



10 Danforth Street  
Portland, ME 04101  
Ph : (207) 773-3625

**Submittal**

**Job:** 1332  
Press Hotel  
390 Congress Street  
Portland, ME 04101

**Spec Section No:** 15610  
**Submittal No:** 002  
**Revision No:** 0  
**Sent Date:** 2/5/2014

**Spec Section Title:** Make-up Air Units  
**Submittal Title:** MAU-1 Data

**Contractor:**  
Wright-Ryan Construction, Inc.  
Alyssa Parker

**SUBMITTAL REVIEW:**  
Reviewed for general conformance with the design concept and contract documents. Markings or comments shall not be construed as relieving the Subcontractor from compliance with the project plans and specifications, nor departure therefrom. The Subcontractor remains responsible for details and accuracy, for conforming and correlating all quantities and dimensions, for selecting fabrication processes, for techniques of assembly and for performing the work in a safe manner.  
**WRIGHT-RYAN CONSTRUCTION, INC**  
**BY:** RRC **DATE:** 2-5-14

**Other:**  
Archetype Architects

Architect's Stamp

Engineer's Stamp



used only to get fan selection.  
actual CFM will be 750

# Unit Rating

874107-2728 - Ph. (918) 583-2266 Fax (918) 583-6094  
AAONEcat32 Ver. 4.208 (SN: 5555616-8QQ87YMY)

1A 1B 1C 1D 2 3 4 5A 5B 5C 6A 6B 6C 7 8 9 10 11 12 13 14A 14B 15 16 17 18 19 20 21 22 23

**RN-025-8-0-B7D2-122 : GELC-E0F-DPF-D00-0HACHKZ-00-000000MAB**

Tag: MAU-1

## Job Information

Job Name: The Press Hotel Portland REV7-21-13  
 Job Number: Revised Conditions  
 Site Altitude: 0 ft  
 Refrigerant: R-410A

## Unit Information

Approx. Op./Ship Weights: 3439 / 3439 lbs.  
 Supply CFM/ESP: 4550 / 1 in. wg.  
 Final-Filter FV / Qty: 218.40 fpm / 6  
 Exhaust CFM/ESP/TSP: 1110 / 1.00 / 1.38 in. wg.  
 Outside CFM: 4550  
 Ambient Temperature: 86 °F DB / 74 °F WB  
 Return Temperature: 73 °F DB / 60 °F WB

## Static Pressure

External: 1.00 in. wg.  
 Evaporator: 0.21 in. wg.  
 Filters Clean: 0.08 in. wg.  
 Dirt Allowance: 0.35 in. wg.  
 Re-Heat Coil: 0.02 in. wg.

EAT is based on 750 CFM exhaust w/ ERW

Economizer: 0.02 in. wg.  
 Heating: 0.05 in. wg.  
 Cabinet: 0.02 in. wg.  
 Heatwheel: 1.14 in. wg.  
 Total: 2.90 in. wg.

## Cooling Section

	Gross	Net
Equivalent Total Capacity:	328.23 MBH	319.34 MBH
Total Capacity:	292.47	283.58 MBH
Sensible Capacity:	155.83	146.93 MBH
Latent Capacity:	136.64 MBH	
HW Total Cooling Capacity:	35.76 MBH	
Mixed Air Temp:	84.53 °F DB	72.73 °F WB
Entering Air Temp:	84.53 °F DB	72.73 °F WB
Lv Air Temp (Coil):	51.80 °F DB	51.62 °F WB
Lv Air Temp (Unit)	53.58 °F DB	52.38 °F WB
Supply Air Fan:	1 x 245D60 @ 3.13 BHP	
SA Fan RPM / Width:	1445 / 3.290"	
Exhaust Air Fan:	1 x RM220AB70 @ 0.45 BHP	
EA Fan RPM / Width:	943 / 3.450"	
Evaporator Coil:	19.9 ft <sup>2</sup> / 4 Rows / 14 FPI	
Evaporator Face Velocity:	229.1 fpm	
Energy Recovery Wheel:	1 x ERC-5245	

## Heating Section(\*\*)

Primary Heat Type: Heat Pump  
 Total Equivalent Capacity: 440.6 MBH  
 Total Capacity: 386.9 MBH  
 OA Temp: 0.0 DB / -1.0°F WB  
 RA Temp: 70.0 °F DB / 53.0 °F WB  
 Entering Air Temp: 7.4 DB / 6.5 °F WB  
 Leaving Air Temp: 77.0 DB / 48.7°F WB

Auxiliary Heat Type: Electric Heat  
 Heating CFM: 4550  
 Total Capacity: 51.2 MBH  
 OA Temp: 0.0 DB / -1.0°F WB  
 RA Temp: 70.0 °F DB / 53.0 °F WB  
 Entering Air Temp: 7.4 °F DB / 6.5 °F WB  
 Leaving Air Temp: 17.8 °F DB / 14.5 °F WB  
 Input (Emer/Aux) : 15.0 kW / 0.0 kW  
 Heater Qty (Emer/Aux): 2 / 0  
 Electric Heat FLA: 41.6

