



BH-2  
RISER ROOM (AUF)

## TYPE CWH 1000

# COMMERCIAL FAN-FORCED WALL HEATERS

### APPLICATIONS

Fast heat response, compact design and versatility make the CWH1000 Series heaters ideal for dens, basements, converted attics and breezeways, garages, bathrooms, small offices, workshops and similar areas. Also, adaptable to multiple installations in somewhat larger or odd shaped rooms.

### FEATURES

Heating element is heavy duty steel fins brazed to steel sheathed tubular elements in a grid pattern that covers the entire discharge area.

FAN DELAY: On a call for heat, element is energized but fan is delayed until element is warm, eliminating the circulation of cold air during start up. When the thermostat is satisfied, the element is de-energized, but the fan continues until all heated air is discharged providing longer component life and higher comfort level.

Designed for easy installation. Heater is mounted prior to wiring. Both hands are free to make field connections in roomy compartment.

Motor is totally enclosed, impedance protected with permanently lubricated bearings.

Airflow system maximizes air volume at minimum noise level; 65 CFM.

Rugged louvered commercial grade steel grille creates downflow air pattern.

This heater is designed for installation in 2 x 4 or larger wall sections using the wall box provided. The heater may also be surface mounted to the wall by using the Surface Mounting Frame, Model No. CWHSM (order separately).

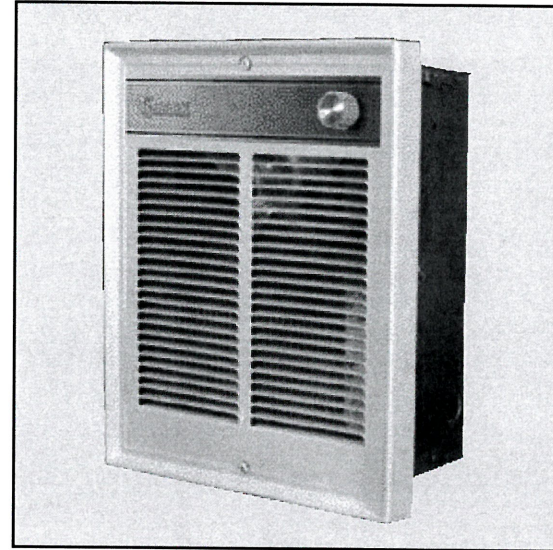
The heater may be wired with standard building wire (60°C). Refer to specification chart for correct supply voltage and wire size.

Built-in snap action thermostat (no radio/TV interference; 40° - 85°F).

A hole plug is provided for tamper resistant installations.

Includes Built-In Disconnect Switch.

Northern White powder paint finish.



File #E21609

### SELECTION CHART

CATALOG NO.	VOLTS	AMPS	WATTS	BTU/HR	WIRE SIZE
CWH1101DS	120	8.4	1000	3413	14AWG
		4.2	500	1706	
CWH1151DS	120	12.5	1500	5120	12AWG
		6.25	750	2560	
CWH1201DS	120	15	1800	6143	12 AWG
		8.4	2000	6826	
CWH1202DS	240	4.2	1000	3413	14AWG
		7.3	1500	5120	
CWH1207DS	277	3.61	750	2560	14AWG
		7.3	2000	6826	
CWH1157DS	240	3.2	750	2560	14AWG
		6.25	1500	5120	
CWH1157DS	277	5.5	1500	5120	14AWG
		2.75	750	2560	
CWH1208DS	208	4.7	1125	3840	14AWG
		2.35	562	1920	
CWH1208DS	208	9.6	2000	6826	14AWG
		4.8	1000	3413	

