**

Fan Power: **0.95 BHP** Fan Motor Max: 2.40

BHP Fan Motor FLA: 6.9 Amps Motor and Medium Static Drive Required. Selected Medium Static Drive Range: 733 - 949

Indoor Electrical Data

Unit Voltage: 208-3-60 V-Ph-Hz

Unit MCA: 99.8 **Amps** Unit MOCP: 100.0 **Amps**

Notice: Indoor unit elect. data is based on 208-3-60

Acoustics

Sound Power Levels, db re 10E-12 Watts

	Outdoor Unit (dB)	Indoor Unit (dB,Ducted)
A-Weighted Total Level	84.6	88.4
63Hz	89.3	95.3
125Hz	85.0	91.3
250Hz	82.0	87.3
500Hz	82.7	86.3
1000Hz	80.2	82.3
2000Hz	75.2	80.3
4000Hz	71.0	76.3
8000Hz	66.0	NA
Sound Message	Sound for AUZ007	Sound for RUA008

Acoustic Notes:

- 1. 38AUZ07-12 units are in accordance with ARI 270-2008 Sound Rating of Unitary Equipment.
- 2. The sound data for all 38AUZ14 units are based on upon a limited amount of actual testing with the estimated sound power data being generated from this data in accordance with ARI 370-2001 for Large Outdoor Refrigerating and Air-Conditioning Equipment.

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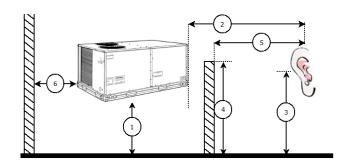
- 3. The indoor duct sound power data is estimated based on the ASHRAE calculation approach from the ASHRAE handbook 1987 HVAC Systems and Applications, Chapter 52.
 - 4. The acoustic center of the unit is located at the geometric center of the unit.
 - 5. All estimated sound power levels, dB re 1 Pico watt should not be guaranteed or certified as being the actual sound power levels.

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Advanced Accoustics Parameters

1. Unit height above ground:	1 .0	ft
2. Horizontal distance from unit to receiver:	20.0	ft
3. Receiver height above ground:	5.7	ft
4. Height of obstruction:	0.0	ft
5. Horizontal dist. from obstruction to receiver:	0.0	ft
6. Horizontal dist. from unit to obstruction:	0.0	ft



Detailed Acoustics Information

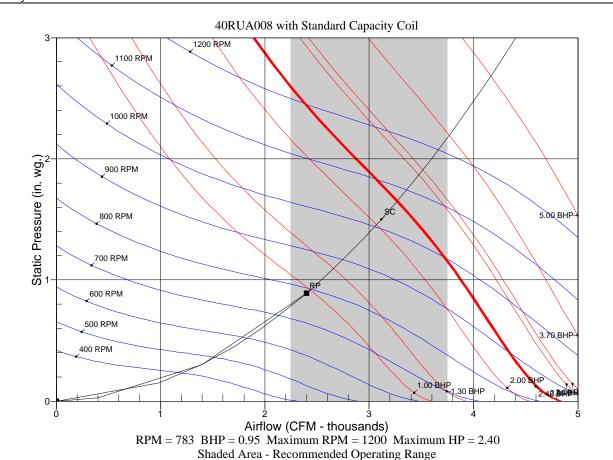
Octave Band Center Frequency, Hz	63	125	250	500	1k	2k	4k	8k	Overall
Sound Power Levels at Unit's Acoustic Center (Lw), dB	89.3	85.0	82.0	82.7	80.2	75.2	71.0	66.0	92.2
A-Wgted Sound Power Levels at Unit's Acoustic Center (LwA), dBA	63.1	68.9	73.4	79.5	80.2	76.4	72.0	64.9	84.6
Sound Press. Levels at Dist. Specified above (Lp), dB	65.0	60.7	57.7	58.4	55.9	50.9	46.7	41.7	67.9
A-Wgted Sound Press. Levels at Dist. Specified above (LpA), dBA	38.8	44.6	49.1	55.2	55.9	52.1	47.7	40.6	60.3

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.