Fan Temp Rise: 1.8 °F

Re-Heat Coil:  
 Capacity: 114 MBH  
 LA DB / WB: 75.00 °F / 60.73 °F  
 RH: 44%

## Water Side Performance:

Cooling Flow Rate: 54 gpm  
 Cooling PD - Heat Exchanger: 4.8 ft  
 Cooling PD - Pipe, Valves, etc: 5.18 ft  
 Cooling Ent. / Lv. Water Temp: 85 / 98.4 °F  
 Heating Flow Rate: 54 gpm  
 Heating PD - Heat Exchanger: 4.8 ft  
 Heating PD - Pipe, Valves, etc: 5.18 ft  
 Heating Ent. / Lv. Water Temp: 60 / 47.35 °F

Max Operating Pressure : 125 psig

## Rating Information

Application EER @ Op. Conditions: 14.1      Application COP<sub>H</sub> @ Op. Conditions: 7.22



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Tag: MAU-1

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 Final-Filter FV / Qty: 218.40 fpm / 6  
 Exhaust CFM/ESP/TSP: 1110 / 1.00 / 1.38 in. wg.  
 Outside CFM: 4550  
 Ambient Temperature: 86 °F DB / 74 °F WB  
 Return Temperature: 73 °F DB / 60 °F WB

## Electrical Data

Rating: 208/3/60  
 Unit FLA: 119

Minimum Circuit Amp: 131  
 Maximum Overcurrent: 175

	Qty	HP	VAC	Phase	RPM	FLA	RLA
Compressor 1:	2		208	3			48.1
Supply Fan:	1	5.00	208	3	1760	16.7	
Exhaust Fan:	1	1.00	208	3	1760	4.6	
Heatwheel:	1	0.1667	208	1	1760	1.2	

## Cabinet Sound Power Levels\*

Octave Bands:	63	125	250	500	1000	2000	4000	8000
Discharge LW(dB):	92	92	93	97	94	92	87	80
Return LW(dB):	85	88	80	75	74	71	66	58

\*Sound power levels are given for informational purposes only. The sound levels are not guaranteed.  
 (\*\*)Fan motor temperature rise is not included in the heat capacity and temps.



# Energy Wheel Rating

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**RN-025-8-0-B7D2-122:GELC-E0F-DPF-D00-0HACHKZ-00-000000MAB**

Tag: MAU-1

Job Name  
Job Number  
Site Altitude

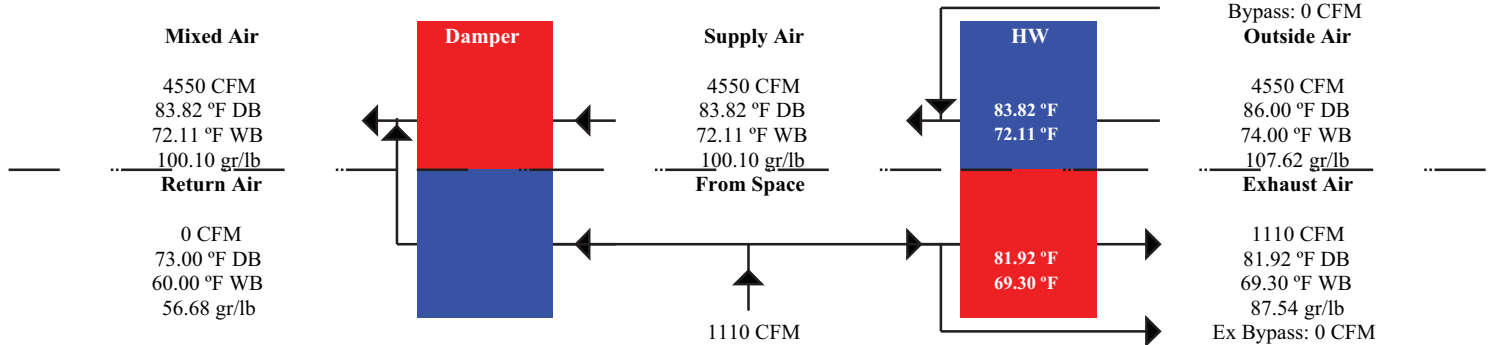
**The Press Hotel Portla**  
**Revised Conditions**  
**0'**

All performance is based on 750CFM exhaust

Heat Wheel Type:  
Heat Wheel Model:  
Heat Wheel Qty:

