



Unit Rating

2425 South Yukon Ave - Tulsa, Oklahoma 74107-2728 - Ph. (918) 583-2266 Fax (918) 583-6094
AAONEcat32 Ver. 4.160 (SN: 7147008-DB360V34)

RQ-005-1-V-E709-000:GEBC-ROB-QJD-000-0D0AB0Z-00-00A000LAX

Tag: RTU# 1

Job Information

Job Name: CHAPEL---PATHFINDER
Job Number: Job #229
Site Altitude: 0 ft
Refrigerant: R-410A

Static Pressure

External: 1.00 in. wg.
Evaporator: 0.44 in. wg.
Filters Clean: 0.17 in. wg.
Dirt Allowance: 0.35 in. wg.

Cooling Section

	Gross	Net
Equivalent Total Capacity:	81.23 MBH	75.12 MBH
Total Capacity:	66.15	60.03 MBH
Sensible Capacity:	53.02	46.91 MBH
Latent Capacity:	13.12 MBH	
HW Total Cooling Capacity:	15.08 MBH	
Mixed Air Temp:	75.39 °F DB	62.87 °F WB
Entering Air Temp:	75.39 °F DB	62.87 °F WB
Lv Air Temp (Coil):	53.03 °F DB	52.30 °F WB
Lv Air Temp (Unit):	55.55 °F DB	53.36 °F WB
Digital Comp. Capacity Ratio:	100%	
Supply Air Fan:	1 x RQ185-VFD @ 1.96 BHP	
SA Fan RPM / Width:	1897 / 3.000"	
Exhaust Air Fan:	1 x RN150 @ 0.75 BHP	
EA Fan RPM / Width:	1711 / 3.360"	
Evaporator Coil:	5.3 ft ² / 4 Rows / 14 FPI	
Evaporator Face Velocity:	422.9 fpm	
Energy Recovery Wheel:	1 x ERC-2108	

Unit Information

**WEIGHT AND PERFORMANCE DO NOT INCLUDE SPA

Approx. Op./Ship Weights: 1025 / 1025 lbs.**
Supply CFM/ESP: 2220 / 1 in. wg.
Final-Filter FV / Qty: 399.60 fpm / 2
Exhaust CFM/ESP/TSP: 2220 / 0.25 / 1.30 in. wg.
Outside CFM: 700
Ambient Temperature: 81 °F DB / 72 °F WB
Return Temperature: 75 °F DB / 62 °F WB

Economizer: 0.11 in. wg.
Heating: 0.00 in. wg.
Cabinet: 0.11 in. wg.
Heatwheel: 0.70 in. wg.
Total: 2.97 in. wg.

Heating Section(**)

Primary Heat Type: Heat Pump
Total Equivalent Capacity: 86.0 MBH
Total Capacity: 49.0 MBH
OA Temp: 0.0 DB / 0.0 °F WB
RA Temp: 75.0 °F DB / 62.0 °F WB
Entering Air Temp: 70.1 DB / 59.2 °F WB
Leaving Air Temp: 90.7 DB / 66.3 °F WB

Auxiliary Heat Type: No Heat

Heating CFM: 2200
Fan Temp Rise: 2.5 °F

Re-Heat Coil:

Capacity: 41 MBH
LA DB / WB: 70.00 °F / 59.04 °F
RH: 52%

Water Side Performance:

Cooling GPM / Gly. PD: 16.2 / 9.19 ft
Cooling Ent. / Lv. Gly. Temp: 77 / 87.2 °F
Heating GPM / Gly. PD: 16.2 / 9.19 ft
Heating Ent. / Lv. Gly. Temp: 32 / 26.98 °F
Glycol %: 30

AHRI Listing Information

Application EER @ Op. Conditions: 13.2

Application COP_H @ Op. Conditions: 4.67

Electrical Data

Rating: 230/1/60
Unit FLA: 46

Minimum Circuit Amp: 52
Maximum Overcurrent: 70

	Qty	HP	VAC	Phase	RPM	FLA	RLA
Compressor 1:	1		230	1			25.6
Supply Fan:	1	2.00	230	3	1760	6.8	
Exhaust Fan:	1	1.00	230	1	1760	8	
Heatwheel:	1	0.05	230	1	1760	0.3	

Cabinet Sound Power Levels*

Octave Bands:	63	125	250	500	1000	2000	4000	8000
Discharge LW(dB):	88	86	89	85	77	75	73	67
Return LW(dB):	85	83	81	75	72	71	68	60

*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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RQ-005-1-V-E709-000:GEBC-ROB-QJD-000-0D0AB0Z-00-00A000LAX