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SC - System Curve RP - Rated Point MP - Minimum Point

Commercial Split Systems Builder 1.33

Acoustic Summary For AH_CU-1A

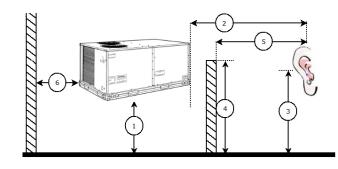
Project: 66 Orland Square Dr. Landlord Renovations

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Outdoor Unit Parameters:

Cutaco: Cint i aramotoro:		
Tag Name:	AH_CU-1A	
Unit Model:	38AUZ	
Unit Size:	6 Tons	
System Type:	Dx Cooling Only	
Refrigerant Type:		
Compressor Quantity:	1	
Compressor Type:	Scroll	
Advanced Accoustics Parameters	•	
1. Unit height above ground:	1.0 ft	
Horizontal distance from unit t	to receiver:20.0 ft	

3. Receiver height above ground:5.7 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 Frequency, Hz	63	125	250	500	1k	2k	4k	8k	Overall
Sound Power Levels at Unit's Acoustic Center (Lw), dB	89.3	85.0	82.0	82.7	80.2	75.2	71.0	66.0	92.2
A-Wgted Sound Power Levels at Unit's Acoustic Center (LwA), dBA	63.1	68.9	73.4	79.5	80.2	76.4	72.0	64.9	84.6
Sound Press. Levels at Dist. Specified above (Lp), dB	65.0	60.7	57.7	58.4	55.9	50.9	46.7	41.7	67.9
A-Wgted Sound Press. Levels at Dist. Specified above (LpA), dBA	38.8	44.6	49.1	55.2	55.9	52.1	47.7	40.6	60.3

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.

Acoustic Notes:

- 1. 38AUZ07-12 units are in accordance with ARI 270-2008 Sound Rating of Unitary Equipment.
- 2. The sound data for all 38AUZ14 units are based on upon a limited amount of actual testing with the estimated sound power data being generated from this data in accordance with ARI 370-2001 for Large Outdoor Refrigerating and Air-Conditioning Equipment.
- 3. The indoor duct sound power data is estimated based on the ASHRAE calculation approach from the ASHRAE handbook 1987 HVAC Systems and Applications, Chapter 52.
 - 4. The acoustic center of the unit is located at the geometric center of the unit.
 - 5. All estimated sound power levels, dB re 1 Pico watt should not be guaranteed or certified as being the actual sound power levels.

Indoor Unit Parameters:

oor orner arannotoro.		
Tag Name:	AH_CU-1A	
Unit Model:	40RUA	
Unit Size:	7.5 Tons	
System Type:	Dx Cooling Only	
External Static Pressure:	0.89	in wg
Fan Speed:	783	RPM
Fan BHP:		

Octave Band Center Frequency, Hz	31	63	125	250	500	1k	2k	4k	8k	Total
Sound Power,dB	NA	95.3	91.3	87.3	86.3	82.3	80.3	76.3	NA	97.8
A-Weighted Sound Power, dBA	NA	69.1	75.2	78.7	83.1	82.3	81.5	77.3	NA	88.4

Notes:

- 1. The above estimated duct sound power levels are based upon the ASHRAE calculation approach from the ASHRAE 1987 HVAC Systems and Applications handbook, Chapter 52.
 - 2. Since this data is calculated, these sound power levels may be different than the actual sound power levels.

Acoustic Summary For AH_CU-1A

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3. The acoustic center of the units is located at the geometric center of the unit.