**Total**  
**ERC-5245**  
**1**

## Summer Conditions



### Cooling/Dehumidification

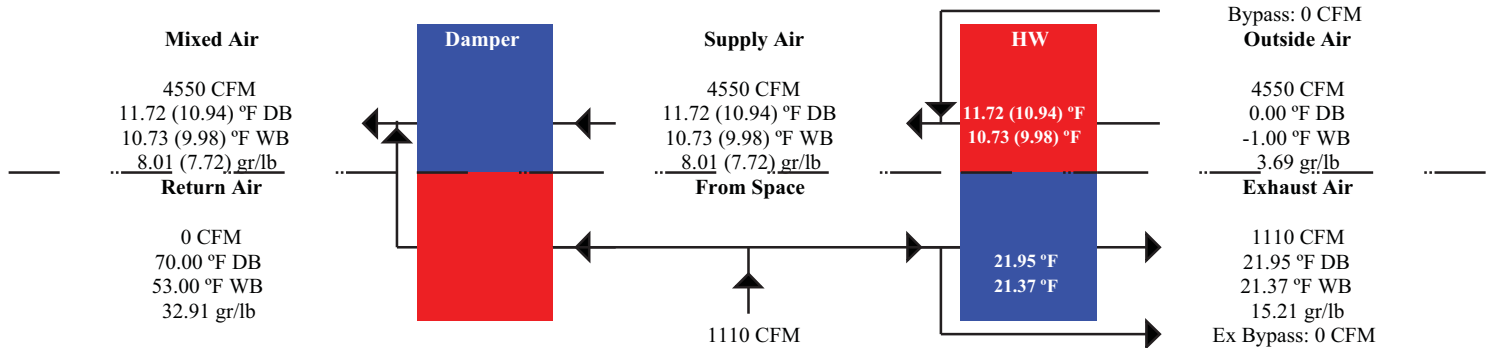
750 CFM actual

### Heating/Humidification

Total Capacity: **35.76 MBH**  
Sensible Capacity: **10.97 MBH**  
Latent Capacity: **24.79 MBH**

**0.00 MBH**  
**0.00 MBH**  
**0.00 MBH**

## Winter Conditions



### Cooling/Dehumidification

750 CFM actual

### Heating/Humidification

Total Capacity: **0.00 (0.00) MBH**  
Sensible Capacity: **0.00 (0.00) MBH**  
Latent Capacity: **0.00 (0.00) MBH**

**70.05 (65.38) MBH**  
**57.57 (53.74) MBH**  
**12.48 (11.64) MBH**

( ) Time Average Performance Due to Heat Wheel Defrost.



# 24.5" STAR Plenum

2425 South Yukon Ave - Tulsa, Oklahoma 74107-2728 - Ph. (918) 583-2266 Fax (918) 583-6094  
AAONEcat32 Ver. 4.208 (SN: 5555616-8QQ87YMY)

## JOB INFORMATION:

Job Name: The Press Hotel Portland  
 Job Tag: REV7-21-13  
 Rep Firm: MAU-1  
 Date: 10/12/2013

## WHEEL SPECIFICATION:

Max RPM: 1,800  
 Diameter x Qty: 24.5 in. x 1  
 Width%: 100  
 Tip Speed: 100  
 Inertia: 9,268 FPM  
 10 WR<sup>2</sup>

## OPERATING CONDITIONS:

Air Flow: 4,550 CFM  
 Static Pressure: 2.90 in. Wg.  
 Plenum DP: 0.00 in. Wg.  
 Inlet Grill DP: 0.00 in. Wg.  
 TSP: 2.90 in. Wg.  
 Site Altitude: 0.00 Ft  
 TSP @ Sea Level: 2.90 in. Wg.

## MOTOR SELECTION:

Rated HP / Bypass: 5 / No  
 Frame Size: 184T  
 Nominal RPM: 1760  
 VAC/PH/HZ: 208/3/60  
 Efficiency: Premium / 0.895  
 Enclosure Type: ODP  
 Max Inertial Load: 52 WR<sup>2</sup>

## FAN PERFORMANCE:

RPM: 1445  
 BHP: 3.13  
 Efficiency: 66.5%  
 In/Out Velocity: 1391/1532 FPM  
 Plenum Out Velocity: 76 FPM

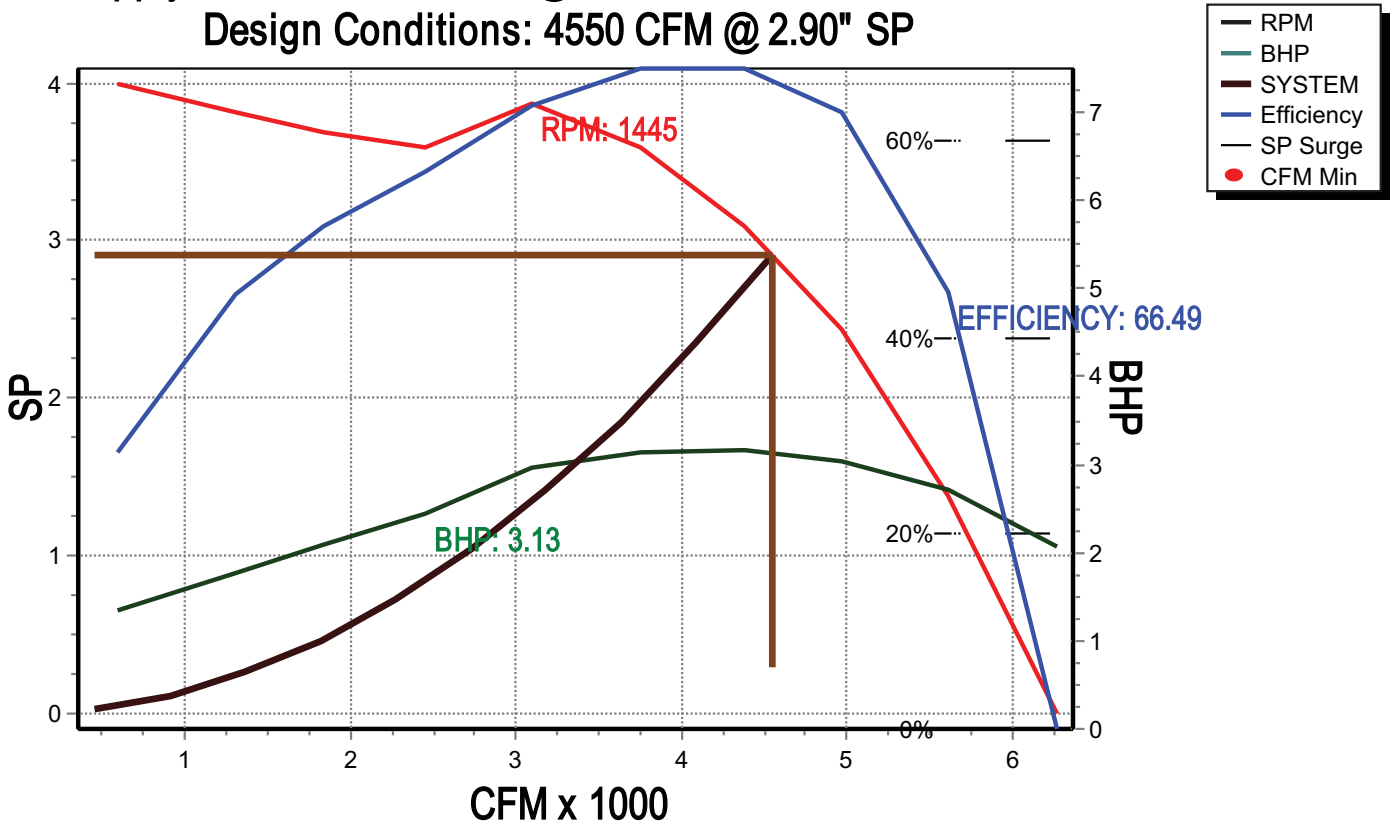
## FAN SOUND POWER (Inlet/Outlet):

