SUBMITTAL

Project

Marathon High School - ITB 2019915

Date

Wednesday, March 13, 2019

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Prepared By: Javier Noriega 06:33PM

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Outdoor Unit Parameters

Unit Quantity: **1**
Unit Model: **38AUZ**
Unit Size: **6 Tons**
Voltage: **460-3-60** V-Ph-Hz
Condenser Coil: **E-Coated Al/Cu with Louvered Hail Guard**

System Parameter

System Quantity: **1**
Refrigerant Type: **PURON**
Compressor Quantity: **1**
Compressor Type: **Scroll**
Std. Capacity Steps: **100**
Std. Min. Outdoor Temp(Cooling): **35.0** °F
No. of Outdoor fans: **2**

Outdoor Unit Dimensions and Weight

Unit Length: **4' 11.4"**
Unit Width: **3' 9.9"**
Unit Height: **3' 6.4"**
Unit Shipping Weight: **389** lb
Unit Operating Weight: **389** lb

Warranty Information (Note: for US & Canada only)

Complete Unit Year 2-5 Parts Only for Outdoor Unit

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

Ordering Information

Part Number	Description	Quantity
Base Unit - Outdoor		
38AUZA07A0P6-0A0C0		1
	Base Unit	
	E-Coated Al/Cu with Louvered Hail Guard Condensing Coil	1
	Standard Refrigerant Options	1
	Service Options - None	1
	Electrical Options - Non-Fused Disconnect	1
	Packaging Options - Standard	1
	Standard Electrical Mechanical Controls	1
	Refrig Circ/Compressor Staging - Single Circuit, Single Stage	1

The 38AUZ/AUD are furnished with filter drier which is factory provided (field installed). Additional filter driers can be purchased separately through RCD (Replacement Components Division). See the Product Library for Replacement Filter Drier Information for

more information.

System: **38AUZ007**
System Quantity: **1**
Altitude: **0.0** ft
EER @ ARI Conditions: **12.5**
IPLV: **NA**
Suction Line Loss: **1.4** °F

Liquid and Suction Line Sizing

Pipe Length	Liquid Line Size	Suction Line Size
0 - 25	3/8	7/8
26 - 50	1/2	1 1/8
51 - 75	5/8	1 1/8
76 - 100	5/8	1 1/8
101 - 125	5/8	1 1/8
126 - 150	5/8	1 1/8
151 - 175	5/8	1 1/8
176 - 200	5/8	1 1/8

Piping Line Sizes are Referenced in Application Bulletin 38TIP-15-01.pdf

Outdoor Unit Parameters
Unit Quantity: **1**
PartNumber: **38AUZA07A0P6-0A0C0**
Unit Model: **38AUZ**
Unit Size: **6 Tons**
Condenser Coil: **E-Coated Al/Cu with Louvered Hail Guard**
Voltage: **460-3-60** V-Ph-Hz
Total Clg Cap.(Gross): **68.2** MBH
SDT: **112.4** °F
Clg Ent Air DB: **95.0** °F
Saturated Suction Temp: **45.0** °F

Outdoor Electrical Data
Unit Voltage: **460-3-60** V-Ph-Hz
Unit#1 MCA: **12.0** Amps
Unit#1 MOCP: **20.0** Amps
Total Compressor Power of Unit #1: **4.90** kW
Voltage Range Min: **414** V
Voltage Range Max: **506** V
Compressor RLA: **8.2**
Compressor LRA: **66**
Compressor Quantity: **1**
Fan Motors Qty: **2**
Notice: Outdoor unit elect. data is based on 460-3-60
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: **14.0** Amps
Unit#1 MOCP: **20.0** Amps
Compressor RLA: **9.7**
Compressor LRA: **62**

Outdoor Electrical Data on Units produced on or after 02/09/2015
Unit#1 MCA: **12.0** Amps
Unit#1 MOCP: **20.0** Amps
Compressor RLA: **8.2**
Compressor LRA: **66**

Acoustics

Performance Summary For CU 1.2

Project: Marathon High School - ITB 2019915 03/13/2019
Prepared By: Javier Noriega 06:33PM

Sound Power Levels, db re 10E-12 Watts

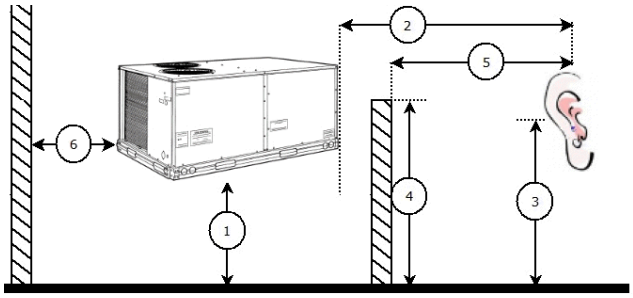
A-Weighted	Outdoor Unit (dB)	Indoor Unit (dB,Ducted)
Total Level	84.6	NA
63Hz	63.1	NA
125Hz	68.9	NA
250Hz	73.4	NA
500Hz	79.5	NA
1000Hz	80.2	NA
2000Hz	76.4	NA
4000Hz	72.0	NA
8000Hz	64.9	NA
Sound Message	Sound for AUZ007	

Acoustic Notes:

1. 38AUZ/D/Q units sound ratings are in accordance with AHRI 270-2008 - Sound Rating of Outdoor Unitary Equipment.
2. The acoustic center of the unit is located at the geometric center of the unit.

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	80.7	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	57.8	55.5	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

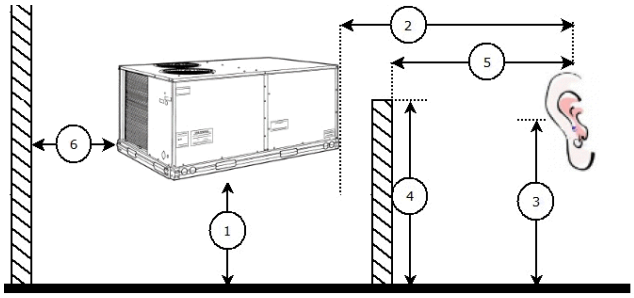
estimation. This program makes certain assumptions as to the dominant sound sources and sound paths which may not always be appropriate to the real system being estimated. Because of this, no assurances can be offered that this software will always generate an accurate sound prediction from user supplied 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 Summary For CU 1.2

Project: Marathon High School - ITB 2019915 03/13/2019
Prepared By: Javier Noriega 06:33PM

Outdoor Unit Parameters:

Tag Name: **CU 1.2**
Unit Model: **38AUZ**
Unit Size: **6 Tons**
System Type: **Dx Cooling Only**
Refrigerant Type: **PURON**
Compressor Quantity: **1**
Compressor Type: **Scroll**



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 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
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Acoustic Note:

1. 38AUZ/D/Q units sound ratings are in accordance with AHRI 270-2008 - Sound Rating of Outdoor Unitary Equipment.
2. The acoustic center of the unit is located at the geometric center of the unit.
3. All estimated sound power levels, dB re 1 Picowatt should not be guaranteed or certified as being the actual sound power levels.

UNIT	ELECTRICAL CHARACTERISTICS	STD. UNIT WT.		CORNER A		CORNER B		CORNER C		CORNER D		CENTER OF GRAVITY			UNIT HEIGHT
		LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X	Y	Z	H
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	64	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)	208/230-3-60,460-3-60,575-3-60	430	195	142	64	96	44	76	34	111	50	18 [457.2]	24 [609.6]	21 [533.4]	42-3/8 [1076.0]
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	64	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]

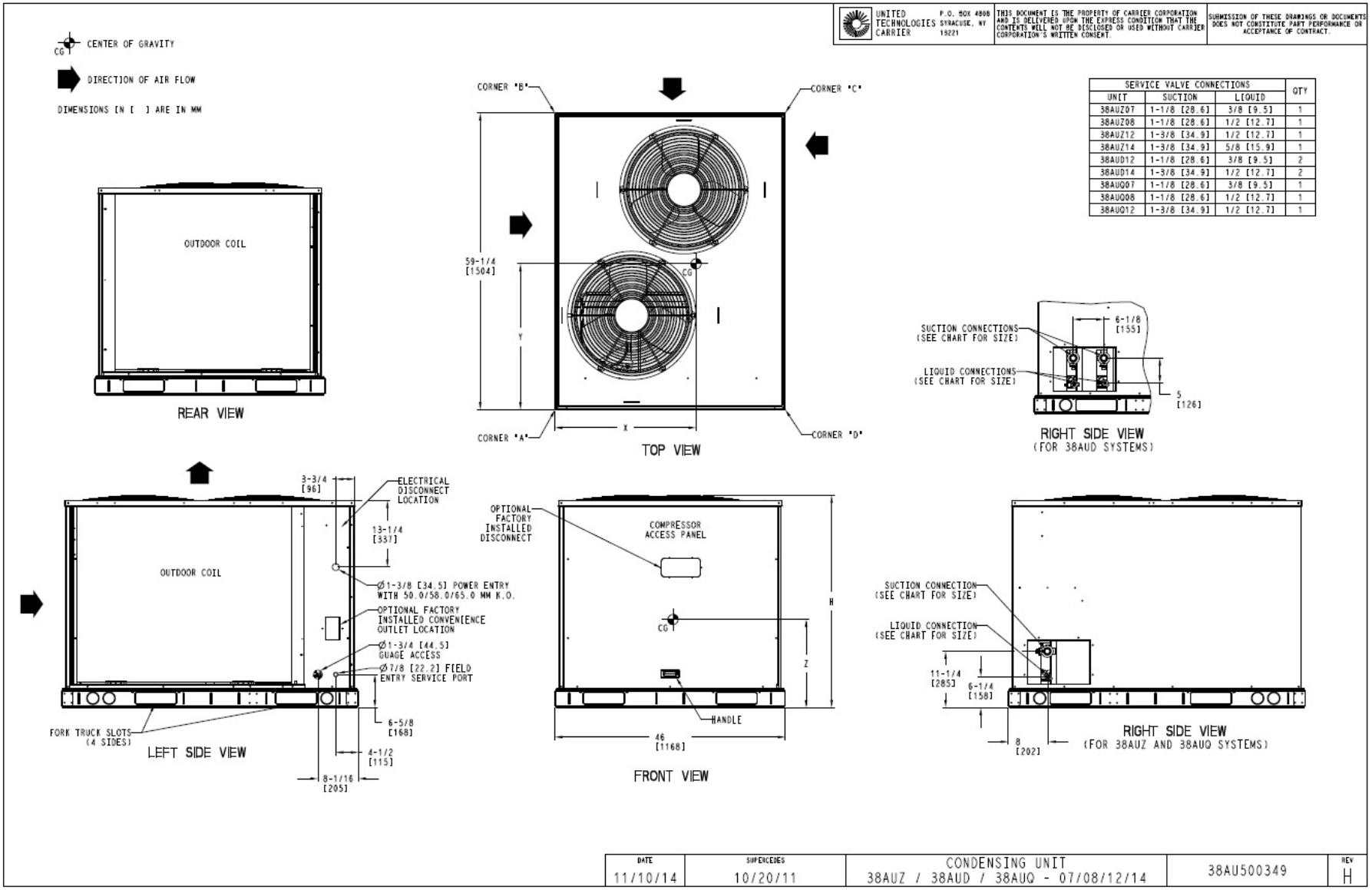
NOTES:

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. BETWEEN 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			REV
11/10/14	10/20/11	CONDENSING UNIT 38AUZ / 38AUD / 38AUQ - 07/08/12/14	38AU500349	H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CENTER OF GRAVITY
DIRECTION OF AIR FLOW
DIMENSIONS IN [ ] ARE IN MM
SERVICE VALVE CONNECTIONS
UNIT | SUCTION | LIQUID | QTY
38AUZ07 | 1-1/8 [28.6] | 3/8 [9.5] | 1
38AUZ08 | 1-1/8 [28.6] | 1/2 [12.7] | 1
38AUZ12 | 1-3/8 [34.9] | 1/2 [12.7] | 1
38AUZ14 | 1-3/8 [34.9] | 5/8 [15.9] | 1
38AUD12 | 1-1/8 [28.6] | 3/8 [9.5] | 2
38AUD14 | 1-3/8 [34.9] | 1/2 [12.7] | 2
38AUQ07 | 1-1/8 [28.6] | 3/8 [9.5] | 1
38AUQ08 | 1-1/8 [28.6] | 1/2 [12.7] | 1
38AUQ12 | 1-3/8 [34.9] | 1/2 [12.7] | 1
OUTDOOR COIL
REAR VIEW
CORNER "B"
CORNER "C"
CORNER "A"
CORNER "D"
59-1/4 [1504]
Y
X
CG
TOP VIEW
SUCTION CONNECTIONS (SEE CHART FOR SIZE)
LIQUID CONNECTIONS (SEE CHART FOR SIZE)
6-1/8 [155]
5 [126]
RIGHT SIDE VIEW (FOR 38AUD SYSTEMS)
OUTDOOR COIL
3-3/4 [96]
ELECTRICAL DISCONNECT LOCATION
13-1/4 [337]
Ø1-3/8 [34.5] POWER ENTRY WITH 50.0/58.0/65.0 MM K.O.
OPTIONAL FACTORY INSTALLED CONVENIENCE OUTLET LOCATION
Ø1-3/4 [44.5] GUAGE ACCESS
Ø7/8 [22.2] FIELD ENTRY SERVICE PORT
6-5/8 [168]
4-1/2 [115]
8-1/16 [205]
FORK TRUCK SLOTS (4 SIDES)
LEFT SIDE VIEW
OPTIONAL FACTORY INSTALLED DISCONNECT
COMPRESSOR ACCESS PANEL
CG
H
Z
HANDLE
46 [1168]
FRONT VIEW
SUCTION CONNECTION (SEE CHART FOR SIZE)
LIQUID CONNECTION (SEE CHART FOR SIZE)
11-1/4 [285]
6-1/4 [158]
8 [202]
RIGHT SIDE VIEW (FOR 38AUZ AND 38AUQ SYSTEMS)
DATE 11/10/14
SUPERCEDES 10/20/11
CONDENSING UNIT 38AUZ / 38AUD / 38AUQ - 07/08/12/14
38AU500349
REV H

GUIDE SPECIFICATIONS – 38AUZA07A0P6-0A0C0

Commercial Air-Cooled Condensing Units
HVAC Guide Specifications

Size: 07

Part 1: General

SYSTEM DESCRIPTION

1.01. Outdoor-mounted, air-cooled condensing unit suitable for on-the-ground or rooftop installation. Unit shall consist of a hermetic scroll air-conditioning compressor(s) assembly, an air-cooled coil, propeller-type condenser fans, and a control box. Unit shall discharge supply air upward as shown on contract drawings. Unit shall be used in a refrigeration circuit matched with a packaged air-handling unit.

QUALITY ASSURANCE

1.01. Unit shall be rated in accordance with AHRI Standard 360.
1.02. Unit construction shall comply with ANSI/ASHRAE 15 safety code latest revision and comply with NEC.
1.03. Unit shall be constructed in accordance with UL 1995 standard and shall carry the UL and UL, Canada label.
1.04. Unit cabinet shall be capable of withstanding 500-hour salt spray exposure per ASTM B117 (scribed specimen).
1.05. Air-cooled condenser coils for hermetic scroll compressor units (38AUZ) and 38AUD shall be leak tested at 150 psig, and pressure tested at 650 psig.
1.06. Unit shall be manufactured in a facility registered to ISO 9001:2000 manufacturing quality standard.

DELIVERY, STORAGE, AND HANDLING

1.01. Unit shall be shipped as single package only, and shall be stored and handled according to unit manufacturer's recommendations.

WARRANTY (FOR INCLUSION BY SPECIFYING ENGINEER.)

Part 2: Products

EQUIPMENT

2.01. General:
- A. Factory-assembled, single piece, air-cooled condensing unit. Contained within the unit enclosure shall be all factory wiring, piping, controls, compressor, holding charge, and special features required prior to field start-up.

2.02. Unit Cabinet:
- A. Unit cabinet shall be constructed of galvanized steel, bonderized and coated with a prepainted baked enamel finish.
- B. A heavy-gauge roll-formed perimeter base rail with forklift slots and lifting holes shall be provided to facilitate rigging.

2.03. Condenser Fans:
- A. Condenser fans shall be direct driven, propeller type, discharging air vertically upward.
- B. Fan blades shall be balanced.
- C. Condenser fan discharge openings shall be equipped with PVC-coated steel wire safety guards.
- D. Condenser fan and motor shaft shall be corrosion resistant.

2.04. Compressor:
- A. Compressor shall be of the hermetic scroll type .

B. Compressor shall be mounted on rubber grommets.
C. Compressors shall include overload protection.
D. Compressors shall be equipped with a crankcase heater.
E. Compressor shall be equipped with internal high pressure and high temperature protection.
F. 38AUZ*16 and 25 sizes shall use two scroll compressors manifold together.

2.05. Condenser Coils:
A. Standard Aluminum fin - Copper Tube Coils:
1. Standard evaporator and condenser coils shall have aluminum lanced plate fins mechanically bonded to seamless internally grooved copper tubes with all joints brazed.
2. Evaporator coils shall be leak tested to 150 psig, pressure tested to 450 psig, and qualified to UL 1995 burst test at 1775 psig.
3. Condenser coils shall be leak tested to 150 psig, pressure tested to 650 psig, and qualified to UL 1995 burst test at 1980 psig.
B. Optional E-coated aluminum-fin evaporator and condenser coils:
1. Shall have a flexible epoxy polymer coating uniformly applied to all coil surface areas without material bridging between fins.
2. Coating process shall ensure complete coil encapsulation of tubes, fins and headers.
3. Color shall be high gloss black with gloss per ASTM D523-89.
4. Uniform dry film thickness from 0.8 to 1.2 mil on all surface areas including fin edges.
5. Superior hardness characteristics of 2H per ASTM D3363-92A and cross-hatch adhesion of 4B-5B per ASTM D3359-93.
6. Impact resistance shall be up to 160 in.-lb (ASTM D2794-93).
7. Humidity and water immersion resistance shall be up to minimum 1000 and 250 hours respectively (ASTM D2247-92 and ASTM D870-92).
8. Corrosion durability shall be confirmed through testing to be no less than 1000 hours salt spray per ASTM B117-90.

2.06. Refrigeration Components:
A. Refrigeration circuit components shall include liquid line service valve, suction line service valve, a full charge of compressor oil, and a partial holding charge of refrigerant.

2.07. Controls and Safeties:
A. Minimum control functions shall include:
1. Control wire terminal blocks.
2. Compressor lockout on auto-reset safety until reset from thermostat.
3. Each unit shall utilize the Comfort Alertt Diagnostic Board that provides:
a. System Pressure Trip fault code indication
b. Short Cycling fault code indication
c. Locked Rotor fault code indication
d. Open Circuit fault code indication
e. Reverse Phase 3 fault code indication
f. Welded Contactor fault code indication
g. Low Voltage fault code indication
h. Anti-short cycle protection
i. Phase reversal protection
B. Minimum safety devices which are equipped with automatic reset (after resetting first at thermostat), shall include:
1. High discharge pressure cutout.
2. Low pressure cutout.

2.08. Operating Characteristics:
A. The capacity of the condensing unit shall meet or exceed _____ Btuh at a suction temperature of _____F. The power consumption at full load shall not exceed _____ kW.

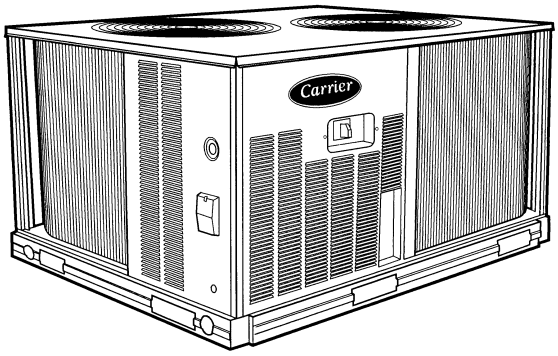
B. The combination of the condensing unit and the evaporator or fan coil unit shall have a total net cooling capacity of _____ Btuh or greater at conditions of _____ cfm entering-air temperature at the evaporator at _____F wet bulb and _____F dry bulb, and air entering the condensing unit at _____F.
C. The system shall have an EER of _____ Btuh/Watt or greater at standard AHRI conditions.
D. Standard unit shall be capable to operate up to 125_F (52_C) and down to 40_F (4_C)

2.09. Electrical Requirements:
A. Nominal unit electrical characteristics shall be _____ v, 3-ph, 60 Hz. The unit shall be capable of satisfactory operation within voltage limits of ____ v to _____ v.
B. Unit electrical power shall be single-point connection.
C. Unit control circuit shall contain a 24-v transformer for unit control.

2.10. Special Features:
A. Unit-Mounted, Non-Fused Disconnect Switch:
1. Switch shall be factory-installed and internally mounted. NEC and UL-approved non-fused switch shall provide unit power shutoff. Switch shall be accessible from outside the unit and shall provide power off lockout capability.Non-fused disconnect switch cannot be used when unit MOCP electrical rating exceeds 80 amps.
B. Thermostat Controls:
1. Programmable multi-stage thermostat shall have 7-day clock, holiday scheduling, large backlit display, remote sensor capability, and Title 24 compliance.
2. Commercial Electronic Thermostat shall have 7-day time clock, auto-changeover, multi-stage capability, and large LCD (liquid crystal display) temperature display.
C. Louvered hail Guard Package:
1. Louvered hail guard package shall protect coils against damage from hail and other flying debris.

COMMERCIAL SPLIT SYSTEMS
38AUZ 6 TO 20 TON
38AUD 10 and 20 Ton
AIR-COOLED CONDENSING UNITS with PURON® REFRIGERANT

These commercial quality air-cooled condensing units are easily connected by refrigerant lines and low voltage control wiring to matching Carrier packaged air-handling units or other suitable evaporator units. They are ideal for new construction or renovation applications where quality and performance are required.



ARI Standard 340/360

Certified to ISO 9001:2000

ASHRAE 90.1 COMPLIANT

Gemini

Puron® the environmentally sound refrigerant

BASE UNIT STANDARD FEATURES:

- Puron® (R-410A) HFC refrigerant partial charge
- Single-stage cooling capacity control on 07 to 14 models
- All models utilize aluminum Novation™ Heat Exchanger Technology Condenser Coils
- Standard one-year unit warranty, 5-year compressor plan and 3-year parts plan on Novation coil
- Cooling operating range up to 125 F (52 C) and down to 35 F (2 C)
- Brass suction and liquid line service valves
- Fully Hermetic Scroll compressor with crankcase heater
- New terminal board facilitating simple safety circuit troubleshooting and simplified control box arrangement. 24-volt 75va control system
- High and low pressure switches.
- Comfort Alert™ Diagnostic Board:
  - LED Go-No-Go and fault code
  - Built in time guard anti-short cycle
  - Phase protection
  - Fault code retention logic
  - Low voltage compressor contactor protector
- UL and UL, Canada apply to standard units; 575-volt units UL, Canada only.
- Full perimeter base rails with built-in rigging adapters and fork truck slots
- Pre-painted exterior panels and primer-coated interior panels tested to 500 hours salt spray protection
- Direct drive permanently lubricated condenser fan motors
- All units factory run tested
- Compressors mounted on independent vibration isolators

CU 1.2.2

Submittal Cover Sheet
Unit Report
Performance Summary Report
Acoustic Summary
Certified Drawings
Guide Specifications
Feature Sheet

Outdoor Unit Parameters

Unit Quantity: **1**
Unit Model: **38AUZ**
Unit Size: **7.5 Tons**
Voltage: **460-3-60** V-Ph-Hz
Condenser Coil: **E-Coated Al/Cu with Louvered Hail Guard**

System Parameter

System Quantity: **1**
Refrigerant Type: **PURON**
Compressor Quantity: **1**
Compressor Type: **Scroll**
Std. Capacity Steps: **100**
Std. Min. Outdoor Temp(Cooling): **35.0** °F
No. of Outdoor fans: **2**

Outdoor Unit Dimensions and Weight

Unit Length: **4' 11.4"**
Unit Width: **3' 9.9"**
Unit Height: **3' 6.4"**
Unit Shipping Weight: **391** lb
Unit Operating Weight: **391** lb

Warranty Information (Note: for US & Canada only)

Complete Unit Year 2-5 Parts Only for Outdoor Unit

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

Ordering Information

Part Number	Description	Quanti ty
Base Unit - Outdoor		
38AUZA08A0P6-0A0C0		1
	Base Unit	
	E-Coated Al/Cu with Louvered Hail Guard Condensing Coil	1
	Standard Refrigerant Options	1
	Service Options - None	1
	Electrical Options - Non-Fused Disconnect	1
	Packaging Options - Standard	1
	Standard Electrical Mechanical Controls	1
	Refrig Circ/Compressor Staging - Single Circuit, Single Stage	1

The 38AUZ/AUD are furnished with filter drier which is factory provided (field installed). Additional filter driers can be purchased separately through RCD (Replacement Components Division). See the Product Library for Replacement Filter Drier Information for

more information.