Tag: RTU# 1

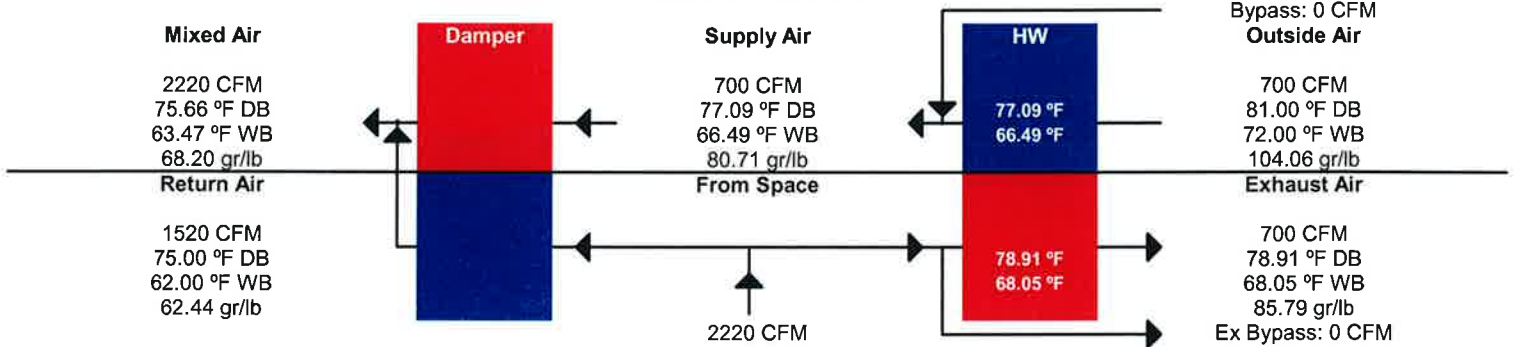
Job Name
Job Number
Site Altitude

CHAPEL---PATHFINDE
Job #229
0'

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

Total
ERC-2108
1

Summer Conditions



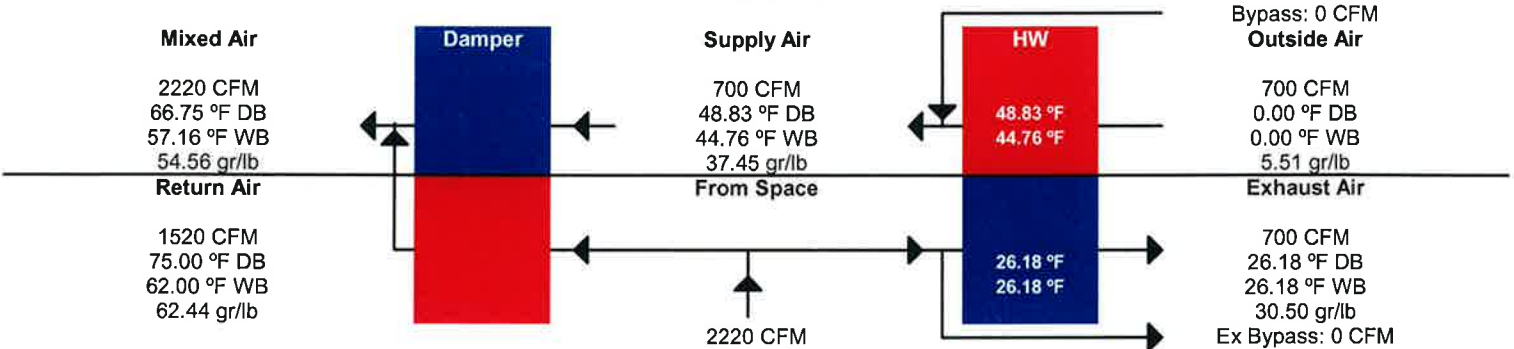
Cooling/Dehumidification

Total Capacity: 15.08 MBH
Sensible Capacity: 3.02 MBH
Latent Capacity: 12.07 MBH

Heating/Humidification

0.00 MBH
0.00 MBH
0.00 MBH

Winter Conditions



Cooling/Dehumidification

Total Capacity: 0.00 MBH
Sensible Capacity: 0.00 MBH
Latent Capacity: 0.00 MBH

Heating/Humidification

52.39 MBH
37.04 MBH
15.35 MBH

Frost Warning - Conditions for frost forming on the energy recovery wheel exists. Outside air preheat is required to prevent frost formation. Optionally, the return air humidity ratio could be lowered to prevent frost formation. See AAON literature titled 'AAON AIRE ENERGY RECOVERY' for details.