Octave Band:	(Re 10 <sup>-12</sup> watts)							
	1	2	3	4	5	6	7	8
	92	91	90	90	87	85	83	79
	92	91	93	98	97	95	91	84

SOUND POWER A-Weighted: 94 / 100 dB

Max Duct SP with Blocked Airway: 3.9 in. Wg. @ 1445 rpm

Supply Fan Model: 245D60 @ 1445 RPM and 100% Width  
 Design Conditions: 4550 CFM @ 2.90" SP





# 22.0" STAR Plenum

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AAONEcat32 Ver. 4.208 (SN: 5555616-8QQ87YMY)

## JOB INFORMATION:

Job Name: The Press Hotel Portland  
Job Tag: REV7-21-13  
Rep Firm: MAU-1  
Date: 10/12/2013

## WHEEL SPECIFICATION:

Max RPM: 2,200  
Diameter x Qty: 22.0 in. x 1  
CFM: 1110  
Tip Speed: 1110  
Inertia: 5,431 FPM  
5 WR<sup>2</sup>

## OPERATING CONDITIONS:

Air Flow: 1,110 CFM  
Static Pressure: 1.27 in. Wg.  
Relief Dampers DP: 0.11 in. Wg.  
  
TSP: 1.38 in. Wg.  
Site Altitude: 0.00 Ft  
TSP @ Sea Level: 1.38 in. Wg.

## MOTOR SELECTION:

Rated HP / Bypass: 1 / No  
Frame Size: 143T  
Nominal RPM: 1760  
VAC/PH/HZ: 208/3/60  
Efficiency: Premium / 0.855  
Enclosure Type: ODP  
Max Inertial Load: 15 WR<sup>2</sup>