### MOUNTING LIMITATIONS

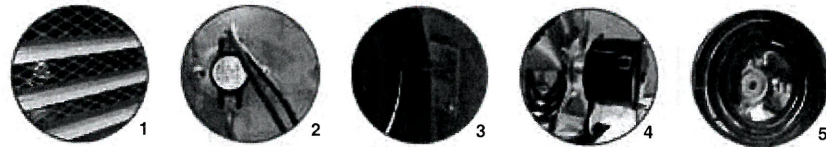
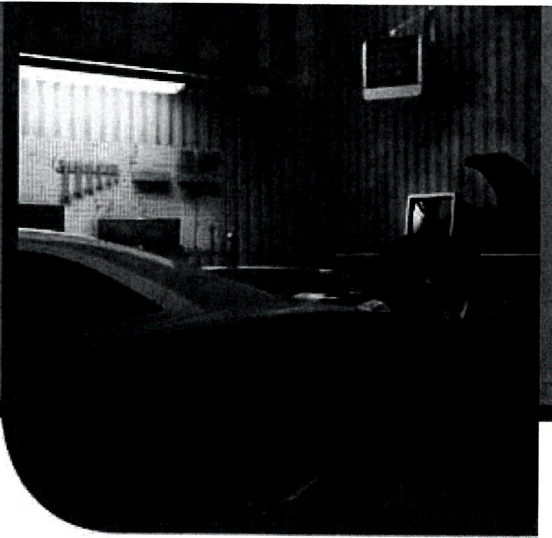
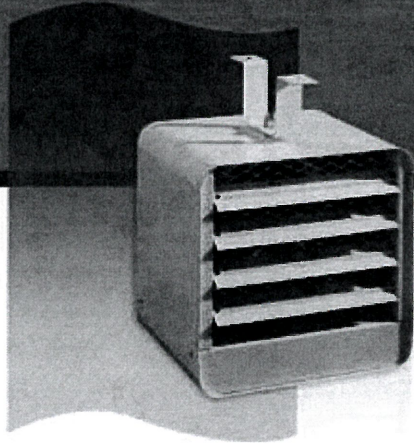
1. Do not install heater closer than 4" from floor.
2. Do not install heater behind towel rack, behind door, in floor, in ceiling, in closet, or where air flow may be obstructed.
3. Requires 3 wires if remote thermostat is desired.

### ACCESSORIES

CAT. NO.	DESCRIPTION
CWHSM	Surface Mounting Frame (Accessory). Order separately. 12 1/2" H x 10 3/8" W x 4" D.
CWHS1	1" Semi-Recess Mounting Frame, 12 1/2" H x 10 3/8" W x 1" D.
CWHS2	2" Semi-Recess Mounting Frame, 12 1/2" H x 10 3/8" W x 2" D.

# EGW

## Economical Unit Heater



### Features

#### Color

- Standard: almond.

#### Finish

- Standard: epoxy/polyester powder paint.

#### Voltage

- 240/208V, 1-phase.

#### Construction

- 20-gauge steel.
- Adjustable louvers to control warm air flow. 1
- High-limit temperature control with automatic reset. 2
- Electrical insulating mica plates. 3

#### Fan

- 300 cfm fan (51 dBA).
- Totally enclosed factory-lubricated motor. 4

#### Heating element

- Stainless steel tubular heating element. 5

#### Control

- Built-in thermostat included.

#### Installation

- Mounting brackets for ceiling or wall installation included.
- Mounting brackets allow 360° rotation of the unit.

#### Warranty

- 1-year warranty against defects.

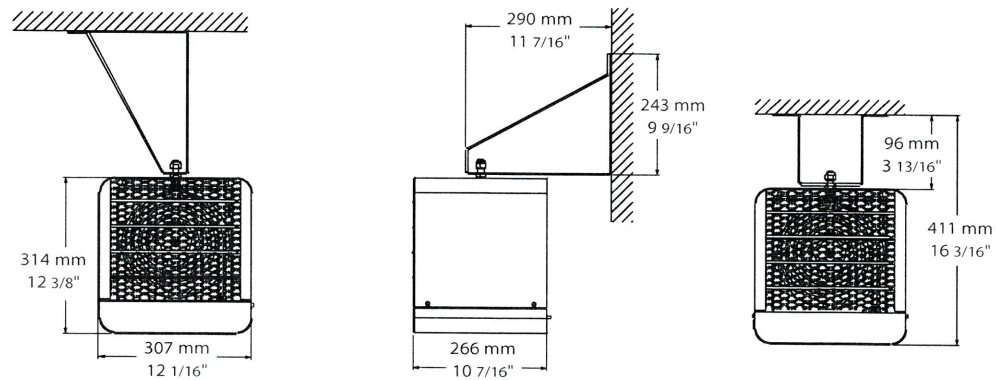
#### Application

- Garage, workshop.