18.5" STAR Plenum

2425 South Yukon Ave - Tulsa, Oklahoma 74107-2728 - Ph. (918) 583-2266 Fax (918) 583-6094
AAONEcat32 Ver. 4.160 (SN: 7147008-DB360V34)

JOB INFORMATION:

Job Name: CHAPEL---PATHFINDER
 Job Tag: RTU# 1
 Rep Firm: 828
 Date: 08/26/2010
 08/26/2010

WHEEL SPECIFICATION:

Max RPM: 2,200
 Diameter x Qty: 18.5 in. x 1
 CFM: 2220
 Tip Speed: 9,188 FPM
 Inertia: 9,188 FPM

OPERATING CONDITIONS:

Air Flow: 2,220 CFM
 Static Pressure: 2.97 in. Wg.
 Relief Dampers DP: 0.00 in. Wg.
 TSP: 2.97 in. Wg.
 Site Altitude: 0.00 Ft
 TSP @ Sea Level: 2.97 in. Wg.

MOTOR SELECTION:

Rated HP / Bypass: 2 / No
 Frame Size: 48
 Nominal RPM: 1760
 VAC/PH/HZ: 230/1/60
 Efficiency: Standard / 0.815
 Enclosure Type: ODP
 Max Inertial Load: 27 WR²

FAN PERFORMANCE:

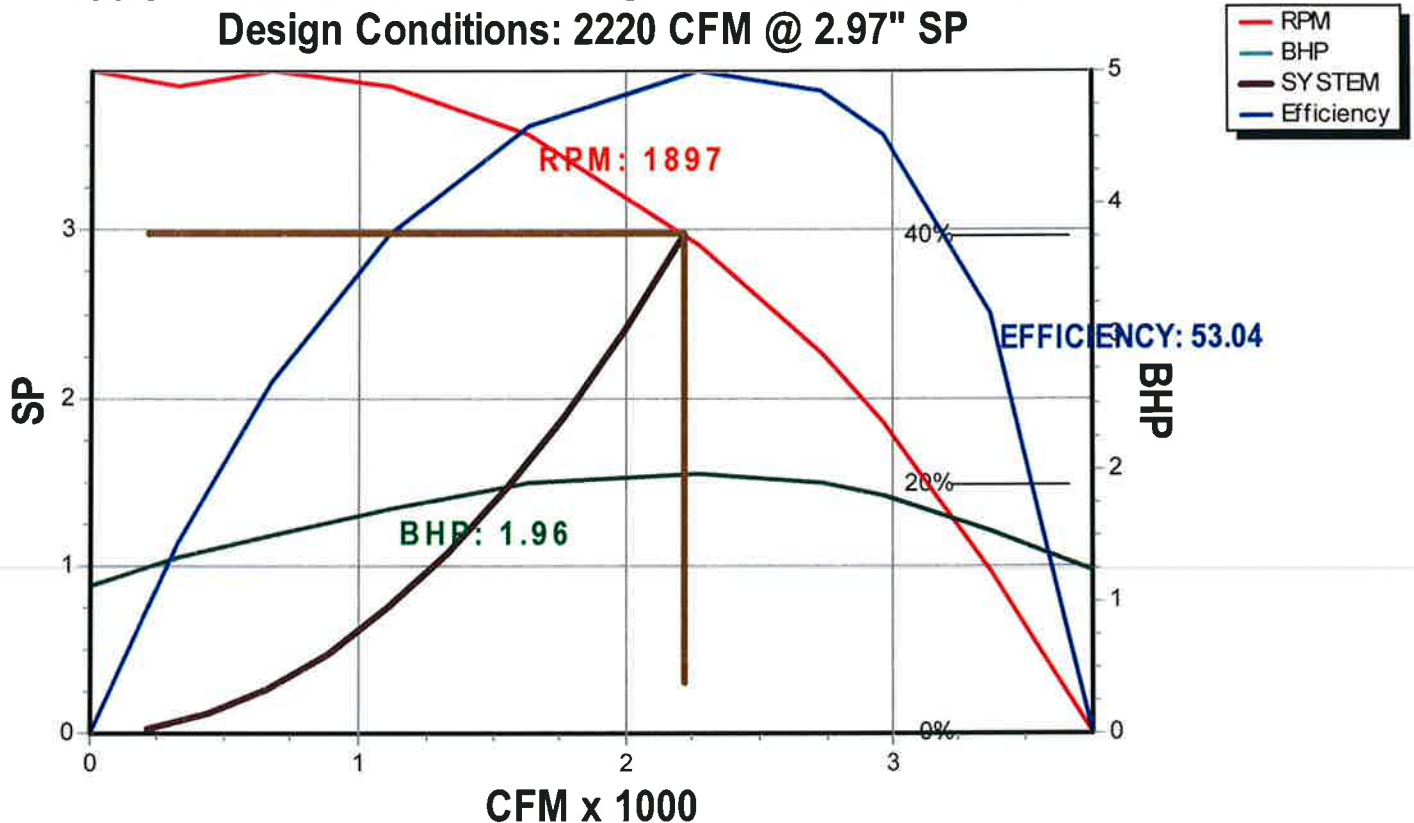
RPM: 1897
 BHP: 1.96
 Efficiency: 53.0%
 In/Out Velocity: / FPM
 Plenum Out Velocity: 37 FPM