## FAN PERFORMANCE:

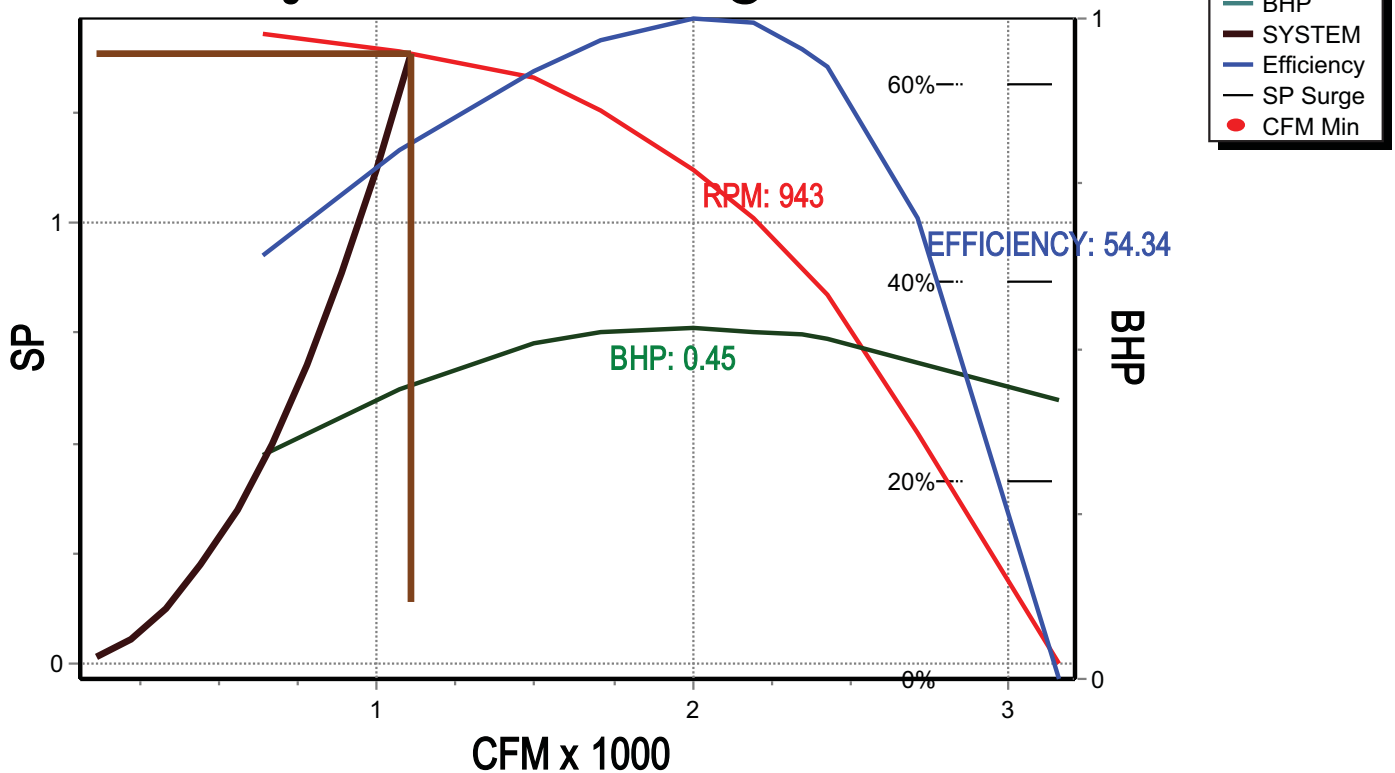
RPM: 943  
BHP: 0.45  
Efficiency: 54.3%  
In/Out Velocity: 339/374 FPM  
Plenum Out Velocity: 18 FPM

## FAN SOUND POWER (Inlet/Outlet):

Octave Band:	(Re 10 <sup>-12</sup> watts)							
	1	2	3	4	5	6	7	8
	78	87	77	71	68	66	62	56
	78	87	77	71	68	66	62	56

SOUND POWER A-Weighted: 79 / 79 dB

## Exhaust Fan Model: RM220AB70 @ 943 RPM and 100% Width Design Conditions: 1110 CFM @ 1.38" SP





# Unit Submittal

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Tag: MAU-1

Job Name:  
Job Number:

The Press Hotel Portland REV7-21-13  
Revised Conditions

Unit Submittal For:  
Unit Submittal Date:

July 22, 2013

	Base Option	Description
R	Series	Roof Top Unit
N	Generation	Ninth Generation
025	Unit Size	Twenty Five
8	Voltage	208V/3Ø/60Hz
0	Interior Protection	Standard
B	Refrigerant Style	R-410A
7	Unit Configuration	Water-Source/Geothermal Heat Pump
D	Coil Coating	Stainless Steel Cooling Coil Casing
2	Cooling/Heat Pump Staging	2 Stage Heat Pump + No Auxiliary Heat
1	Heating Type	Electric Heat
2	Heating Designation	Heat 2 - 15 kW
2	Heating Staging	2 Stage

	Feature Option	Description
G	1A. RA/OA Section	AAONAIRE® Energy Recovery Wheel + Bypass Damper - Total + Low CFM
E	1B. RA/EA Blower Configuration	1 Blower + Premium Efficiency Motor + 1 VFD
L	1C. RA/EA Blower	22" Backward Curved Plenum - 70% Width with Banding
C	1D. RA/EA Blower Motor	1.0 hp - 1760 rpm
E	2. OA Control	DDC Actuator
0	3. Heat Options	Standard - No Auxiliary Heat
F	4. Maintenance Options	115V Convenience Outlet - Field Wired + Remote Start/Stop Terminals - LVTB
D	5A. SA Blower Configuration	1 Blower + Premium Efficiency Motor + 1 VFD
P	5B. SA Blower	24" Direct Drive Backward Curved Plenum - 60% Width
F	5C. SA Motor	5.0 hp - 1760 rpm
D	6A. Pre Filter Type	Energy Recovery Wheel 2" Pleated EA Filter - 30% Eff
0	6B. Unit Filter Type	2" Pleated - 30% Eff
0	6C. Filter Options	Standard
0	7. Refrigeration Control	Standard - Fixed 55°F Comp. Cooling Lock Out + Adjustable Comp. Heating Lock Out
H	8. Refrigeration Options	HGB Lead + MHGR
A	9. Refrigeration Accessories	Sight Glass
C	10. Power Options	Power Switch - 225 amps
H	11. Safety Options	Remote Safety Shutdown Terminals
K	12. Controls	Phase & Brown Out Protection + ERW Defrost
Z	13. Special Controls	Constant Volume (CV) Heat Pump Unit Controller - CV Cool + CV Heat
0	14A. Preheat Configuration	Standard - None
0	14B. Preheat Sizing	Standard - None
0	15. Glycol Percent	Water or No WSHP
0	16. Interior Cabinet Options	Standard - Double Wall + R-13 Foam Insulation + Stainless Steel Drain Pan
0	17. Exterior Cabinet Options	Standard
0	18. Customer Code	Standard
0	19. Code Options	Standard - ETL U.S.A. Listing
0	20. Crating	Standard
M	21. Water-Cooled Cond.	Balancing Valves + Water Flow Switch + Head Pressure Control
A	22. Control Vendors	Wattmaster Controls
B	23. Type	Standard - Includes AAON Gray Paint