System: **38AUZ008**
System Quantity: **1**
Altitude: **0.0** ft
EER @ ARI Conditions: **12.9**
IPLV: **NA**
Suction Line Loss: **1.4** °F

Liquid and Suction Line Sizing

Pipe Length	Liquid Line Size	Suction Line Size
0 - 25	1/2	7/8
26 - 50	5/8	1 1/8
51 - 75	5/8	1 1/8
76 - 100	5/8	1 1/8
101 - 125	5/8	1 3/8
126 - 150	5/8	1 3/8
151 - 175	5/8	1 3/8
176 - 200	5/8	1 3/8

Piping Line Sizes are Referenced in Application Bulletin 38TIP-15-01.pdf

Outdoor Unit Parameters
Unit Quantity: **1**
PartNumber: **38AUZA08A0P6-0A0C0**
Unit Model: **38AUZ**
Unit Size: **7.5 Tons**
Condenser Coil: **E-Coated Al/Cu with Louvered Hail Guard**
Voltage: **460-3-60** V-Ph-Hz
Total Clg Cap.(Gross): **91.3** MBH
SDT: **116.5** °F
Clg Ent Air DB: **95.0** °F
Saturated Suction Temp: **45.0** °F

Outdoor Electrical Data
Unit Voltage: **460-3-60** V-Ph-Hz
Unit#1 MCA: **17.0** Amps
Unit#1 MOCP: **25.0** Amps
Total Compressor Power of Unit #1: **6.60** kW
Voltage Range Min: **414** V
Voltage Range Max: **506** V
Compressor RLA: **12.2**
Compressor LRA: **100**
Compressor Quantity: **1**
Fan Motors Qty: **2**
Notice: Outdoor unit elect. data is based on 460-3-60
Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

Acoustics
Sound Power Levels, db re 10E-12 Watts

A-Weighted	Outdoor Unit (dB)	Indoor Unit (dB,Ducted)
Total Level	84.6	NA
63Hz	63.1	NA
125Hz	68.9	NA
250Hz	73.4	NA
500Hz	79.5	NA
1000Hz	80.2	NA
2000Hz	76.4	NA

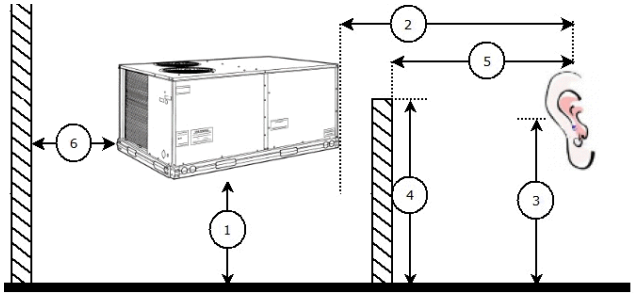
4000Hz	72.0	NA
8000Hz	64.9	NA
Sound Message	Sound for AUZ008	

Acoustic Notes:

1. 38AUZ/D/Q units sound ratings are in accordance with AHRI 270-2008 - Sound Rating of Outdoor Unitary Equipment.
2. The acoustic center of the unit is located at the geometric center of the unit.

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

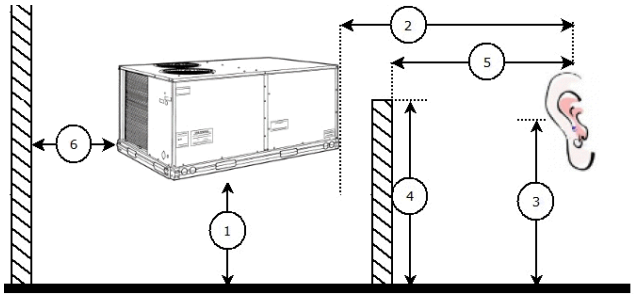
Calculation methods used in this program are patterned after the ASHRAE Guide; other ASHRAE Publications and the AHRI Acoustical Standards. While a very significant effort has been made to insure the technical accuracy of this program, it is assumed that the user is knowledgeable in the art of system 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.

Acoustic Summary For CU 1.2.2

Project: Marathon High School - ITB 2019915 03/13/2019
Prepared By: Javier Noriega 06:33PM

Outdoor Unit Parameters:

Tag Name: **CU 1.2.2**
Unit Model: **38AUZ**
Unit Size: **7.5 Tons**
System Type: **Dx Cooling Only**
Refrigerant Type: **PURON**
Compressor Quantity: **1**
Compressor Type: **Scroll**



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 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 Note:

1. 38AUZ/D/Q units sound ratings are in accordance with AHRI 270-2008 - Sound Rating of Outdoor Unitary Equipment.
2. The acoustic center of the unit is located at the geometric center of the unit.
3. All estimated sound power levels, dB re 1 Picowatt should not be guaranteed or certified as being the actual sound power levels.

UNIT	ELECTRICAL CHARACTERISTICS	STD. UNIT WT.		CORNER A		CORNER B		CORNER C		CORNER D		CENTER OF GRAVITY			UNIT HEIGHT
		LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X	Y	Z	H
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	64	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)	208/230-3-60,460-3-60,575-3-60	430	195	142	64	96	44	76	34	111	50	18 [457.2]	24 [609.6]	21 [533.4]	42-3/8 [1076.0]
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	64	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]

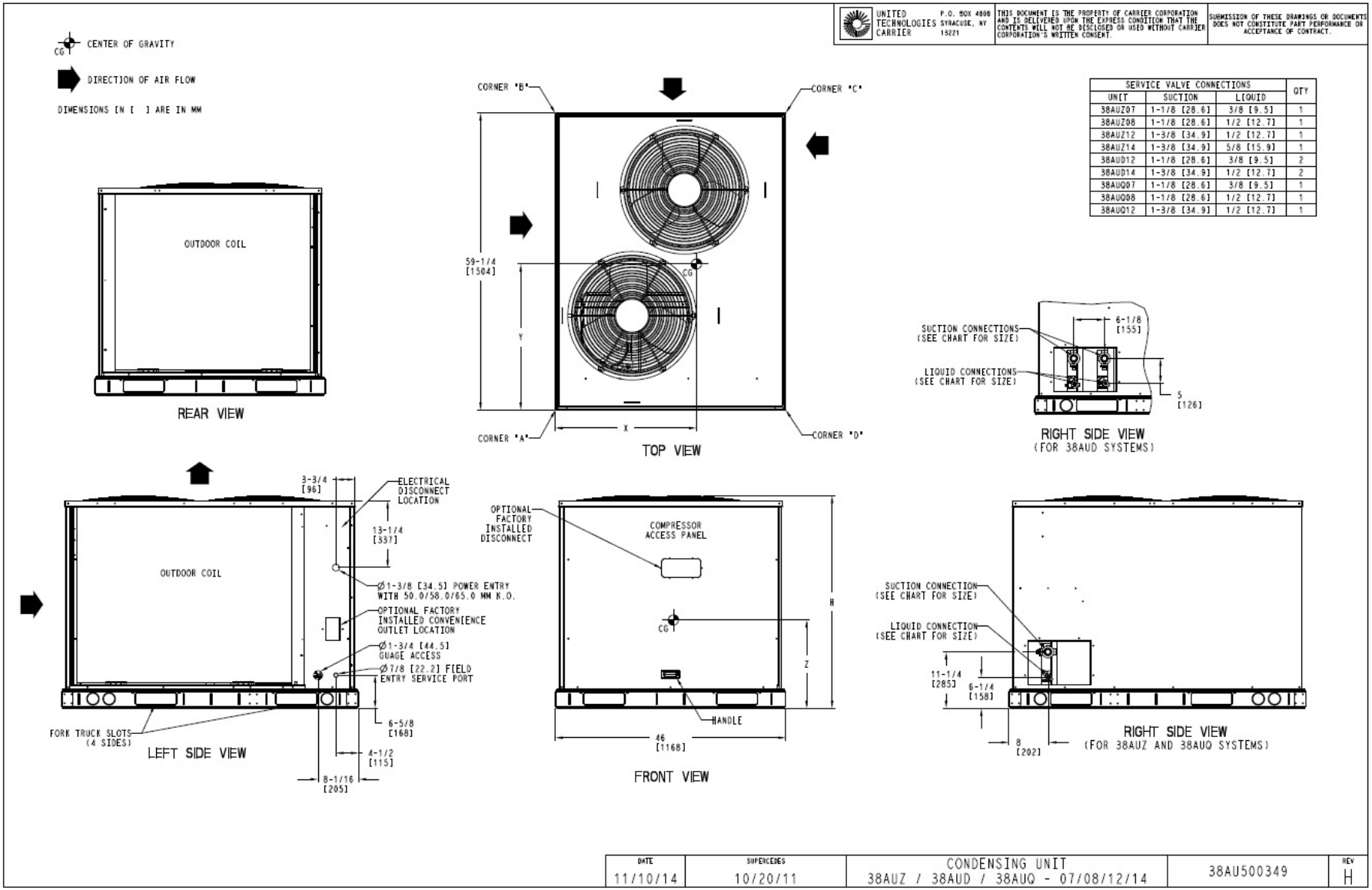
NOTES:

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. BETWEEN 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			REV
11/10/14	10/20/11	CONDENSING UNIT 38AUZ / 38AUD / 38AUQ - 07/08/12/14	38AU500349	H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CENTER OF GRAVITY
DIRECTION OF AIR FLOW
DIMENSIONS IN [ ] ARE IN MM
SERVICE VALVE CONNECTIONS
UNIT | SUCTION | LIQUID | QTY
38AUZ07 | 1-1/8 [28.6] | 3/8 [9.5] | 1
38AUZ08 | 1-1/8 [28.6] | 1/2 [12.7] | 1
38AUZ12 | 1-3/8 [34.9] | 1/2 [12.7] | 1
38AUZ14 | 1-3/8 [34.9] | 5/8 [15.9] | 1
38AUD12 | 1-1/8 [28.6] | 3/8 [9.5] | 2
38AUD14 | 1-3/8 [34.9] | 1/2 [12.7] | 2
38AUQ07 | 1-1/8 [28.6] | 3/8 [9.5] | 1
38AUQ08 | 1-1/8 [28.6] | 1/2 [12.7] | 1
38AUQ12 | 1-3/8 [34.9] | 1/2 [12.7] | 1
OUTDOOR COIL
REAR VIEW
CORNER "B"
CORNER "C"
CORNER "A"
CORNER "D"
59-1/4 [1504]
Y
X
CG
TOP VIEW
SUCTION CONNECTIONS (SEE CHART FOR SIZE)
LIQUID CONNECTIONS (SEE CHART FOR SIZE)
6-1/8 [155]
5 [126]
RIGHT SIDE VIEW (FOR 38AUD SYSTEMS)
OUTDOOR COIL
3-3/4 [96]
ELECTRICAL DISCONNECT LOCATION
13-1/4 [337]
Ø1-3/8 [34.5] POWER ENTRY WITH 50.0/58.0/65.0 MM K.O.
OPTIONAL FACTORY INSTALLED CONVENIENCE OUTLET LOCATION
Ø1-3/4 [44.5] GUAGE ACCESS
Ø7/8 [22.2] FIELD ENTRY SERVICE PORT
6-5/8 [168]
4-1/2 [115]
8-1/16 [205]
FORK TRUCK SLOTS (4 SIDES)
LEFT SIDE VIEW
OPTIONAL FACTORY INSTALLED DISCONNECT
COMPRESSOR ACCESS PANEL
CG
H
Z
HANDLE
46 [1168]
FRONT VIEW
SUCTION CONNECTION (SEE CHART FOR SIZE)
LIQUID CONNECTION (SEE CHART FOR SIZE)
11-1/4 [285]
6-1/4 [158]
8 [202]
RIGHT SIDE VIEW (FOR 38AUZ AND 38AUQ SYSTEMS)
DATE 11/10/14
SUPERCEDES 10/20/11
CONDENSING UNIT 38AUZ / 38AUD / 38AUQ - 07/08/12/14
38AU500349
REV H

GUIDE SPECIFICATIONS – 38AUZA08A0P6-0A0C0

Commercial Air-Cooled Condensing Units
HVAC Guide Specifications

Size: 08

Part 1: General

SYSTEM DESCRIPTION

1.01. Outdoor-mounted, air-cooled condensing unit suitable for on-the-ground or rooftop installation. Unit shall consist of a hermetic scroll air-conditioning compressor(s) assembly, an air-cooled coil, propeller-type condenser fans, and a control box. Unit shall discharge supply air upward as shown on contract drawings. Unit shall be used in a refrigeration circuit matched with a packaged air-handling unit.