	Size	2	3	5
Heating Capacity	@208/1	Watts 1500	2250	3750
		BTUH 5118	7677	12795
	@240/1	Watts 2000	3000	5000
		BTUH 6824	10236	17060
Ship Weight	Lbs	20	20	20
	Kg	9.1	9.1	9.1

*EUH-1*

Built-in thermostat and mounting brackets included.  
Standard color is almond.



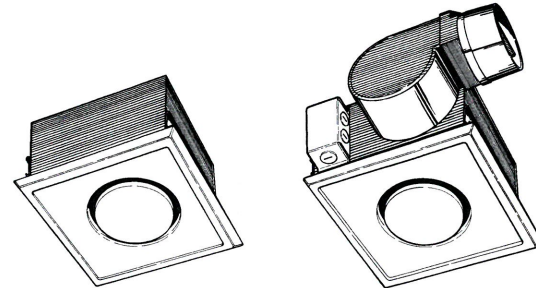


\*not shown on plan yet. RH-1 EVERY RESIDENT'S BATHROOM " BATHER.

**BROAN**

**SPECIFICATION SHEET**

**MODELS 161 & 162  
INFRARED  
BULB HEATERS**



Silent warmth and the choice of added ventilation in a compact design.

**FEATURES**

- White-white polymeric grille
- Sturdy steel housing
- Adjustable mounting brackets that span up to 24"
- Housing can be adjusted vertically after ceiling is finished
- Uses 250W BR40-size infrared bulb (not included)
- May be used with the following Broan controls:  
Model 59W/V, 60-Minute Time Control  
Model 61W/V, 15-Minute Time Control  
Model 63W/V, 60-Minute Time Control w/ Toggle Switch  
Model 64W/V, Heater-Fan Control w/Off Delay  
Model 68W/V, Two-Function Control (Model 162 only)

**MODEL 162 BULB HEATER/FAN ONLY:**

- Plug-in, permanently lubricated motor
- Quiet, polymeric blower wheel
- Polymeric damper/duct connector with 1-5/8" long tapered sleeve and no metallic clatter
- Heat and Vent functions may be controlled separately or in combination
- Model 162 suitable for use in insulated ceilings (Type I.C.)
- **Model 162H:** Rough-in housing for Model 162F. Packed 4 per carton.
- **Model 162F:** Finish assembly for Model 162H. Packed 4 per carton.

**SPECIFICATIONS**

MODEL	VOLTS	AMPS	WATTS*	SONES	CFM	DUCT
161	120	2.1	250**	---	---	---
162	120	2.5	300**	3.5	70	4" Round

\* Total Connected Load

\*\* BR40-size Infrared Bulbs. Use house wiring rated 75°C min. for Model 161, 60°C min. for Model 162.



HVI-2100 CERTIFIED RATINGS comply with new testing technologies and procedures prescribed by the Home Ventilating Institute, for off-the-shelf products, as they are available to consumers. Product performance is rated at 0.1 in. static pressure, based on tests conducted in AMCA's state-of-the-art test laboratory. Sones are a measure of humanly-perceived loudness, based on laboratory measurements.

**TYPICAL SPECIFICATION**

Bulb heater shall be Broan Model 161 (Broan Model 162).

Heater shall have corrosion resistant steel housing and adjustable mounting brackets.

Unit must use a 250W BR40-size infrared bulb. Bulb Heater to be U.L. Listed.