# VCMX Components

2425 South Yukon Ave - Tulsa, Oklahoma 74107-2728 - Ph. (918) 583-2266 Fax (918) 583-6094  
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Tag: MAU-1

Job Name: The Press Hotel Portland VCMX For:  
REV7-21-13

Job Number: Revised Conditions VCMX Date: July 22, 2013

## Hardware Included For VCMX Controller

Part #	Included Parts	Assigned Channel
V07140	VCMX Controller with WSHP and EBUS	
P94320	Space Temp Sensor - Field Installed	MainController\A11
R82890	Supply Air Temp Sensor - Field Installed	MainController\A12
R81550	Outside Air Temp Sensor	MainController\A14
R69190	VCMX Large Expansion Module	
R37030	Building Static Pressure Sensor	LargeExpansionModule\A14
P62520	Proof of Flow Sensor	LargeExpansionModule\B13
R34690	Space Humidity Sensor - Field Installed	LargeExpansionModule\A12
R88350	WSHP Module (Water Only)	
R28390	Suction Pressure Transducer	
R28390	Suction Pressure Transducer	
R32960	Water Temp Sensor	
R70490	Water Flow Switch	
R90230	VCMX Head Pressure Module	
R22020	Head Pressure Sensor	
R22020	Head Pressure Sensor	

	1	2	3	4	5	6	7
VCMX Controller with WSHP and EBUS	Analog In	X	X	X			
	Analog Out	X	X				
	Binary In						
	Relay Out	X	X	X	X	X	
	Digital Sensor(s)						

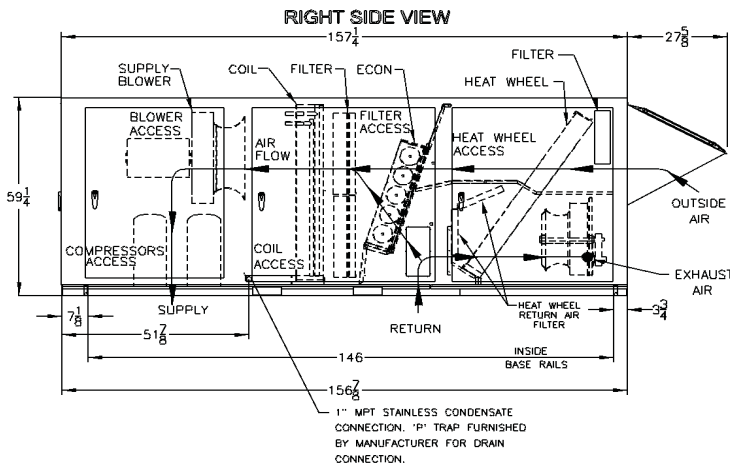
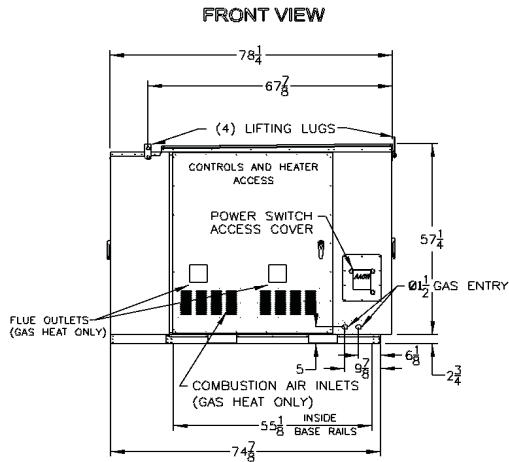
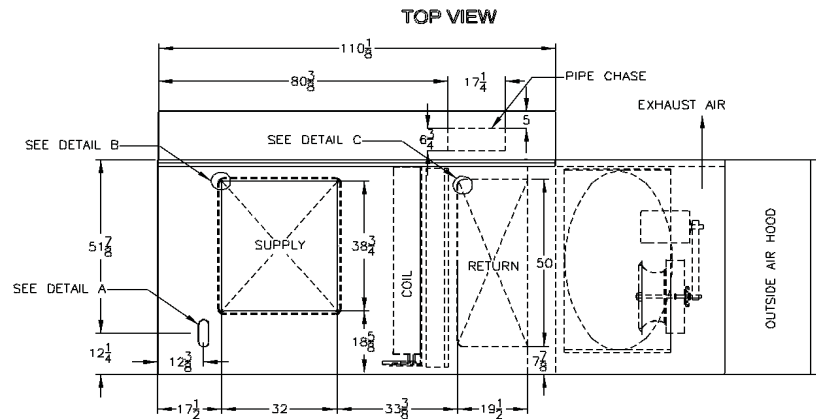
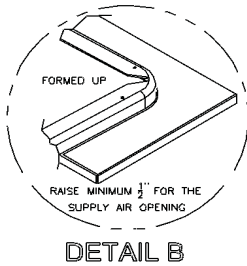
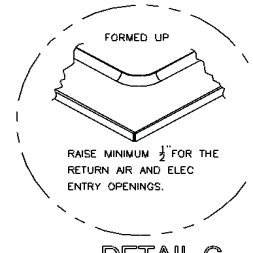
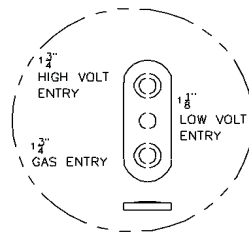
	1	2	3	4	5	6	7	8
VCMX Large Expansion Module	Analog In		X	X				
	Analog Out							
	Binary In	X		X	X			
	Relay Out	X	X	X				