QUALITY ASSURANCE

1.01. Unit shall be rated in accordance with AHRI Standard 360.
1.02. Unit construction shall comply with ANSI/ASHRAE 15 safety code latest revision and comply with NEC.
1.03. Unit shall be constructed in accordance with UL 1995 standard and shall carry the UL and UL, Canada label.
1.04. Unit cabinet shall be capable of withstanding 500-hour salt spray exposure per ASTM B117 (scribed specimen).
1.05. Air-cooled condenser coils for hermetic scroll compressor units (38AUZ) and 38AUD shall be leak tested at 150 psig, and pressure tested at 650 psig.
1.06. Unit shall be manufactured in a facility registered to ISO 9001:2000 manufacturing quality standard.

DELIVERY, STORAGE, AND HANDLING

1.01. Unit shall be shipped as single package only, and shall be stored and handled according to unit manufacturer's recommendations.

WARRANTY (FOR INCLUSION BY SPECIFYING ENGINEER.)

Part 2: Products

EQUIPMENT

2.01. General:
- A. Factory-assembled, single piece, air-cooled condensing unit. Contained within the unit enclosure shall be all factory wiring, piping, controls, compressor, holding charge, and special features required prior to field start-up.

2.02. Unit Cabinet:
- A. Unit cabinet shall be constructed of galvanized steel, bonderized and coated with a prepainted baked enamel finish.
- B. A heavy-gauge roll-formed perimeter base rail with forklift slots and lifting holes shall be provided to facilitate rigging.

2.03. Condenser Fans:
- A. Condenser fans shall be direct driven, propeller type, discharging air vertically upward.
- B. Fan blades shall be balanced.
- C. Condenser fan discharge openings shall be equipped with PVC-coated steel wire safety guards.
- D. Condenser fan and motor shaft shall be corrosion resistant.

2.04. Compressor:
- A. Compressor shall be of the hermetic scroll type .

B. Compressor shall be mounted on rubber grommets.
C. Compressors shall include overload protection.
D. Compressors shall be equipped with a crankcase heater.
E. Compressor shall be equipped with internal high pressure and high temperature protection.
F. 38AUZ*16 and 25 sizes shall use two scroll compressors manifold together.

2.05. Condenser Coils:
A. Standard Aluminum fin - Copper Tube Coils:
1. Standard evaporator and condenser coils shall have aluminum lanced plate fins mechanically bonded to seamless internally grooved copper tubes with all joints brazed.
2. Evaporator coils shall be leak tested to 150 psig, pressure tested to 450 psig, and qualified to UL 1995 burst test at 1775 psig.
3. Condenser coils shall be leak tested to 150 psig, pressure tested to 650 psig, and qualified to UL 1995 burst test at 1980 psig.
B. Optional E-coated aluminum-fin evaporator and condenser coils:
1. Shall have a flexible epoxy polymer coating uniformly applied to all coil surface areas without material bridging between fins.
2. Coating process shall ensure complete coil encapsulation of tubes, fins and headers.
3. Color shall be high gloss black with gloss per ASTM D523-89.
4. Uniform dry film thickness from 0.8 to 1.2 mil on all surface areas including fin edges.
5. Superior hardness characteristics of 2H per ASTM D3363-92A and cross-hatch adhesion of 4B-5B per ASTM D3359-93.
6. Impact resistance shall be up to 160 in.-lb (ASTM D2794-93).
7. Humidity and water immersion resistance shall be up to minimum 1000 and 250 hours respectively (ASTM D2247-92 and ASTM D870-92).
8. Corrosion durability shall be confirmed through testing to be no less than 1000 hours salt spray per ASTM B117-90.

2.06. Refrigeration Components:
A. Refrigeration circuit components shall include liquid line service valve, suction line service valve, a full charge of compressor oil, and a partial holding charge of refrigerant.

2.07. Controls and Safeties:
A. Minimum control functions shall include:
1. Control wire terminal blocks.
2. Compressor lockout on auto-reset safety until reset from thermostat.
3. Each unit shall utilize the Comfort Alertt Diagnostic Board that provides:
a. System Pressure Trip fault code indication
b. Short Cycling fault code indication
c. Locked Rotor fault code indication
d. Open Circuit fault code indication
e. Reverse Phase 3 fault code indication
f. Welded Contactor fault code indication
g. Low Voltage fault code indication
h. Anti-short cycle protection
i. Phase reversal protection
B. Minimum safety devices which are equipped with automatic reset (after resetting first at thermostat), shall include:
1. High discharge pressure cutout.
2. Low pressure cutout.

2.08. Operating Characteristics:
A. The capacity of the condensing unit shall meet or exceed _____ Btuh at a suction temperature of _____F. The power consumption at full load shall not exceed _____ kW.

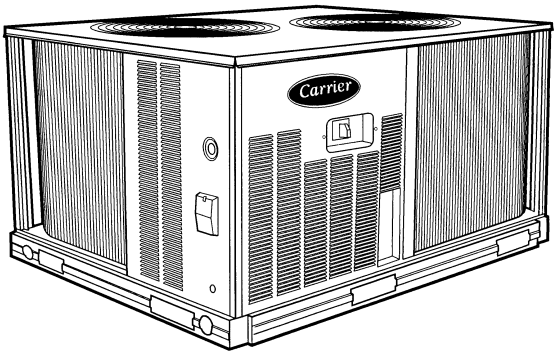
B. The combination of the condensing unit and the evaporator or fan coil unit shall have a total net cooling capacity of _____ Btuh or greater at conditions of _____ cfm entering-air temperature at the evaporator at _____ F wet bulb and _____ F dry bulb, and air entering the condensing unit at _____ F.
C. The system shall have an EER of _____ Btuh/Watt or greater at standard AHRI conditions.
D. Standard unit shall be capable to operate up to 125_F (52_C) and down to 40_F (4_C)

2.09. Electrical Requirements:
A. Nominal unit electrical characteristics shall be _____ v, 3-ph, 60 Hz. The unit shall be capable of satisfactory operation within voltage limits of ____ v to _____ v.
B. Unit electrical power shall be single-point connection.
C. Unit control circuit shall contain a 24-v transformer for unit control.

2.10. Special Features:
A. Unit-Mounted, Non-Fused Disconnect Switch:
1. Switch shall be factory-installed and internally mounted. NEC and UL-approved non-fused switch shall provide unit power shutoff. Switch shall be accessible from outside the unit and shall provide power off lockout capability. Non-fused disconnect switch cannot be used when unit MOCP electrical rating exceeds 80 amps.
B. Thermostat Controls:
1. Programmable multi-stage thermostat shall have 7-day clock, holiday scheduling, large backlit display, remote sensor capability, and Title 24 compliance.
2. Commercial Electronic Thermostat shall have 7-day time clock, auto-changeover, multi-stage capability, and large LCD (liquid crystal display) temperature display.
C. Louvered hail Guard Package:
1. Louvered hail guard package shall protect coils against damage from hail and other flying debris.

COMMERCIAL SPLIT SYSTEMS
38AUZ 6 TO 20 TON
38AUD 10 and 20 Ton
AIR-COOLED CONDENSING UNITS with PURON® REFRIGERANT

These commercial quality air-cooled condensing units are easily connected by refrigerant lines and low voltage control wiring to matching Carrier packaged air-handling units or other suitable evaporator units. They are ideal for new construction or renovation applications where quality and performance are required.



ARI Standard 340/360

c UL us

Certified to ISO 9001:2000

ASHRAE 90.1 COMPLIANT

Gemini

Puron®
the environmentally sound refrigerant

BASE UNIT STANDARD FEATURES:

- Puron® (R-410A) HFC refrigerant partial charge
- Single-stage cooling capacity control on 07 to 14 models
- All models utilize aluminum Novation™ Heat Exchanger Technology Condenser Coils
- Standard one-year unit warranty, 5-year compressor plan and 3-year parts plan on Novation coil
- Cooling operating range up to 125 F (52 C) and down to 35 F (2 C)
- Brass suction and liquid line service valves
- Fully Hermetic Scroll compressor with crankcase heater
- New terminal board facilitating simple safety circuit troubleshooting and simplified control box arrangement. 24-volt 75va control system
- High and low pressure switches.
- Comfort Alert™ Diagnostic Board:
  - LED Go-No-Go and fault code
  - Built in time guard anti-short cycle
  - Phase protection
  - Fault code retention logic
  - Low voltage compressor contactor protector
- UL and UL, Canada apply to standard units; 575-volt units UL, Canada only.
- Full perimeter base rails with built-in rigging adapters and fork truck slots
- Pre-painted exterior panels and primer-coated interior panels tested to 500 hours salt spray protection
- Direct drive permanently lubricated condenser fan motors
- All units factory run tested
- Compressors mounted on independent vibration isolators

MAU 5.2

Submittal Cover Sheet
Unit Report
Performance Summary Report
Acoustic Summary
Certified Drawings
Guide Specifications
Feature Sheet

Outdoor Unit Parameters

Unit Quantity: **1**
Unit Model: **38AUD**
Unit Size: **15 Tons**
Voltage: **460-3-60** V-Ph-Hz
Condenser Coil: **E-Coated Al/Cu with Louvered Hail Guard**

System Parameter

System Quantity: **1**
Refrigerant Type: **PURON**
Compressor Quantity: **2**
Compressor Type: **Scroll**
Std. Capacity Steps: **50, 100**
No. of Outdoor fans: **3**

Outdoor Unit Dimensions and Weight

Unit Length: **7' 2.4"**
Unit Width: **3' 7.4"**
Unit Height: **4' 2.4"**
Unit Shipping Weight: **731** lb
Unit Operating Weight: **731** lb

Warranty Information (Note: for US & Canada only)

Complete Unit Year 2-5 Parts Only for Outdoor Unit

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

Ordering Information

Part Number	Description	Quantity
Base Unit - Outdoor		
38AUDC16A0P6-0A0C0		1
	Base Unit	
	E-Coated Al/Cu with Louvered Hail Guard Condensing Coil	1
	Hot Gas By-Pass (38AUD 12,16,25 models only) Refrigerant Options (low ambient MotorMaster is included)	1
	Service Options - None	1
	Electrical Options - Non-Fused Disconnect	1
	Packaging Options - Standard	1
	Standard Electrical Mechanical Controls	1
	Refrig Circ/Compressor Staging - Two Circuits/ Dual Stage	1
Accessories		
EF680033	Liquid Line Solenoid Valve for Outdoor Unit	2
EF680037	Liquid Line Solenoid Valve for Outdoor Unit	2
33ZCSENOAT	Outdoor Air Sensor - Bell Box Enclosure for Outdoor Unit	1

33ZCSENSAT	Air Temperature Sensor for Outdoor Unit	1

The 38AUZ/AUD are furnished with filter drier which is factory provided (field installed). Additional filter driers can be purchased separately through RCD (Replacement Components Division). See the Product Library for Replacement Filter Drier Information for more information.