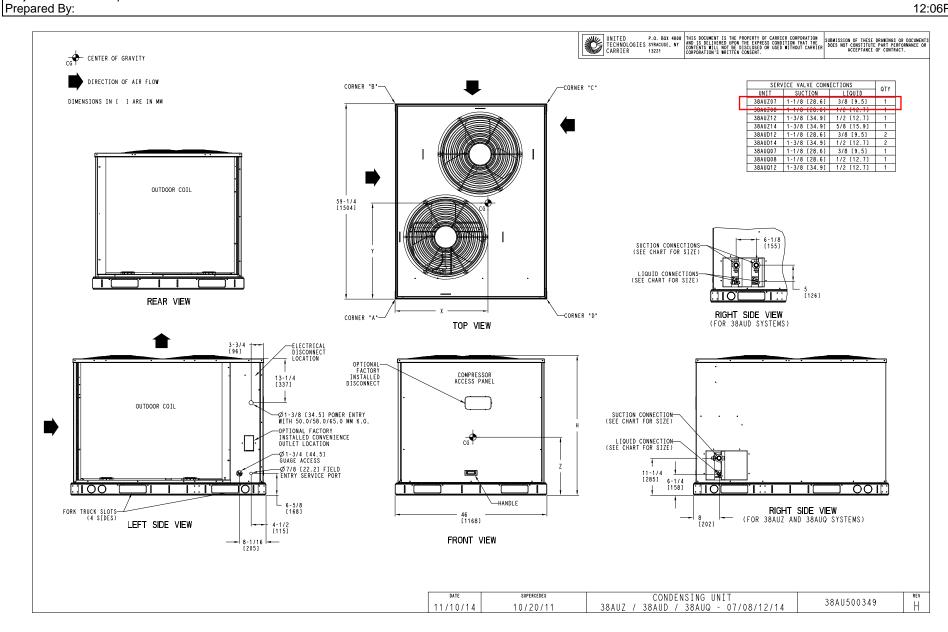
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	ELECTRICAL	STD. UI	NIT WT.	CORN	ER A	CORN	ER B	CORN	ER C	CORN	ER D		CENTER OF GRAVITY		UNIT HEIGHT
UNIT	CHARACTERISTICS	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	Х	Υ	Z	Н
38AUZ-07 (MCHX)	208/230-3-60,460-3-60,575-3-60	328	149	128	58	68	31	62	28	70	32	21 [533,4]	19 [482.6]	13 [330.2]	42-3/8 [1076.0]
38AUZ-08 (MCHX)	208/230-3-60,460-3-60,575-3-60	353	160	138	63	72	33	65	29	78	35	19 [482.6]	23 [584.2]	13 [330.2]	42-3/8 [1076.0]
38AUZ-12 (MCHX)	208/230-3-60,460-3-60,575-3-60	418	190	165	75	85	39	78	35	90	41	23 [584.2]	20 [508.0]	15 [381.0]	50-3/8 [1279.2]
38AUZ-14 (MCHX)	208/230-3-60,460-3-60,575-3-60	431	196	162	73	82	37	92	42	95	43	19 [482.6]	23 [584.2]	15 [381.0]	50-3/8 [1279.2]
38AUD-12 (MCHX)	208/230-3-60,460-3-60,575-3-60	499	226	193	88	111	50	72	38	123	56	20 [508.0]	23 [584.2]	15 [381.0]	50-3/8 [1279.2]
38AUD-14 (MCHX)	208/230-3-60,460-3-60,575-3-60	505	229	190	86	88	40	76	34	151	68	20 [508.0]	24 [609.6]	15 [381.0]	50-3/8 [1279.2]
38AUZ-07 (RTPF)	208/230-3-60.460-3-60.575-3-60	389	176	141	6.4	96	44	62	28	91	41	18 [457.2]	24 [609_6]	21 [533.4]	42-3/8 [1076.0]
38AUZ(A,B)08 (RTPF)	208/230-3-60,460-3-60,575-3-60	391	177	142	64	96	44	62	28	91	41	18 [457.2]	24 [609.6]	21 [533.4]	42-3/8 [1076.0]
38AUZ(D,E)08 (RTPF)	208/230-3-60,460-3-60,5/5-3-60	430	195	142	6.4	96	44	76	34	111	50	18 L457.2J	24 [609.6]	21 [533.4]	42-3/8 [10/6.0]
38AUZ-12 (RTPF)	208/230-3-60,460-3-60,575-3-60	490	222	177	80	120	54	78	35	114	52	18 [457.2]	24 [609.6]	24 [609.6]	50-3/8 [1279.2]
38AUZ-14 (RTPF)	208/230-3-60,460-3-60,575-3-60	598	271	195	88	142	6.4	110	50	151	68	20 [508.0]	25 [635.0]	24 [609.6]	50-3/8 [1279.2]
38AUD-12 (RTPF)	208/230-3-60,460-3-60,575-3-60	516	234	185	84	117	53	83	38	131	59	19 [482.6]	23 [584.2]	24 [609.6]	50-3/8 [1279.2]
38AUD-14 (RTPF)	208/230-3-60,460-3-60,575-3-60	654	297	214	97	155	70	120	54	165	75	20 [508.0]	25 [635.0]	24 [609.6]	50-3/8 [1279.2]
38AUQ-07	208/230-3-60,460-3-60,575-3-60	444	201	134	61	97	44	90	41	123	56	22 [558.8]	25 [635.0]	13 [330.2]	42-3/8 [1076.0]
38AUQ(A,B)08	208/230-3-60,460-3-60,575-3-60	483	219	162	74	110	50	85	39	125	57	20 [508.0]	24 [609.6]	21 [533.4]	42-3/8 [1076.0]
38AUQ(D,E)08	208/230-3-60,460-3-60,575-3-60	523	237	174	79	118	54	96	44	135	61	21 [533.4]	24 [609.6]	23 [584.2]	50-3/8 [1279.2]
38AUQ-12	208/230-3-60,460-3-60,575-3-60	575	261	186	84	126	57	106	48	157	71	21 [533.4]	24 [609.6]	23 [584.2]	50-3/8 [1279.2]