# RN SERIES

## C - CABINET WATER - COOLED CONDENSER OR CHILLED WATER AIR HANDLER ~ 16 - 30 TON WITH ECONOMIZER, ENERGY RECOVERY SECTION RETURN AIR FILTER AND POWER EXHAUST

CLEARANCES	
LOCATION	UNIT SIZE - 16 - 30 TON
OUTSIDE AIR (BACK)	48
CONTROLS SIDE (FRONT)	48
LEFT SIDE	48
RIGHT SIDE	60
TOP	UNOBSTRUCTED



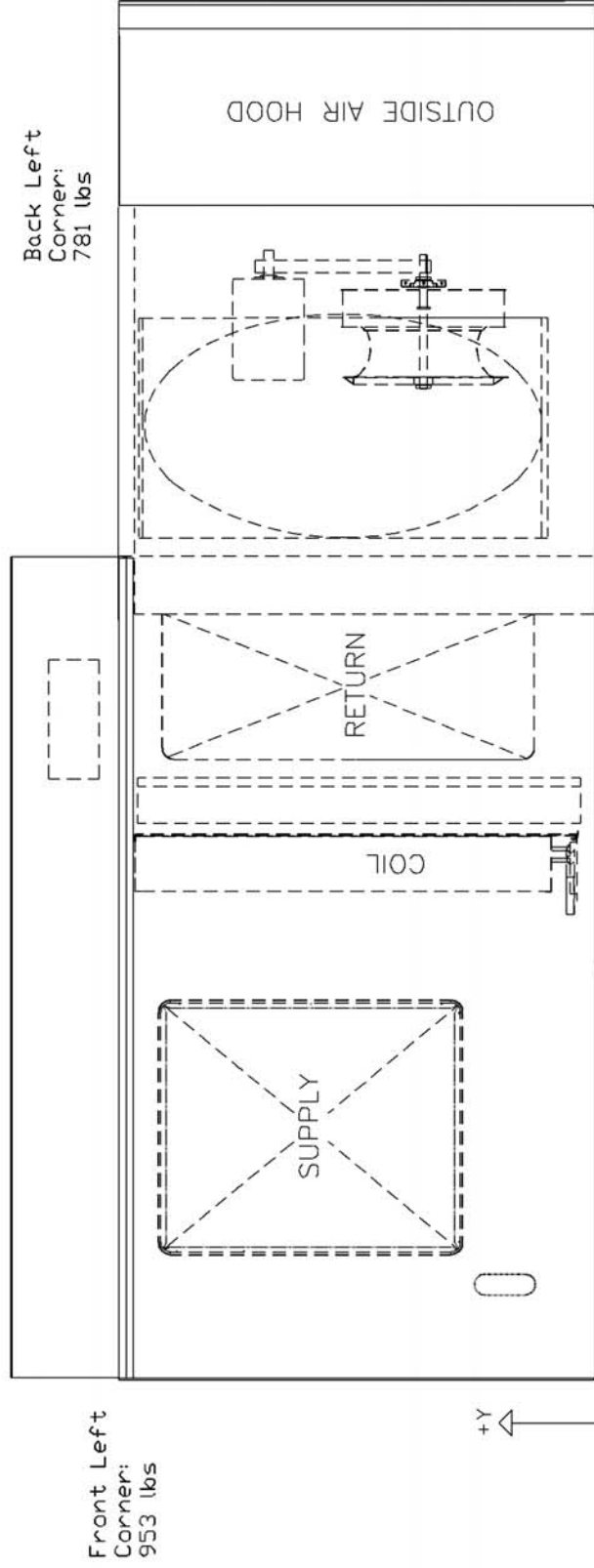
RNC-00141 NEW 07/03/12 JRL  
NOTE: ALL DIMENSIONS ARE IN INCHES

1" MPT STAINLESS CONDENSATE CONNECTION. "P" TRAP FURNISHED BY MANUFACTURER FOR DRAIN CONNECTION.