FAN SOUND POWER (Inlet/Outlet):

Octave Band:	(Re 10 ⁻¹² watts)							
	1	2	3	4	5	6	7	8
	87	85	88	86	80	78	76	71
	87	85	88	86	80	78	76	71

SOUND POWER A-Weighted: 89 / 89 dB

Supply Fan Model: RQ185-VFD @ 1897 RPM and 100% Width
 Design Conditions: 2220 CFM @ 2.97" SP





15.0" STAR Plenum

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JOB INFORMATION:

Job Name: CHAPEL---PATHFINDER
Job Tag: RTU# 1
Rep Firm: 828
Date: 08/26/2010

WHEEL SPECIFICATION:

Max RPM: 2,200
Diameter x Qty: 15.0 in. x 1
CFM: 2220
Tip Speed: 6,719 FPM
Inertia: 3 WR²

OPERATING CONDITIONS:

Air Flow: 2,220 CFM
Static Pressure: 0.95 in. Wg.
Relief Dampers DP: 0.35 in. Wg.

TSP: 1.30 in. Wg.
Site Altitude: 0.00 Ft
TSP @ Sea Level: 1.30 in. Wg.

MOTOR SELECTION:

Rated HP / Bypass: 1 / No
Frame Size: 143T
Nominal RPM: 1760
VAC/PH/HZ: 230/1/60
Efficiency: Premium / 0.855
Enclosure Type: ODP
Max Inertial Load: 15 WR²

FAN PERFORMANCE:

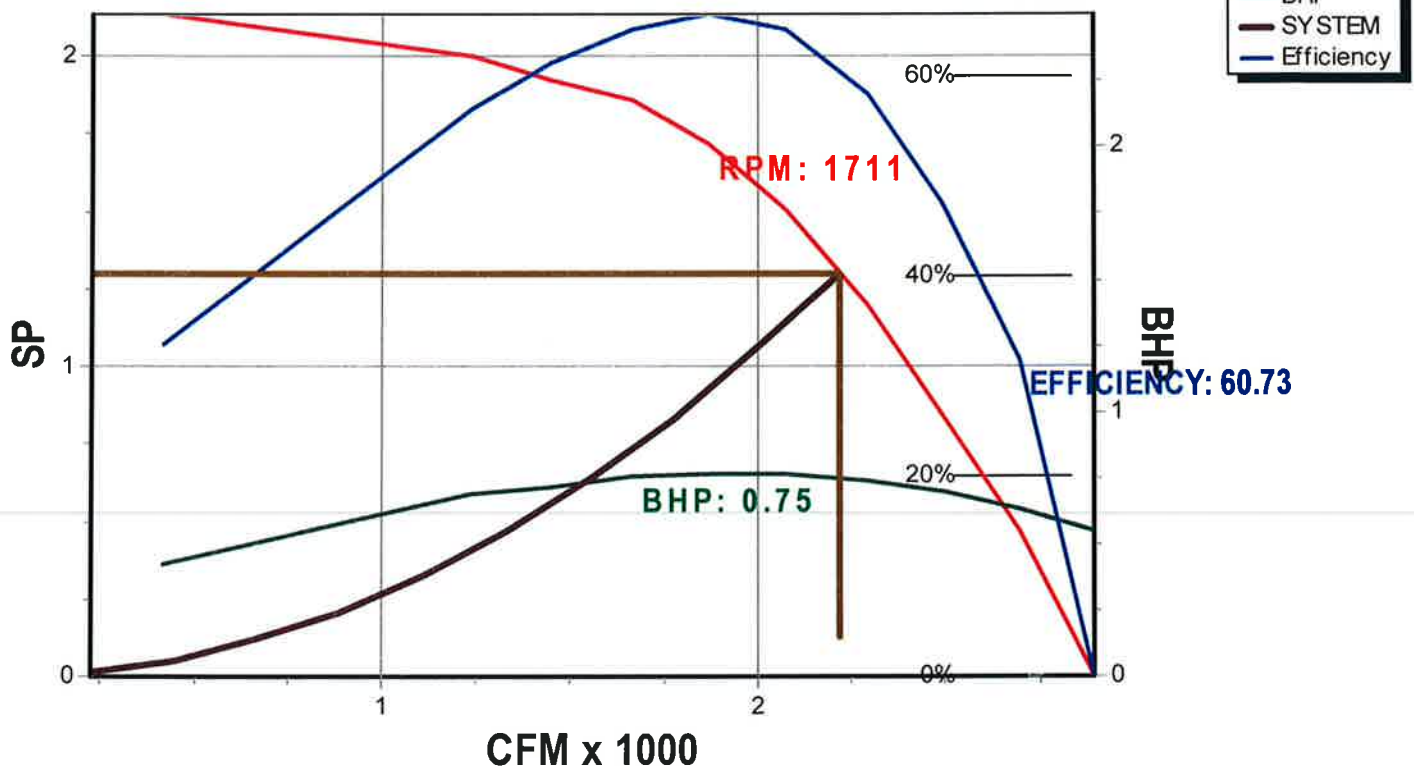
RPM: 1711
BHP: 0.75
Efficiency: 60.7%
In/Out Velocity: 1930/2018 FPM
Plenum Out Velocity: 37 FPM