System: **38AUD016**
System Quantity: **1**
Altitude: **0.0** ft
EER @ ARI Conditions: **12.5**
IPLV: **NA**
Suction Line Loss: **1.4** °F

Liquid and Suction Line Sizing

Pipe Length	Liquid Line Size	Suction Line Size
0 - 25	3/8	7/8
26 - 50	3/8	1 1/8
51 - 75	1/2	1 1/8
76 - 100	1/2	1 1/8
101 - 125	1/2	1 3/8
126 - 150	5/8	1 3/8
151 - 175	5/8	1 3/8
176 - 200	5/8	1 3/8

Piping Line Sizes are Referenced in Application Bulletin 38TIP-15-01.pdf

Outdoor Unit Parameters
Unit Quantity: **1**
PartNumber: **38AUDC16A0P6-0A0C0**
Unit Model: **38AUD**
Unit Size: **15 Tons**
Condenser Coil: **E-Coated Al/Cu with Louvered Hail Guard**
Voltage: **460-3-60** V-Ph-Hz
Total Clg Cap.(Gross): **184.2** MBH
SDT: **117.6** °F
Clg Ent Air DB: **95.0** °F
Saturated Suction Temp: **45.0** °F

Outdoor Electrical Data
Unit Voltage: **460-3-60** V-Ph-Hz
Unit#1 MCA: **29.9** Amps
Unit#1 MOCP: **40.0** Amps
Total Compressor Power of Unit #1: **13.20** kW
Voltage Range Min: **414** V
Voltage Range Max: **506** V
Compressor RLA: **12.2**
Compressor LRA: **100**
Compressor Quantity: **2**
Fan Motors Qty: **3**
Notice: Outdoor unit elect. data is based on 460-3-60
Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

Acoustics
Sound Power Levels, db re 10E-12 Watts

A-Weighted	Outdoor Unit (dB)	Indoor Unit (dB,Ducted)
Total Level	82.6	NA
63Hz	60.5	NA
125Hz	65.1	NA
250Hz	70.3	NA
500Hz	77.2	NA
1000Hz	78.0	NA
2000Hz	75.4	NA

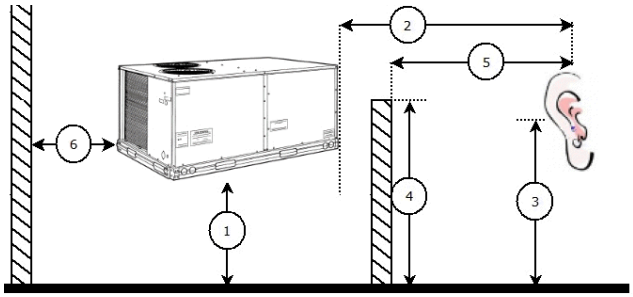
4000Hz	71.2	NA
8000Hz	63.9	NA
Sound Message	Sound for AUD016	

Acoustic Notes:

1. 38AUZ/D/Q units sound ratings are in accordance with AHRI 270-2008 - Sound Rating of Outdoor Unitary Equipment.
2. The acoustic center of the unit is located at the geometric center of the unit.

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	86.7	81.2	78.9	80.4	78.0	74.2	70.2	65.0	89.5
A-Wgted Sound Power Levels at Unit's Acoustic Center (LwA), dBA	60.5	65.1	70.3	77.2	78.0	75.4	71.2	63.9	82.6
Sound Press. Levels at Dist. Specified above (Lp), dB	62.4	56.9	54.6	56.1	53.7	49.9	45.9	40.7	65.2
A-Wgted Sound Press. Levels at Dist. Specified above (LpA), dBA	36.2	40.8	46.0	52.9	53.7	51.1	46.9	39.6	58.3

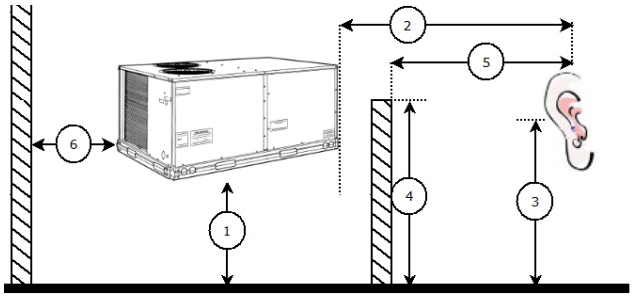
Calculation methods used in this program are patterned after the ASHRAE Guide; other ASHRAE Publications and the AHRI Acoustical Standards. While a very significant effort has been made to insure the technical accuracy of this program, it is assumed that the user is knowledgeable in the art of system 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 Summary For MAU 5.2

Project: Marathon High School - ITB 2019915 03/13/2019
Prepared By: Javier Noriega 06:33PM

Outdoor Unit Parameters:

Tag Name: **MAU 5.2**
Unit Model: **38AUD**
Unit Size: **15 Tons**
System Type: **Dx Cooling Only**
Refrigerant Type: **PURON**
Compressor Quantity: **2**
Compressor Type: **Scroll**



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Acoustic Note:

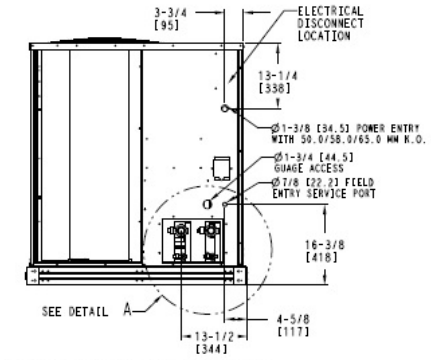
1. 38AUZ/D/Q units sound ratings are in accordance with AHRI 270-2008 - Sound Rating of Outdoor Unitary Equipment.
2. The acoustic center of the unit is located at the geometric center of the unit.
3. All estimated sound power levels, dB re 1 Picowatt should not be guaranteed or certified as being the actual sound power levels.

UNIT	ELECTRICAL CHARACTERISTICS	STD. UNIT WT.		CORNER A		CORNER B		CORNER C		CORNER D		CENTER OF GRAVITY			UNIT HEIGHT
		LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X	Y	Z	H
38AUZ16 (MCHX)	208/230-3-60,460-3-60,575-3-60	633	288	220	100	134	61	135	61.5	144	65.5	38 [965.2]	19 [482.6]	15 [381]	50-3/8 [1279.2]
38AUD16 (MCHX)	208/230-3-60,460-3-60,575-3-60	633	288	220	100	134	61	135	61.5	144	65.5	38 [965.2]	19 [482.6]	15 [381]	50-3/8 [1279.2]
38AUZ16 (RTPF)	208/230-3-60,460-3-60,575-3-60	731	332	237	107	172	78	135	61	186	84	38 [965.2]	19 [482.6]	17 [431.8]	50-3/8 [1279.2]
38AUD16 (RTPF)	208/230-3-60,460-3-60,575-3-60	731	332	237	107	172	78	135	61	186	84	38 [965.2]	19 [482.6]	17 [431.8]	50-3/8 [1279.2]

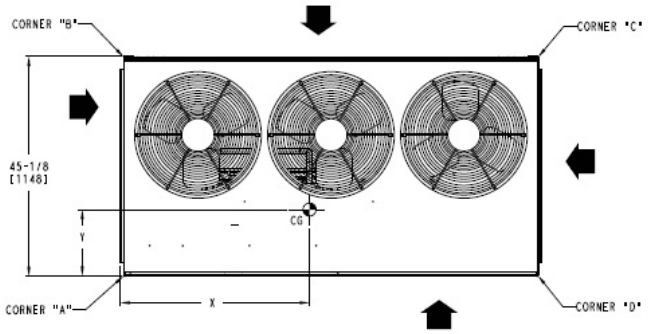
UNITED TECHNOLOGIES CARRIER — P.O. BOX 4808 SYRACUSE, NY 13221

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.
   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. BETWEEN 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.

SERVICE VALVE CONNECTIONS			QTY
UNIT	SUCTION	LIQUID	
38AUZ16	1-3/8 [34.9]	5/8 [15.9]	1 EA
38AUD16	1-3/8 [34.9]	1/2 [12.7]	2 EA



LEFT SIDE VIEW FOR 38AUD SYSTEMS

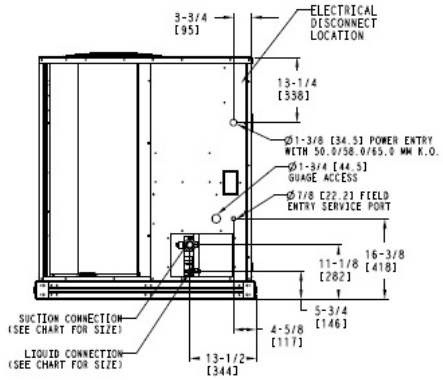


TOP VIEW

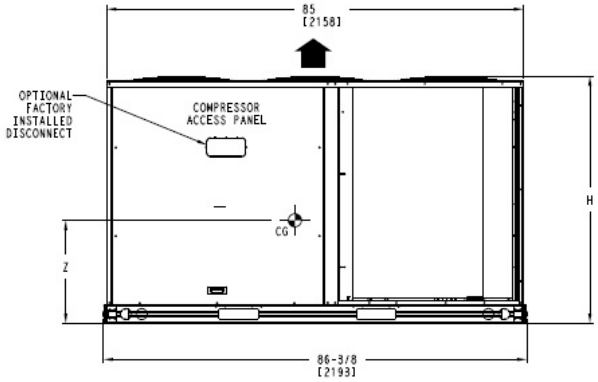
CG — CENTER OF GRAVITY

DIRECTION OF AIR FLOW

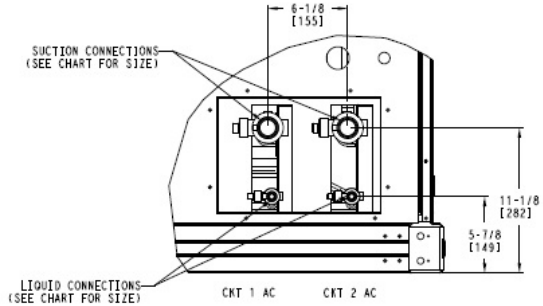
DIMENSIONS IN [ ] ARE IN MM



LEFT SIDE VIEW



FRONT VIEW



DETAIL A
(NOTE POSITION OF CKT 1)

DATE	SUPERCEDES			REV
11/17/10	08/04/10	38AUZ, 38AUD CONDENSING UNIT	38AU500503	F

GUIDE SPECIFICATIONS – 38AUDC16A0P6-0A0C0

Commercial Air-Cooled Condensing Units
HVAC Guide Specifications

Size: 16

Part 1: General

SYSTEM DESCRIPTION

1.01. Outdoor-mounted, air-cooled condensing unit suitable for on-the-ground or rooftop installation. Unit shall consist of a hermetic scroll air-conditioning compressor(s) assembly, an air-cooled coil, propeller-type condenser fans, and a control box. Unit shall discharge supply air upward as shown on contract drawings. Unit shall be used in a refrigeration circuit matched with a packaged air-handling unit.

QUALITY ASSURANCE

1.01. Unit shall be rated in accordance with AHRI Standard 360.
1.02. Unit construction shall comply with ANSI/ASHRAE 15 safety code latest revision and comply with NEC.
1.03. Unit shall be constructed in accordance with UL 1995 standard and shall carry the UL and UL, Canada label.
1.04. Unit cabinet shall be capable of withstanding 500-hour salt spray exposure per ASTM B117 (scribed specimen).
1.05. Air-cooled condenser coils for hermetic scroll compressor units (38AUZ) and 38AUD shall be leak tested at 150 psig, and pressure tested at 650 psig.
1.06. Unit shall be manufactured in a facility registered to ISO 9001:2000 manufacturing quality standard.