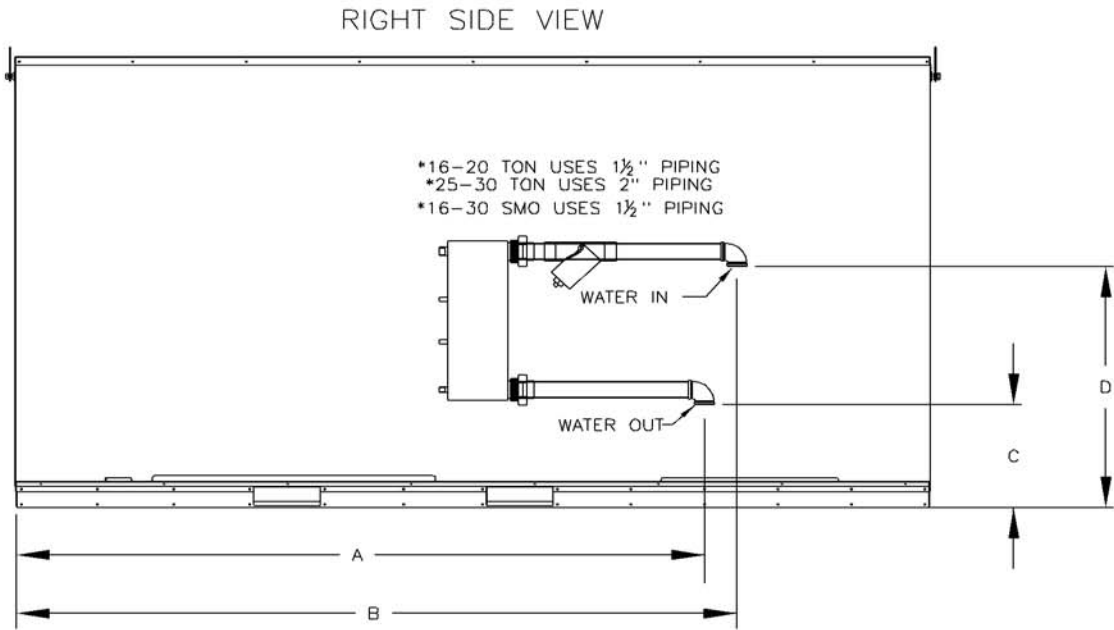
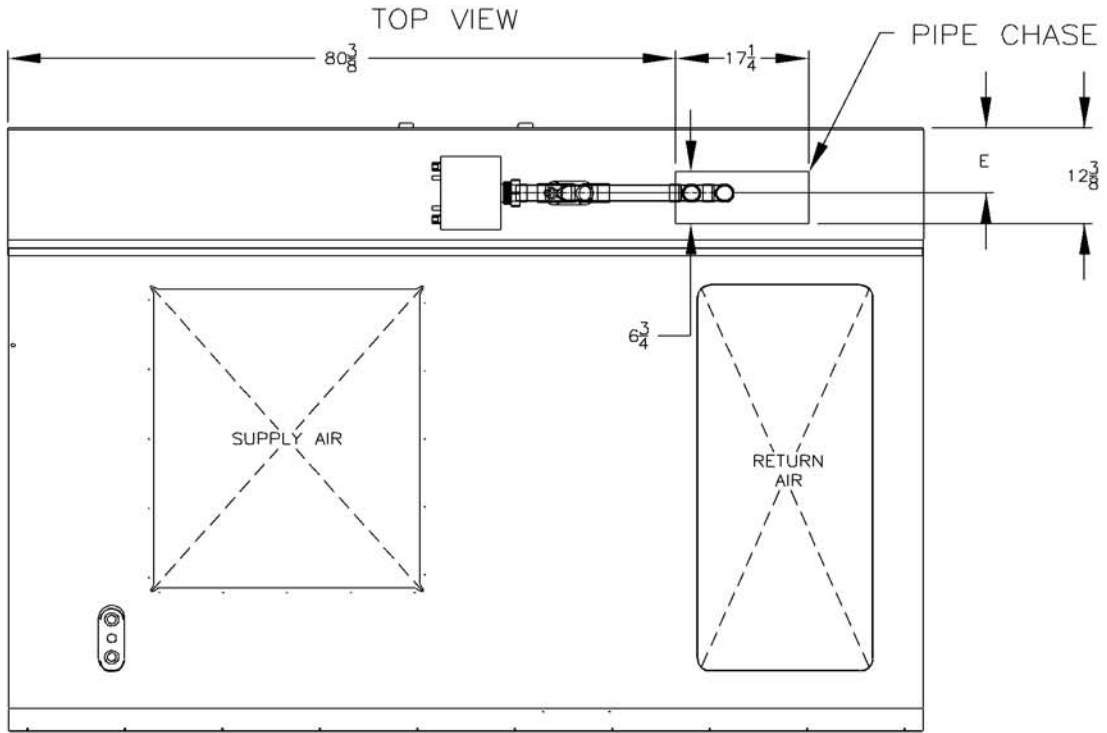
RNC CABINET  
 WATER COOLED CONDENSING UNIT  
 OR CHILLED WATER UNIT  
 WITH ENERGY RECOVERY SECTION



RN-025-8-0-B7D2-122:GELC-E0F-DPF-D00-0HACHKZ-00-0000000MAB



RN SERIES C-CABINET  
 WATER SOURCE HEAT PUMP PIPING ~16-30 TON



NOTE: ALL DIMENSION ARE +/- 1/2"

MODEL	A	B	C	D	E
16-30	90 1/2	94	14 3/4	29 1/4	8 3/8
SMO	92 1/2	95 1/4	15 1/2	34 1/4	7 3/8

RNC-00094 REV:A 03/17/11 JWC  
 NOTE: ALL DIMENSIONS ARE IN INCHES