FAN SOUND POWER (Inlet/Outlet):

Octave Band:	(Re 10 ⁻¹² watts)							
	1	2	3	4	5	6	7	8
	81	78	82	80	73	72	69	62
	81	78	82	80	73	72	69	62

SOUND POWER A-Weighted: 83 / 83 dB

Exhaust Fan Model: RN150 @ 1711 RPM and 100% Width
Design Conditions: 2220 CFM @ 1.30" SP





Unit Submittal

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Tag: RTU# 1

Job Name:
Job Number:

CHAPEL--PATHFINDER
Job #229

Unit Submittal For:
Unit Submittal Date:

GUCKIAN ENERGY SYSTEMS
August 09, 2010

	Base Option	Description
R	Series	Roof Top Unit
Q	Generation	Tenth Generation
005	Unit Size	Five
1	Voltage	230V/1Ø/60Hz
V	Interior Protection	Vertical Discharge and Return
E	Refrigerant Style	R-410A Variable Capacity Scroll Compressor (VCC) - High Efficiency
7	Unit Configuration	Water-Source/Geothermal Heat Pump
0	Coil Coating	Standard
9	Cooling/Heat Pump Staging	Modulating Heat Pump + No Auxiliary Heat - 1 VCC
0	Heating Type	No Heating
0	Heating Designation	No Heating
0	Heating Staging	No Heating

	Feature Option	Description
G	1A. RA/OA Section	AAONAIRES® Energy Recovery Wheel + Bypass Damper - Total + Low CFM
E	1B. RA/EA Blower Configuration	1 Blower + Premium Efficiency Motor + 1 VFD
B	1C. RA/EA Blower	15" Backward Curved Plenum
C	1D. RA/EA Blower Motor	1 HP 1760 rpm
R	2. OA Control	CO2 Override + DDC Actuator
0	3. Heat Options	Standard
B	4. Maintenance Options	115V Convenience Outlet - Factory Wired
Q	5A. SA Blower Configuration	1 Blower + Inverter Rated 3 Phase Motor + VFD
J	5B. SA Blower	19" Direct Drive Backward Curved Plenum
D	5C. SA Motor	2 HP 1760 rpm
0	6A. Pre Filter Type	Standard - None
0	6B. Unit Filter Type	2" Throwaway
0	6C. Filter Options	Standard
0	7. Refrigeration Control	Standard - Fixed 55°F Comp. Cooling Lock Out + Adjustable Comp. Heating Lock Out
D	8. Refrigeration Options	Modulating Hot Gas Reheat
0	9. Refrigeration Accessories	Standard
A	10. Power Options	Power Switch - 100 amps
B	11. Safety Options	RA Smoke Detector
0	12. Controls	Standard
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. Blank	Standard
0	16. Interior Cabinet Options	Standard - Double Wall + R-13 Foam Insulation + Stainless Steel Drain Pan
A	17. Exterior Cabinet Options	Base Insulation
0	18. Customer Code	Standard
0	19. Code Options	Standard - ETL U.S.A. Listing
0	20. Crating	Standard
L	21. Water-Cooled Cond.	Balancing Valves + Water Flow Switch + Motorized Shut-off Valve
A	22. Control Vendors	Wattmaster Controls
X	23. Type	Special Price Authorization + AAON Gray Paint



VCMX Components

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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

RQ-005-1-V-E709-000:GEB-C-ROB-QJD-000-0D0AB0Z-00-00A000LAX

Tag: RTU# 1

Job Name:

CHAPEL—PATHFINDER

VCMX For:

*GUCKIAN ENERGY
SYSTEMS*

Job Number:

Job #229

VCMX Date:

August 09, 2010

Hardware Included For VCMX Controller

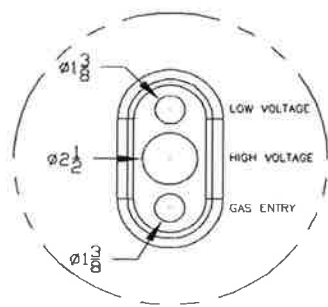
Part #	Included Parts	Assigned Channel
R69170	VCMX Controller	
R28390	Suction Pressure Transducer	MainController\AI5
P94320	Space Temp Sensor - Field Installed	MainController\AI1
R82890	Supply Air Temp Sensor - Field Installed	MainController\AI2
R81550	Outside Air Temp Sensor	MainController\AI4
R69190	VCMX Large Expansion Module	
R34690	Space Humidity Sensor - Field Installed	LargeExpansionModule\AI2
R37030	Building Static Pressure Sensor	LargeExpansionModule\AI4
P62520	Proof of Flow Sensor	LargeExpansionModule\BI3

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

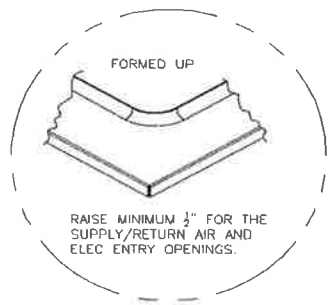
		1	2	3	4	5	6	7	8
VCMX Large Expansion Module	Analog In		X		X				
	Analog Out			X					
	Binary In	X		X					
	Relay Out								

RQ CABINET WATER COOLED CONDENSER ENERGY RECOVERY SECTION POWER EXHAUST ECONOMIZER VERTICAL ~ 1-6 TON

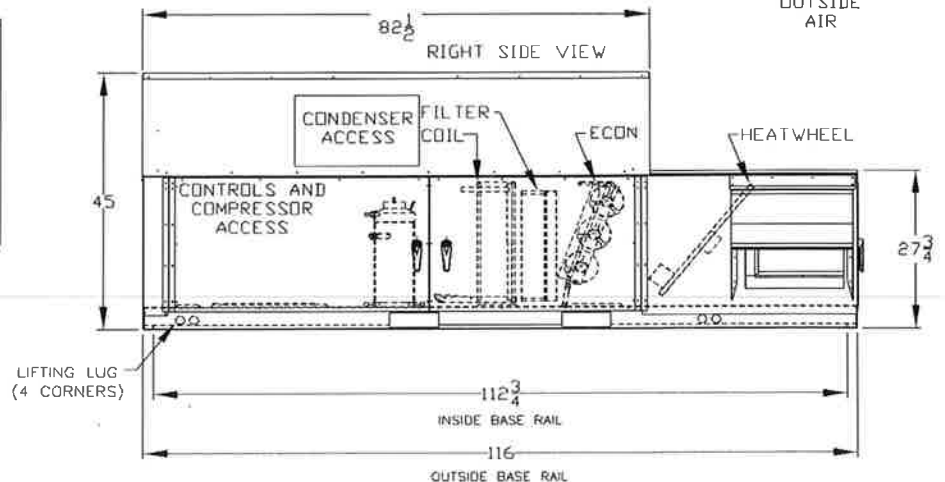
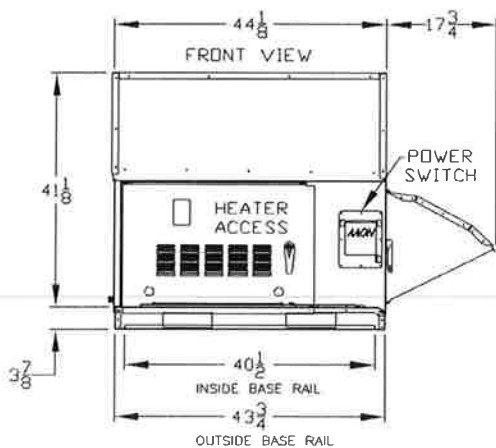
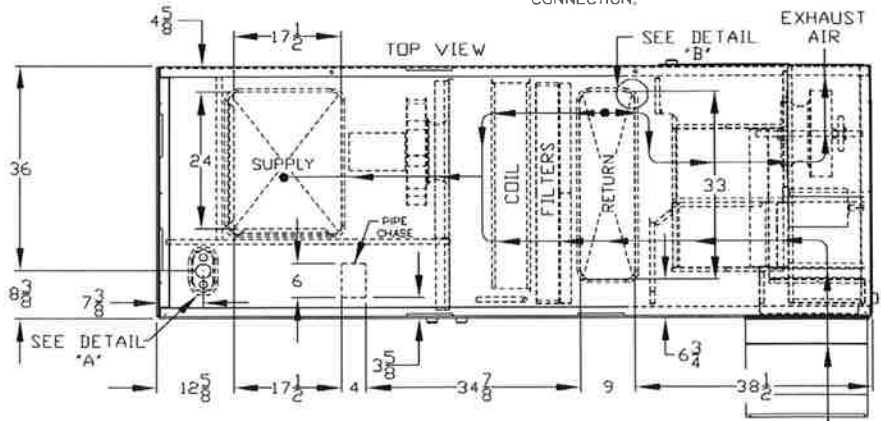
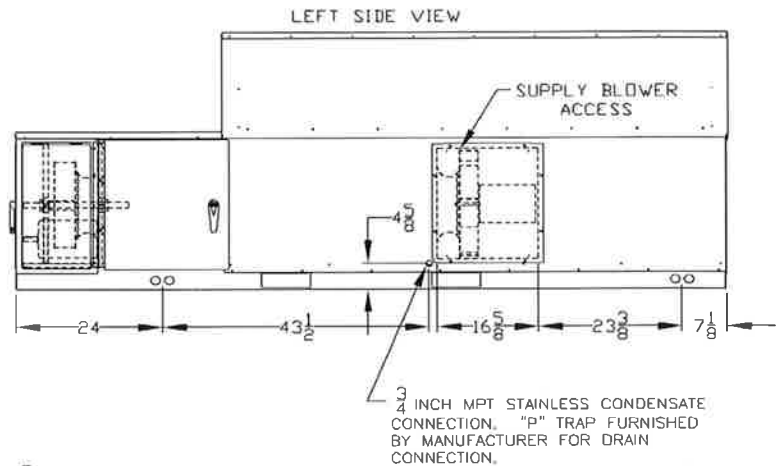
CLEARANCES	
LOCATION	◦ UNIT SIZE ◦ 1 - 6 TON
OUTSIDE AIR (BACK)	36
HXC (FRONT)	36
LEFT SIDE	24
RIGHT SIDE	48
TOP	UNOBSTRUCTED