DELIVERY, STORAGE, AND HANDLING

1.01. Unit shall be shipped as single package only, and shall be stored and handled according to unit manufacturer's recommendations.

WARRANTY (FOR INCLUSION BY SPECIFYING ENGINEER.)

Part 2: Products

EQUIPMENT

2.01. General:
- A. Factory-assembled, single piece, air-cooled condensing unit. Contained within the unit enclosure shall be all factory wiring, piping, controls, compressor, holding charge, and special features required prior to field start-up.

2.02. Unit Cabinet:
- A. Unit cabinet shall be constructed of galvanized steel, bonderized and coated with a prepainted baked enamel finish.
- B. A heavy-gauge roll-formed perimeter base rail with forklift slots and lifting holes shall be provided to facilitate rigging.

2.03. Condenser Fans:
- A. Condenser fans shall be direct driven, propeller type, discharging air vertically upward.
- B. Fan blades shall be balanced.
- C. Condenser fan discharge openings shall be equipped with PVC-coated steel wire safety guards.
- D. Condenser fan and motor shaft shall be corrosion resistant.

2.04. Compressor:
- A. Compressor shall be of the hermetic scroll type .

B. Compressor shall be mounted on rubber grommets.
C. Compressors shall include overload protection.
D. Compressors shall be equipped with a crankcase heater.
E. Compressor shall be equipped with internal high pressure and high temperature protection.
F. 38AUZ*16 and 25 sizes shall use two scroll compressors manifold together.

2.05. Condenser Coils:
A. Standard Aluminum fin - Copper Tube Coils:
1. Standard evaporator and condenser coils shall have aluminum lanced plate fins mechanically bonded to seamless internally grooved copper tubes with all joints brazed.
2. Evaporator coils shall be leak tested to 150 psig, pressure tested to 450 psig, and qualified to UL 1995 burst test at 1775 psig.
3. Condenser coils shall be leak tested to 150 psig, pressure tested to 650 psig, and qualified to UL 1995 burst test at 1980 psig.
B. Optional E-coated aluminum-fin evaporator and condenser coils:
1. Shall have a flexible epoxy polymer coating uniformly applied to all coil surface areas without material bridging between fins.
2. Coating process shall ensure complete coil encapsulation of tubes, fins and headers.
3. Color shall be high gloss black with gloss per ASTM D523-89.
4. Uniform dry film thickness from 0.8 to 1.2 mil on all surface areas including fin edges.
5. Superior hardness characteristics of 2H per ASTM D3363-92A and cross-hatch adhesion of 4B-5B per ASTM D3359-93.
6. Impact resistance shall be up to 160 in.-lb (ASTM D2794-93).
7. Humidity and water immersion resistance shall be up to minimum 1000 and 250 hours respectively (ASTM D2247-92 and ASTM D870-92).
8. Corrosion durability shall be confirmed through testing to be no less than 1000 hours salt spray per ASTM B117-90.

2.06. Refrigeration Components:
A. Refrigeration circuit components shall include liquid line service valve, suction line service valve, a full charge of compressor oil, and a partial holding charge of refrigerant.

2.07. Controls and Safeties:
A. Minimum control functions shall include:
1. Control wire terminal blocks.
2. Compressor lockout on auto-reset safety until reset from thermostat.
3. Each unit shall utilize the Comfort Alertt Diagnostic Board that provides:
a. System Pressure Trip fault code indication
b. Short Cycling fault code indication
c. Locked Rotor fault code indication
d. Open Circuit fault code indication
e. Reverse Phase 3 fault code indication
f. Welded Contactor fault code indication
g. Low Voltage fault code indication
h. Anti-short cycle protection
i. Phase reversal protection
B. Minimum safety devices which are equipped with automatic reset (after resetting first at thermostat), shall include:
1. High discharge pressure cutout.
2. Low pressure cutout.

2.08. Operating Characteristics:
A. The capacity of the condensing unit shall meet or exceed _____ Btuh at a suction temperature of _____F. The power consumption at full load shall not exceed _____ kW.

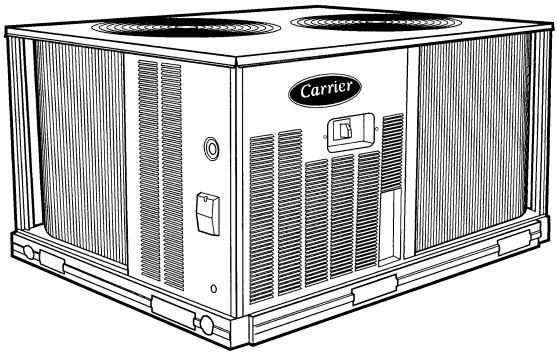
B. The combination of the condensing unit and the evaporator or fan coil unit shall have a total net cooling capacity of _____ Btuh or greater at conditions of _____ cfm entering-air temperature at the evaporator at _____F wet bulb and _____F dry bulb, and air entering the condensing unit at _____F.
C. The system shall have an EER of _____ Btuh/Watt or greater at standard AHRI conditions.
D. Standard unit shall be capable to operate up to 125_F (52_C) and down to 40_F (4_C)

2.09. Electrical Requirements:
A. Nominal unit electrical characteristics shall be _____ v, 3-ph, 60 Hz. The unit shall be capable of satisfactory operation within voltage limits of ____ v to _____ v.
B. Unit electrical power shall be single-point connection.
C. Unit control circuit shall contain a 24-v transformer for unit control.

2.10. Special Features:
A. Low-Ambient Temperature Control:
1. A low-ambient temperature control shall be available as a factory-installed option or as a field-installed accessory. This low-ambient control shall regulate speed of the condenser-fan motors in response to the saturated condensing temperature of the unit. The control shall maintain correct condensing pressure at outdoor temperatures down to –20_F (-29_C).
B. Unit-Mounted, Non-Fused Disconnect Switch:
1. Switch shall be factory-installed and internally mounted. NEC and UL-approved non-fused switch shall provide unit power shutoff. Switch shall be accessible from outside the unit and shall provide power off lockout capability.Non-fused disconnect switch cannot be used when unit MOCP electrical rating exceeds 80 amps.
C. Thermostat Controls:
1. Programmable multi-stage thermostat shall have 7-day clock, holiday scheduling, large backlit display, remote sensor capability, and Title 24 compliance.
2. Commercial Electronic Thermostat shall have 7-day time clock, auto-changeover, multi-stage capability, and large LCD (liquid crystal display) temperature display.
D. Louvered hail Guard Package:
1. Louvered hail guard package shall protect coils against damage from hail and other flying debris.
E. Hot Gas Bypass

COMMERCIAL SPLIT SYSTEMS
38AUZ 6 TO 20 TON
38AUD 10 and 20 Ton
AIR-COOLED CONDENSING UNITS with PURON® REFRIGERANT

These commercial quality air-cooled condensing units are easily connected by refrigerant lines and low voltage control wiring to matching Carrier packaged air-handling units or other suitable evaporator units. They are ideal for new construction or renovation applications where quality and performance are required.



ARI Standard 340/360

Certified to ISO 9001:2000

ASHRAE 90.1 COMPLIANT

Gemini

Puron® the environmentally sound refrigerant

BASE UNIT STANDARD FEATURES:

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- Single-stage cooling capacity control on 07 to 14 models
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- Brass suction and liquid line service valves
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- New terminal board facilitating simple safety circuit troubleshooting and simplified control box arrangement. 24-volt 75va control system
- High and low pressure switches.
- Comfort Alert™ Diagnostic Board:
  - LED Go-No-Go and fault code
  - Built in time guard anti-short cycle
  - Phase protection
  - Fault code retention logic
  - Low voltage compressor contactor protector
- UL and UL, Canada apply to standard units; 575-volt units UL, Canada only.
- Full perimeter base rails with built-in rigging adapters and fork truck slots
- Pre-painted exterior panels and primer-coated interior panels tested to 500 hours salt spray protection
- Direct drive permanently lubricated condenser fan motors
- All units factory run tested
- Compressors mounted on independent vibration isolators

MAU 6.2.1

Submittal Cover Sheet
Unit Report
Performance Summary Report
Acoustic Summary
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Feature Sheet

Outdoor Unit Parameters

Unit Quantity:	**1**	
Unit Model:	**38APD**	
Unit Size:	**25 Tons**	
Voltage:	**460-3-60**	V-Ph-Hz
Circuit:	**Dual Circuit**	

System Parameter

System Quantity:	**1**	
Refrigerant Type:	**PURON**	
Compressor Quantity:	**1 (Circ A), 1 (Circ B)**	
Compressor Type:	**Scroll**	
Std. Capacity Steps:	**17-100%, 22 steps**	
Std. Min. Outdoor Temp(Cooling):	**32.0**	°F
No. of Outdoor fans:	**2**	

Outdoor Unit Dimensions and Weight

Unit Length:	**7' 4.2"**	
Unit Width:	**3' 4.3"**	
Unit Height:	**5' 6.5"**	
Unit Operating Weight:	**1131**	lb

Warranty Information Outdoor (Note: for US & Canada only)

First Year - Parts Only (Standard)
5yr Complete Unit Parts Only for Outdoor Unit

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

Ordering Information

Part Number	Description	Quantity
Base Unit - Outdoor		
38APD0256M-32184		1
	Base Unit	
	Low Sound Fans and Compressors	1
	Standard Line Length, RTPF	1
	Single Point Power, Non-Fused Disconnect	1
	Security Grilles/Hail Guards Only	1
	Std Scroling Marquee, BACnet Communication	1
	Aluminum E-Coat Fin / Copper Tube	1
	Digital Compressor	1
Accessories		
30RA-900---005	Vibration Isolation Package for Outdoor Unit	1
33ZCSENOAT	Outdoor Air Sensor - Bell Box Enclosure for Outdoor Unit	1
33ZCSENSAT	Air Temperature Sensor for Outdoor Unit	2

System:	**38APD025**	
Circuit:	**Dual Circuit**	
System Quantity:	**1**	
Altitude:	**0.0**	ft
EER @ ARI Conditions:	**11.0**	
EER @ Ambient Conditions:	**11.0**	
IPLV:	**13.1**	
Capacity Split Percentage (A ckt/B ckt):	**50/50**	%
Suction Line Loss:	**2.0**	°F

Condensing unit is rated in accordance with ARI 365.

Liquid and Suction Line Sizing

Pipe Length	Liquid Line Size	Suction Line Size
0 - 25	1/2 (A), 1/2 (B)	1 1/8 (A), 1 1/8 (B)
26 - 50	5/8 (A), 5/8 (B)	1 1/8 (A), 1 1/8 (B)
51 - 75	5/8 (A), 5/8 (B)	1 3/8 (A), 1 3/8 (B)
76 - 100	5/8 (A), 5/8 (B)	1 3/8 (A), 1 3/8 (B)
101 - 125	5/8 (A), 5/8 (B)	1 3/8 (A), 1 3/8 (B)
126 - 150	5/8 (A), 5/8 (B)	1 3/8 (A), 1 3/8 (B)
151 - 175	5/8 (A), 5/8 (B)	1 3/8 (A), 1 3/8 (B)
176 - 200	5/8 (A), 5/8 (B)	1 5/8 (A), 1 5/8 (B)

Do NOT exceed 200 ft max linear separation or 75 ft vertical liquid lift. Oil management is critical on split systems for compressor reliability. Refrigerant circuit warranty may be void beyond these limits.

Dual suction riser may be required, refer to PD.

Outdoor Unit Parameters

Unit Quantity:	**1**	
PartNumber:	**38APD0256M-32184**	
Unit Model:	**38APD**	
Unit Size:	**25 Tons**	
Voltage:	**460-3-60**	V-Ph-Hz
Total Clg Cap.(Gross):	**281.5**	MBH
SDT:	**124.1**	°F
SDT2:	**124.1**	°F
SCT:	**123.8**	°F
SCT2:	**123.8**	°F
Clg Ent Air DB:	**95.0**	°F
Saturated Suction Temp:	**45.0**	°F

38AP units are not designed for Refrigeration Duty. Unit operational range should be reviewed to ensure that operation at full and part load conditions with Saturated Suction Temperatures at or below 30 F are avoided. Operation below 30 F SST may result in ice build-up on evaporator coil resulting in liquid flood-back and possible compressor failure. Return/Mixed Air Temperature should not be below 55F. If the customer requires differently, please contact application engineering.