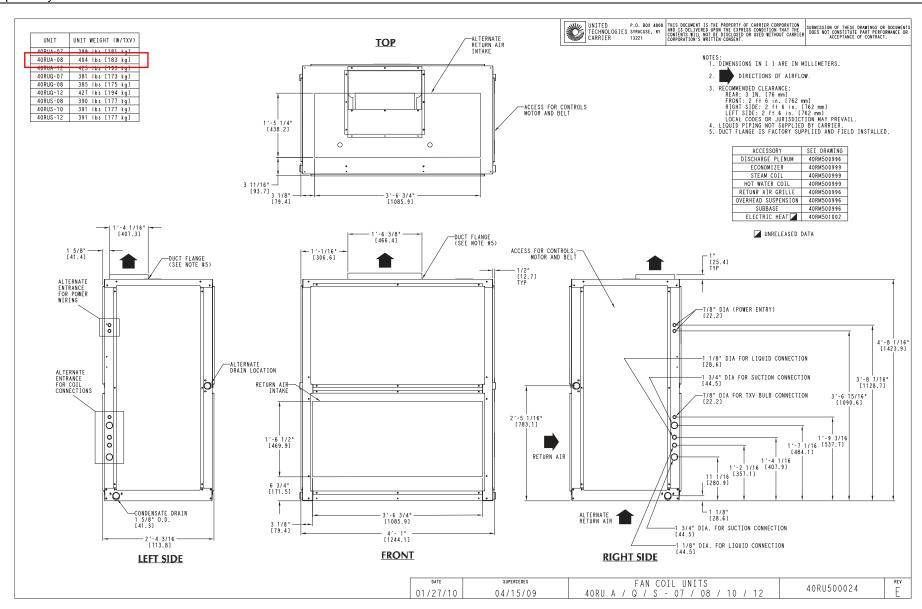
NOTES:

- 1. MINIMUM CLEARANCE (LOCAL CODES OR JURISDICTION MAY PREVAIL):
- A. BOTTOM TO COMBUSTIBLE SURFACES: 0 INCHES.
- B. OUTDOOR COIL, FOR PROPER AIR FLOW: 36 INCHES ONE SIDE, 12 INCHES THE OTHER. THE SIDE GETTING THE GREATER CLEARANCE IS OPTIONAL. STANDARD CLEARANCES ON REMAINING TWO SIDES.
- C. OVERHEAD: 60 INCHES, TO ASSURE PROPER OUTDOOR FAN OPERATION.
- D. BETWEEN UNITS: CONTROL BOX SIDE, 42 INCHES PER NEC.
- E. BETWEEN UNIT AND UNGROUNDED SURFACES: CONTROL BOX
 - SIDE, 36 INCHES PER NEC.
- F. BETWÉEN UNIT AND BLOCK OR CONCRETE WALLS AND OTHER GROUNDED SURFACES: CONTROL BOX SIDE, 42 INCHES PER NEC.
- 2. WITH EXCEPTION OF THE CLEARANCE FOR THE OUTDOOR COIL AS STATED IN NOTE 1B, A REMOVABLE FENCE OR BARRICADE REQUIRES NO CLEARANCE.
- 3. UNITS MAY BE INSTALLED ON COMBUSTIBLE FLOORS MADE FROM WOOD OR CLASS A, B OR C ROOF COVERING MATERIAL.