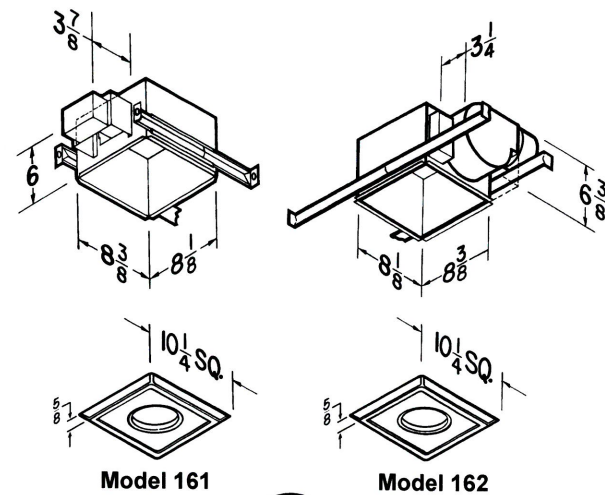
**MODEL 162 BULB HEATER/FAN ONLY:**

Motor assembly to be removable and permanently lubricated.

Non-metallic damper/duct connector to be included.

Heater and ventilator to operate separately (or in combination).

Air delivery shall be no less than 70 CFM and sound level no greater than 3.5 Sones. All air and sound ratings shall be certified by HVI. Model 162 suitable for use in insulated ceilings (Type I.C.)



Broan-NuTone LLC, 926 West State Street, Hartford, WI 53027 (1-800-637-1453)

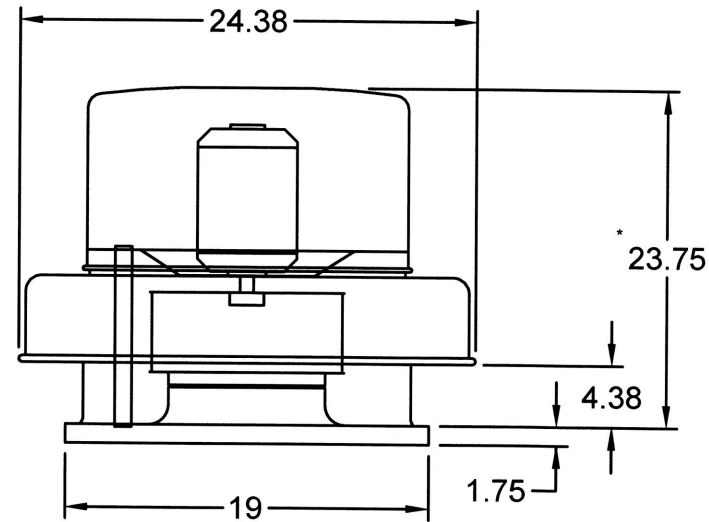
REFERENCE	QTY.	REMARKS	Project
			Location
			Architect
			Engineer
			Contractor
			Submitted by Date