Outdoor Electrical Data

Unit Voltage:	**460-3-60**	V-Ph-Hz
Unit#1 MCA:	**47.7**	Amps
Unit#1 MOCP:	**60.0**	Amps
Compressor Power:	**22.90**	kW
Voltage Range Min:	**414**	V
Voltage Range Max:	**506**	V
Compressor RLA:	**18.6/18.6**	
Compressor LRA:	**125/125**	
Compressor Quantity:	**1 (Circ A), 1 (Circ B)**	
Fan Motors Qty:	**2**	

Notice: Outdoor unit elect. data is based on 460-3-60

FIOPS and Accessories Information

Performance Summary For MAU 6.2.1

Project: Marathon High School - ITB 2019915 03/13/2019
Prepared By: Javier Noriega 06:33PM

FIOPS	Quantity
Low Sound Fans and Compressors	1
Standard Line Length, RTPF	1
Single Point Power, Non-Fused Disconnect	1
Security Grilles/Hail Guards Only	1
Std Scroling Marquee, BACnet Communication	1
Digital Compressor	1
Accessories	**Quantity**
Vibration Isolation Package for Outdoor Unit	1
Outdoor Air Sensor - Bell Box Enclosure for Outdoor Unit	1
Air Temperature Sensor for Outdoor Unit	2

Liquid line check valve(s) prevent charge migration to compressor. These valves may be required for certain applications, refer to PD.

Acoustic Information

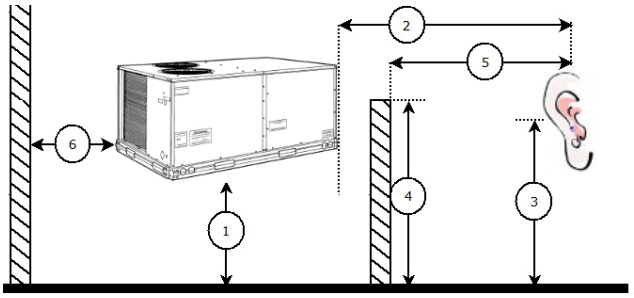
A-Wgt Outdoor Sound Power Level: **0.0** dbA

Acoustic Notes:

1. The acoustic center of the unit is located at the geometric center of the unit.
2. All estimated sound power levels, dB re 1 Pico watt should not be guaranteed or certified as being the actual sound power levels.

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	Overall
Sound Power Levels at Unit's Acoustic Center (Lw), dB	0.0
A-Wgted Sound Power Levels at Unit's Acoustic Center (LwA), dBA	0.0
Sound Press. Levels at Dist. Specified above (Lp), dB	0.0
A-Wgted Sound Press. Levels at Dist. Specified above (LpA), dBA	0.0

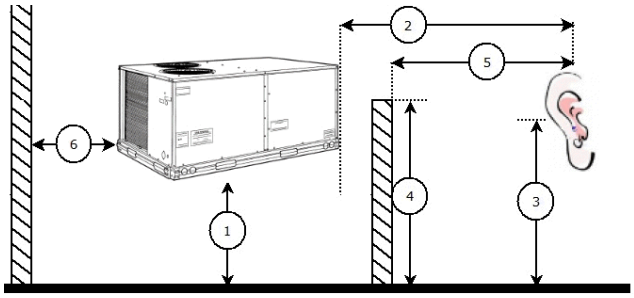
Calculation methods used in this program are patterned after the ASHRAE Guide; other ASHRAE Publications and the AHRI Acoustical Standards. While a very significant effort has been made to insure the technical accuracy of this program, it is assumed that the user is knowledgeable in the art of system 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 Summary For MAU 6.2.1

Project: Marathon High School - ITB 2019915 03/13/2019
Prepared By: Javier Noriega 06:33PM

Outdoor Unit Parameters:

Tag Name: **MAU 6.2.1**
Unit Model: **38APD**
Unit Size: **25 Tons**
System Type: **Dx Cooling Only**
Refrigerant Type: **PURON**
Compressor Quantity: **1 (Circ A), 1 (Circ B)**
Compressor Type: **Scroll**



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 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	Overall
Sound Power Levels at Unit's Acoustic Center (Lw), dB	0.0
A-Wgted Sound Power Levels at Unit's Acoustic Center (LwA), dBA	0.0
Sound Press. Levels at Dist. Specified above (Lp), dB	0.0
A-Wgted Sound Press. Levels at Dist. Specified above (LpA), dBA	0.0

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 Note:

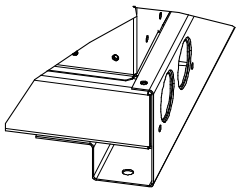
1. Estimated Sound Power levels - dB re: 1 picowatt
2. Estimated Sound Pressure levels - dB re: 20 micropascal
3. Estimated sound levels given above are assumed to originate at the acoustic center of the unit. The acoustic center of the unit is located at the projection of the condensing unit's geometric center of its base.

4. Sound power levels shown above were determined in accordance with ARI standard 370 for large outdoor refrigeration and air conditioning equipment.

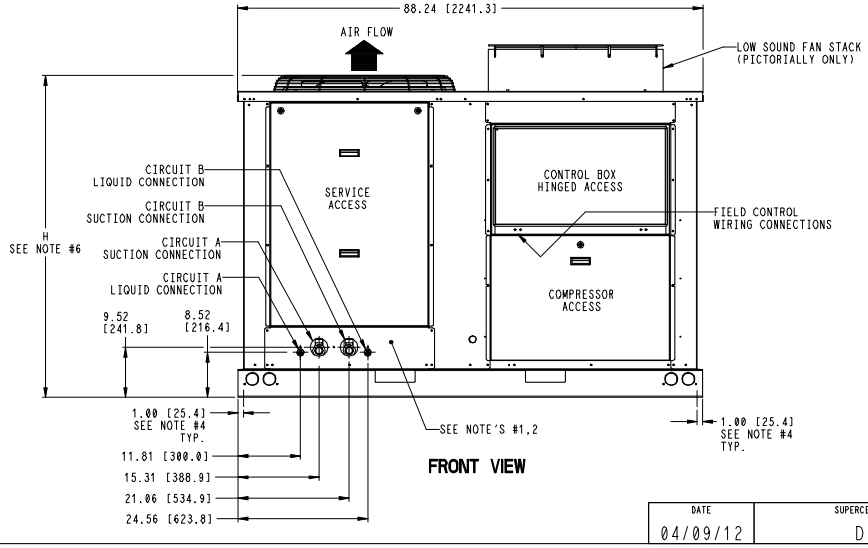
5. Calculation methods used in this program are patterned after the ASHRAE Guide; other ASHRAE Publications and the ARI Acoustical Standards. While a very significant effort has been made to insure the technical accuracy of this program, it is assumed that the user is knowledgeable in the art of system 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	STD. UNIT WT. LBS.	STD. UNIT WT. KG.	CENTER OF GRAVITY X	CENTER OF GRAVITY Y	UNIT HEIGHT H	POWER ENTRY P	SERVICE VALVE CONNECTIONS SUCTION	SERVICE VALVE CONNECTIONS LIQUID
STANDARD	38APS025	1077	489	17.8 [452]	36.9 [937]	61.0 [1549]	24.9 [632]	1-5/8 [41]	5/8 [16]
	38APD025	1095	497	17.8 [452]	37.0 [940]			1-3/8 [35]	5/8 [16]
	38APS027	1240	563	18.2 [462]	37.6 [955]	73.1 [1857]	36.9 [937]	1-5/8 [41]	5/8 [16]
	38APD027	1258	571	18.2 [462]	37.6 [955]			1-3/8 [35]	5/8 [16]
	38APS030	1246	565	18.2 [462]	37.5 [953]			1-5/8 [41]	7/8 [22]
	38APD030	1264	573	18.2 [462]	37.6 [955]			1-3/8 [35]	5/8 [16]
LOW SOUND	38APS025	1113	505	17.8 [452]	36.9 [937]	66.5 [1689]	24.9 [632]	1-5/8 [41]	5/8 [16]
	38APD025	1131	513	17.8 [452]	37.0 [940]			1-3/8 [35]	5/8 [16]
	38APS027	1276	579	18.2 [462]	37.6 [955]	78.6 [1996]	36.9 [937]	1-5/8 [41]	5/8 [16]
	38APD027	1294	587	18.2 [462]	37.6 [955]			1-3/8 [35]	5/8 [16]
	38APS030	1282	582	18.2 [462]	37.5 [953]			1-5/8 [41]	7/8 [22]
	38APD030	1300	590	18.2 [462]	37.6 [955]			1-3/8 [35]	5/8 [16]

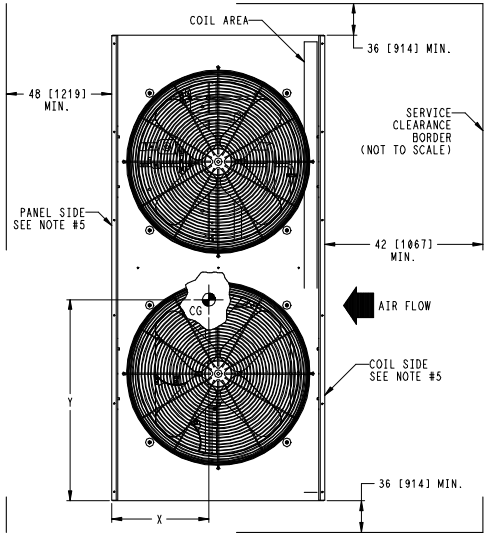
NOTES:
1. BE SURE TO USE A WET RAG AND REMOVE ALL VALVE CORES BEFORE BRAZING FIELD PIPING.
2. DO NOT CAP OR OTHERWISE OBSTRUCT THE LIQUID LINE TEMPERATURE RELIEF.
3. Ø7/8 [22.4] PILOT HOLE PROVIDED FOR LOCATING FIELD POWER WIRING. ACTUAL HOLE REQUIRED DEPENDS ON FIELD WIRE SIZING.
4. Ø0.437 [11.10] HOLE USED FOR MOUNTING UNIT.
5. UNIT MUST HAVE CLEARANCES AS FOLLOWS: TOP - DO NOT RESTRICT. COIL END - 42 [1067] FROM SOLID SURFACE. PANEL SIDE - 48 [1219] PER NEC.
6. SEE TABLE COLUMN H; DIMENSION FOR STANDARD AND LOW SOUND WITH STACK FAN OPTION.
7. CARRIER DOES NOT RECOMMEND INSTALLATION IN A PIT.
8. UNIT CAN BE HANDLED USING THE FORK TRUCK LIFT POCKETS.
9. DIMENSIONS SHOWN IN INCHES (MM).
10. WEIGHT DOES NOT INCLUDE REFRIGERANT CHARGE.
11. FOR 38APS PIPING, REFER TO "CIRCUIT A LIQUID CONNECTION" AND "CIRCUIT A SUCTION CONNECTION" DIMENSIONS SHOWN.



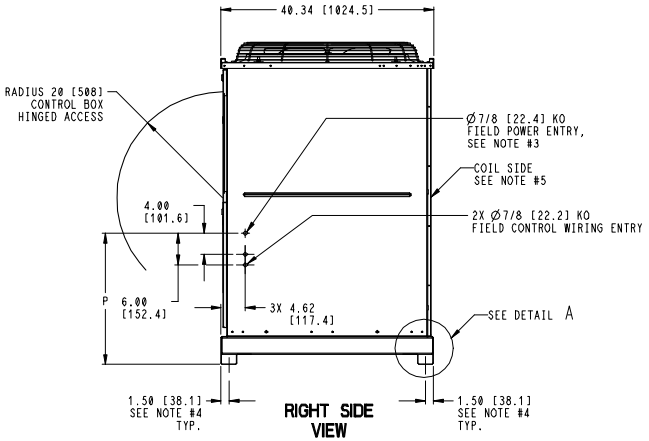
DETAIL A



FRONT VIEW



TOP VIEW



RIGHT SIDE VIEW

DATE	SUPERCEDES			REV
04/09/12	D	38AP025-030 UNIT ASSY	38AP555555	E

GUIDE SPECIFICATIONS – 38APD0256M-32184

HVAC Guide Specifications
Commercial Air-Cooled Condensing Units with Puron® Refrigerant (R-410A)

Size: 025

Part 1: General

SYSTEM DESCRIPTION

1.01. Outdoor-mounted, air-cooled condensing unit with Puron® refrigerant (R-410A) suitable for on-the-ground or rooftop installation. The 38APD unit shall have two independent refrigeration circuits and shall consist of two, four, five or six rotary scroll compressors. Unit shall have air-cooled coils, propeller-type condenser fans, a control box, and shall discharge condenser air vertically upward as shown on certified drawings. Unit shall be used in refrigeration circuit with a central station air-handling unit or direct-expansion coils.