DATE	SUPERCEDES	CONDENSING UNIT	20111522212	REV	
11/10/14	10/20/11	38AUZ / 38AUD / 38AUQ - 07/08/12/14	38AU500349	Н	

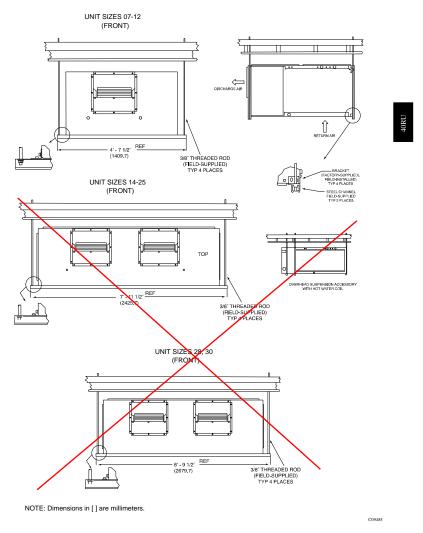


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DIMENSIONS (cont.)

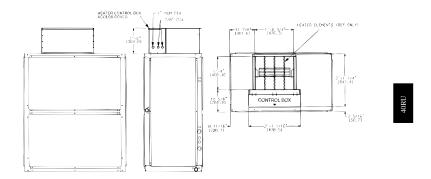
OVERHEAD SUSPENSION ACCESSORY



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DIMENSIONS (cont.)

ELECTRIC HEAT ACCESSORY UNIT SIZES 07 - 12

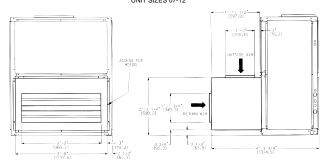


NOTE: Dimensions in [] are millimeters.

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DIMENSIONS (cont.)

ECONOMIZER ACCESSORY UNIT SIZES 07-12



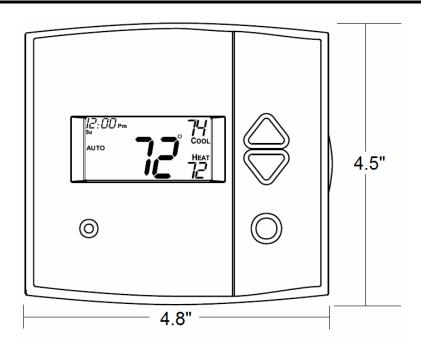
NOTE:

1. For horizontal unit applications, economizer can be attached to end of unit opposite duct connections.

2. Dimensions in [] are millimeters.

C09488

Venstar Programmable Thermostat T2800



STANDARD FEATURES:

- Up to 3-Occupied, 1-Unoccupied periods per day, with copy command for easy programming
- Accepts humidification/dehumidification control module (Venstar part number ACC0430)
- Auto changeover, 3-stage heat, 2-stage cool for use with gas/electric, heat pump, electric & hydronic heat
- · Configurable for manual changeover, also configurable programmable or non-programmable
- Adjustable deadbands and timers
- 3 configurable outputs for maximum flexibility (MISC1, MISC2, MISC3)
- Extra 6th and 7th outputs (beyond our standard thermostat)
- Smart Fan (keeps the fan from running during unoccupied periods)
- Smart recovery
- Display shows both heating an cooling setpoints and room temperature simultaneously
- All programming and setpoints stored in non-volatile memory, and are never lost in power failure
- Service filter and service UV lamp indicators
- Red/Green LED shows whether thermostat is calling for heating or cooling
- 5-minute compressor time guard and adjustable cycle limit, both defeatable for servicing equipment
- Outdoor sensor ready with high and low temperature of the day
- Thermoglow backlit electro-luminous display and backlit color coded keys and legends
- Accepts accessory IR Remote Control system (Venstar part number ACC0431)
- Accepts accessory EZ Programmer (Venstar part number ACC0432)
- For accessory locking cover use (Venstar part number ACC0620)

MODEL:	T2800	QUANTITY:	DATE:
JOB NAME:			
LOCATION:			
BUYER:			BUYER P.O.#:
ENGINEER:			