DETAIL A



DETAIL B

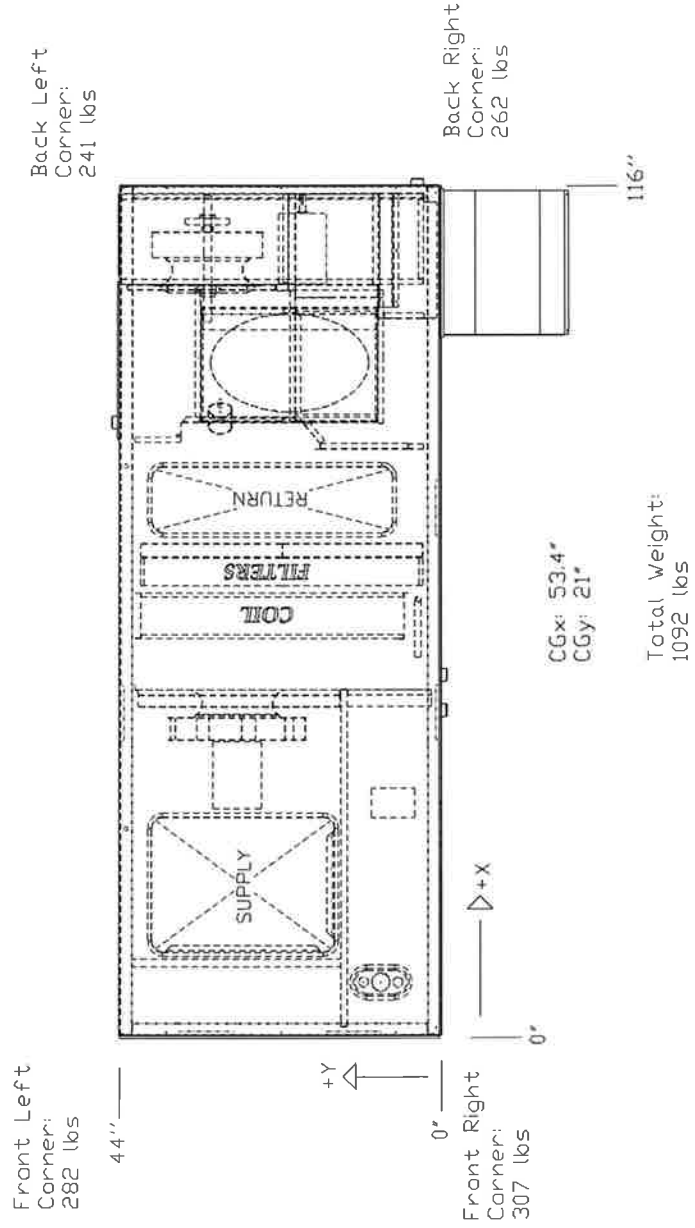


RQ-00032 NEW 04/05/10 SJS
NOTE: ALL DIMENSIONS ARE IN INCHES



RQ CABINET-VERTICAL
 WATER COOLED CONDENSING UNIT
 WITH ENERGY RECOVERY

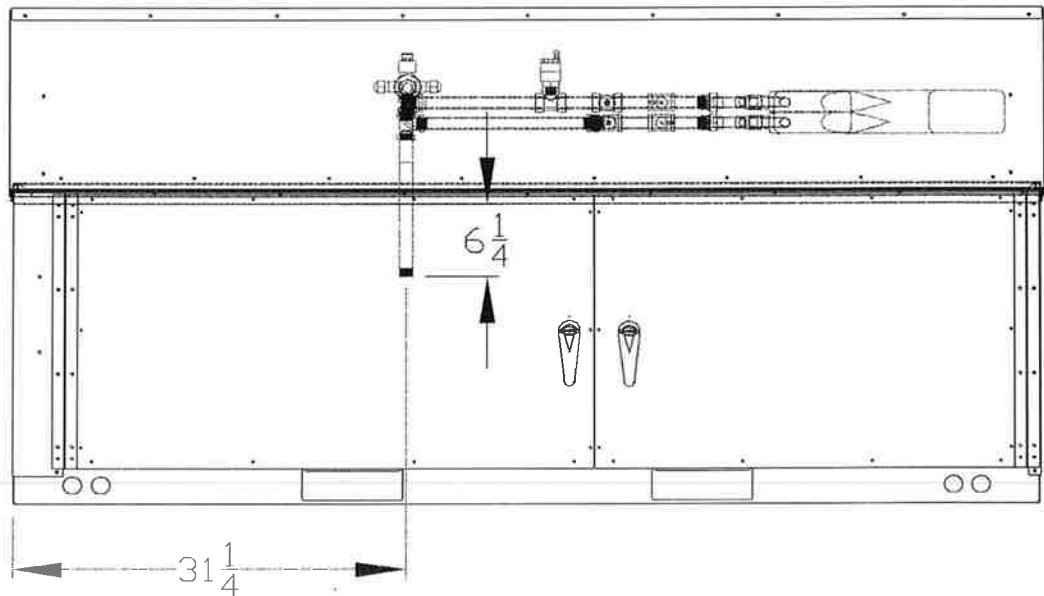
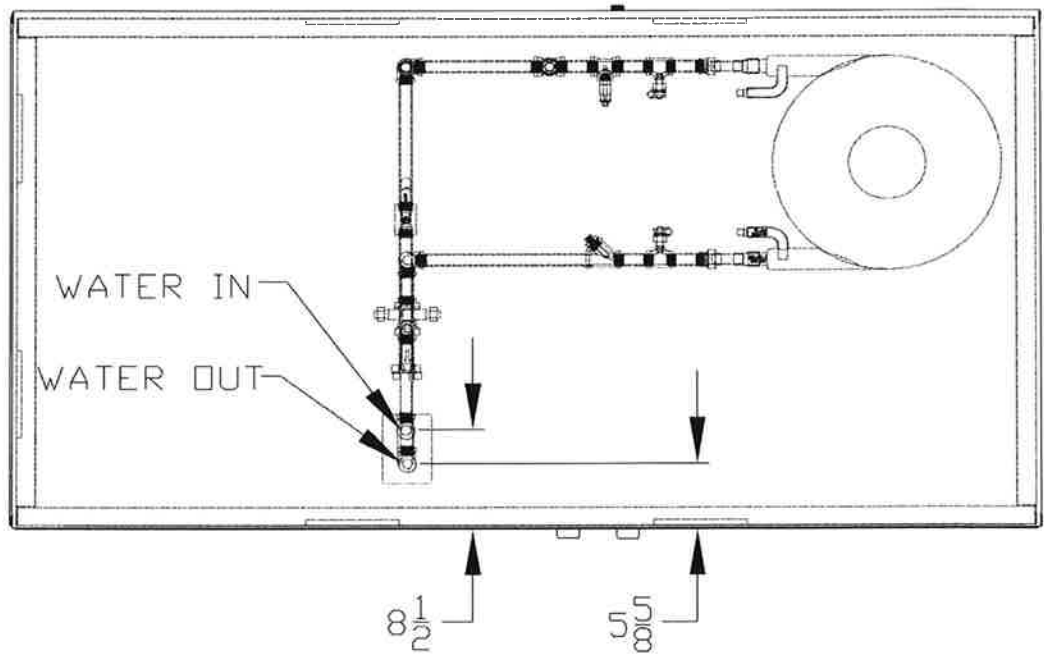
RQ-005-1-V-E709-000:GEBC-ROB-QJD-000-0D0AB0Z-00-00A000LAX



Disclaimer:
 This weight estimate does not account for any SPAs.

RQ CABINET
WATER COOLED CONDENSER
PIPING LOCATIONS AND SIZES
~ 1-6 TON

ALL PIPING CONNECTIONS ARE $\frac{3}{4}$ INCH



RQ-00041 NEW 03/30/10 SJS
NOTE: ALL DIMENSIONS ARE IN INCHES