QUALITY ASSURANCE

1.01. Unit performance shall be rated in accordance with AHRI Standard 365, latest edition (U.S.A).
1.02. Unit construction shall comply with latest edition of ASHRAE 15 Safety Code, UL 1995, and ASME applicable codes (U.S.A. codes).
1.03. Unit shall be manufactured in a facility registered to ISO 9001 Manufacturing Quality Standard.
1.04. Base unit shall be constructed in accordance with UL standards and CSA.
1.05. Unit cabinet shall be capable of withstanding 500-hour salt-spray exposure per ASTM B117 (scribed specimen).
1.06. Design pressure shall be 650 psig (4482 kPa).
1.07. Unit shall be functional checked at the factory.

DELIVERY, STORAGE, AND HANDLING

1.01. Unit shall be shipped as single package and shall be stored and handled per unit manufacturer's recommendations.

WARRANTY (FOR INCLUSION BY SPECIFYING ENGINEER)

Part 2: Products

EQUIPMENT

2.01. General:
- A. Factory assembled, single-piece, air-cooled condensing unit. Contained within the unit enclosure shall be all factory wiring, piping, controls, compressors, nitrogen holding charge, and special features required prior to field start-up.

2.02. Unit Cabinet:
- A. Cabinet shall be galvanized steel casing with a baked enamel powder or pre-painted finish.
- B. Cabinet shall be capable of withstanding 500-hr salt spray test in accordance with ASTM (U.S.A.) B-117 standard.
- C. Control box access panels shall be hinged for service access.
- D. Lifting holes shall be provided to facilitate rigging.

2.03. Fans:
- A. Condenser fans shall be direct-drive propeller type, discharging air vertically upward.
- B. All condenser fan motors shall be totally enclosed 3-phase type with permanently lubricated ball bearings, class F insulation and internal, automatic-reset thermal overload protection or manual reset calibrated circuit breakers.

C. Shafts shall have inherent corrosion resistance.
D. Fan blades shall be statically and dynamically balanced.
E. Condenser-fan openings shall be equipped with PVC-coated steel wire safety guards.

2.04. Compressors:
A. Compressors shall be rotary scroll.
B. Operating oil charge and a crankcase heater control oil dilution.
C. Compressors shall be mounted on two rails having rubber in shear vibration isolators.
D. Staging of compressors shall provide unloading capability. Digital compressor unloading control shall be available as an option on one circuit (not available on size 065 unit).
E. Compressor motors shall be cooled by refrigerant gas passing through motor windings and shall have either internal line break thermal and current overload protection or external current overload modules with compressor temperature sensors.

2.05. Condenser Coils:
A. Coil shall be air-cooled microchannel heat exchanger (MCHX) and shall have a series of flat tubes containing a series of multiple, parallel flow microchannels layered between the refrigerant manifolds. Microchannel coils shall consist of a two-pass arrangement. Coil construction shall consist of aluminum alloys for the fins, tubes and manifolds in combination with a corrosion-resistant coating on the tubes.
B. Tubes shall be cleaned, dehydrated, and sealed.
C. Assembled condenser coils shall be leak tested and pressure tested at 650 psig (4482 kPa).

2.06. Refrigeration Components:
A. Refrigeration circuit components shall include liquid line temperature relief device, pressure transducers, liquid line shutoff valve, suction shutoff valve, suction line accumulators, nitrogen holding charge, and compressor oil.
B. Long line length check valves are required for liquid line installation on all linear line length applications of more than 100 ft (30.5 m) to prevent liquid migration during unit shutdown. For any 025-030 size dual circuit unit application where evaporator is located higher than the condensing unit, check valves are required for linear line length above 55 ft (16.8 m).
C. Units shall include one factory-installed suction line accumulator for each refrigerant circuit.

2.07. Controls and Safeties:
A. Unit ComfortLink controls shall include:
1. Scrolling marquee display module shall be used for accessing condensing unit information, reading sensor values, and testing the condensing unit. The scrolling marquee display is a 4-key, 4-character, 16-segment LED (light-emitting diode) display. Eleven mode LEDs shall be located on the display as well as an Alarm Status LED. The display shows all of the ComfortLink control codes (with 60-character expandable clear language), plus set points, time of day, temperatures, pressures, and superheat. Additional information can be displayed all at once with the accessory Navigator™ display.
2. Carrier Comfort Network® (CCN) system capability.
3. Unit control with standard pressure transducer, discharge pressure transducer and suction temperature thermistors.
4. Current alarm list and alarm history list on display.
5. Automatic compressor lead/lag control.
6. Service run test capability.
7. Compressor minimum run time (3 minutes) and minimum off time (3 minutes).
8. Service diagnostic mode.
9. Self-contained low voltage control circuit.
10. Cycle condenser fans to maintain proper head pressure control.
11. Capacity control with staging compressors.
12. Optional digital scrolls to stage compressors and cycle digital compressor for maintaining desired leaving air temperature set point.
13. Alarm relay output to indicate when unit is in alarm condition.

B. Minimum unit safety devices shall include:
1. Solid-state compressor lockout to provide optional reset capability at the space thermostat if any of the following safety

devices trip and shut off compressor.

a. Compressor lockout protection for internal or external overload.
b. Low pressure protection.
c. High pressure protection (high pressure switch or internal).
d. Compressor reverse rotation protection.
e. Loss of charge protection.
f. Low suction superheat protection.
g. Short cycle protection.
h. Suction and discharge pressure transducers.
i. Circuit breakers or fuses for short circuit protection of compressors.

2.08. Operating Characteristics:

A. The capacity of the condensing unit shall meet or exceed ____ Btuh (____kW) at a suction temperature of ____ F (____C). The power consumption at full load shall not exceed ____Btuh (____kW).
B. The combination of the condensing unit and the evaporator or air handling unit shall have a total net cooling capacity of ____ Btuh (____kW) or greater at conditions of ____ cfm (____L/s) entering-air temperature at the evaporator at ____F (____C) wet bulb and ____F (____C) dry bulb, and air entering the condensing unit at ____F (____C).
C. The system shall have an Energy Efficiency Ratio (EER) of ____Btuh/watt or greater at standard AHRI conditions.

2.09. Electrical Requirements:

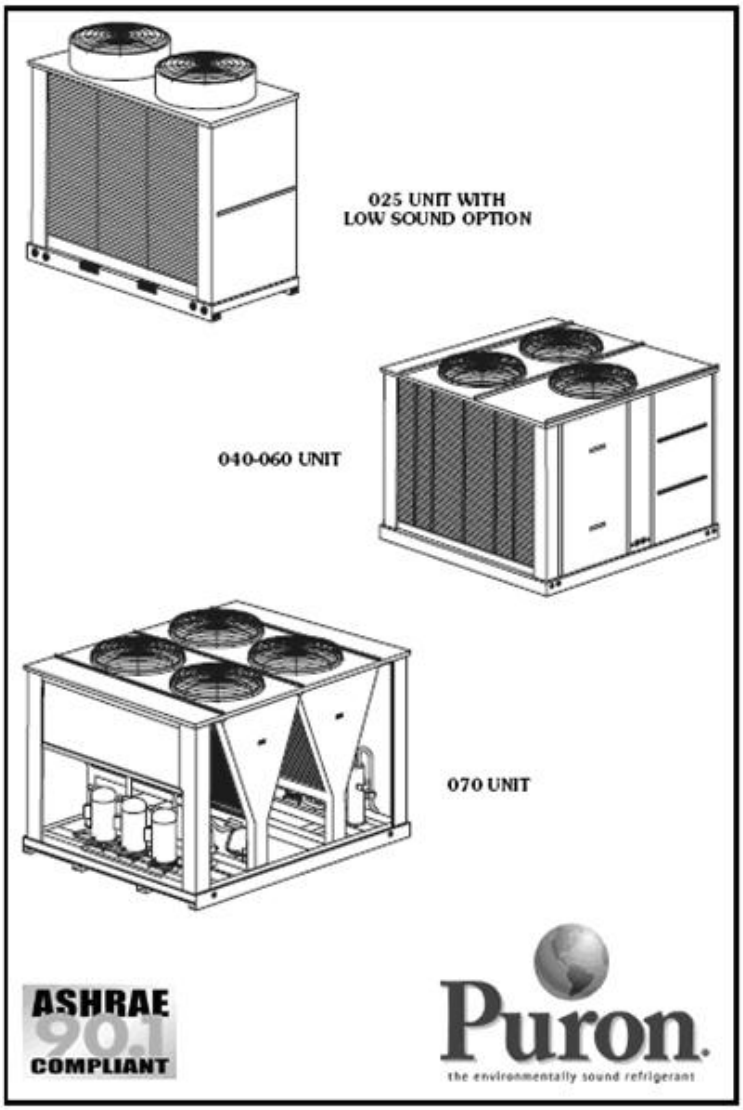
A. All unit power wiring shall enter unit cabinet at a single location. Unit shall be provided with a XL starter and non-fused disconnect.

2.10. Special Features:

A. Digital Compressor Option:
1. Modification shall include digital compressor to provide incremental steps for tighter temperature control. The digital compressor shall be available as a factory-installed option for all units except size 065.
B. Non-Fused Disconnect:
1. A non-fused disconnect is available as a factory-installed option for all units having single pointpower connection units.
C. BACnet Translator Control:
1. BACnet control shall be available as a field-installed accessory for all units to provide interface between unit and a BACnet Local Area Network (LAN, i.e., MS/TP EIA-485).
D. Security Grilles/Hail Guards:
1. Units will be supplied with factory-installed louvered, sheet metal panels which securely fasten to the unit to provide condenser coil protection against hail and physical damage.
E. Vibration Isolation Pads:
1. Neoprene vibration isolation pads (24 in. x 3 in. x 1/4 in.) shall be available for field installation to reduce vibration transmission from the compressor through the floor and into the conditioned space.

38AP GEMINISELECT AIR COOLED CONDENSING UNITS

These condensing units feature two independent refrigerant circuits, each circuit having its own highly efficient scroll compressors. All units are factory wired, nitrogen charged, and easily connected by refrigerant lines and control wiring to the matching Carrier air-handling unit (40RU or 39 Series). Various combinations of these extremely flexible condensing units matched with air handlers provide customized packages to cover a wide range of cooling requirements. Low roof-load weight distribution and weatherproof construction make these units excellent selections for rooftop or on-the-ground installations. These 38AP condensing units are well suited for commercial or industrial air conditioning applications.



Gemini™ Select

These dependable split systems match Carrier's 40RU or 39 Series indoor-air handlers with the versatile outdoor 38AP condensing units for a wide selection of commercial cooling solutions.

- Split condensing units compatible with ASHRAE 90.1
- Chlorine-free, non-ozone depleting Puron refrigerant (R-410A)
- Condenser coils feature the Novation® heat exchanger with microchannel coil technology
- 38APS single-circuit unit has up to 3 rotary scroll compressors
- 38APD unit has up to 6 rotary scroll compressors with 2 independent circuits
- Standard scroll compressor units operate as low as 33% (single circuit) or 15% (dual circuit) of nominal capacity
- Optional digital scroll compressors allow incremental unloading down to 10% (single circuit) or 5% (dual circuit) of nominal capacity for VAV applications
- Protection against high discharge and low suction refrigerant pressure, and low oil pressure