**Model: G-123-A**  
Direct Drive Centrifugal Roof Exhaust Fan

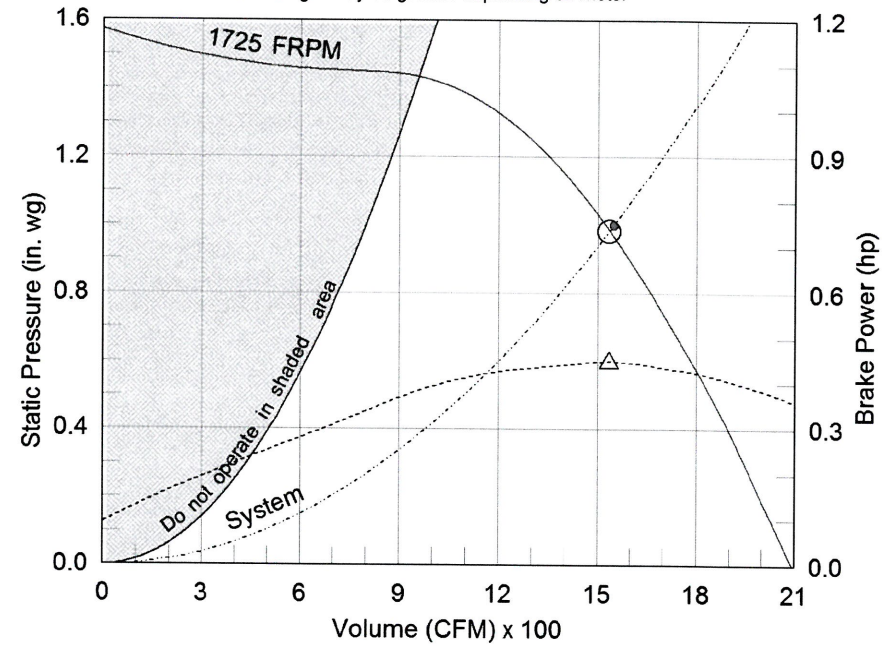
Dimensional	
Quantity	1
Weight w/o Acc's (lb)	58
Weight w/ Acc's (lb)	61
Max T Motor Frame Size	56
Roof Opening (in.)	14.5 x 14.5

Performance	
Requested Volume (CFM)	1,550
Actual Volume (CFM)	1,536
External SP (in. wg)	1
Total SP (in. wg)	0.982
Fan RPM	1725
Operating Power (hp)	0.45
Elevation (ft)	3,084
Airstream Temp.(F)	70
Air Density (lb/ft3)	0.067
Tip Speed (ft/min)	5,899
Static Eff. (%)	53

Motor	
Motor Mounted	Yes
Size (hp)	1/2
Voltage/Cycle/Phase	115/60/1
Enclosure	ODP
Motor RPM	1725
Windings	1
NEC FLA* (Amps)	9.8



\*Overall height may be greater depending on motor



△ Operating Bhp point	External SP	1 in. wg
○ Operating point at Total SP	Direct Drive RPM Adjustment	-0.018 in. wg
● Operating point at External SP	Total SP	0.982 in. wg
— Fan curve		
- - - System curve		
- - - Brake horsepower curve		

**Sound Power by Octave Band**

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
Inlet	73	74	82	76	66	67	63	60	78	66	14.6

**Notes:**

All dimensions shown are in units of in.  
\*NEC FLA - based on tables 430.248 or 430.250 of National Electrical Code 2014. Actual motor FLA may vary, for sizing thermal overload, consult factory.  
LwA - A weighted sound power level, based on ANSI S1.4  
dBA - A weighted sound pressure level, based on 11.5 dB attenuation per Octave band at 5 ft - dBA levels are not licensed by AMCA International  
Sones - calculated using AMCA 301 at 5 ft





ERV-~~10~~<sup>2</sup> M.C.

**ERV-10-20L**  
**PERFORMANCE AND SPECIFICATIONS**

**Description/Arrangement**

Model	Qty	Unit Weight (lb)	Outdoor Air Discharge	Outdoor Air Intake	Exhaust Air Discharge	Return Air Intake
ERV-10-20L	1	263	End	End	End	End

**Design Conditions**

Elevation (ft)	Summer DB (F)	Summer WB (F)	Winter DB (F)
3,084	93	64	5

**Air Performance**

Type	Volume (CFM)	External SP (in. wg)	Total SP (in. wg)	RPM	Operating Power (hp)	Motor Size (hp)
Supply	395	0.5	0.527	821	0.05	1/3
Exhaust Normal	595	0.5	0.561	1038	0.11	1/3

**Electrical/Motor Specifications**

V/C/P	Unit MCA (amps)	Unit MOP (amps)	Enclosure	Supply Motor RPM	Supply Efficiency	Exhaust Motor RPM	Exhaust Efficiency
208/60/1	9	15	ODP	1625	SE	1625	SE

**Unit Pressure Drop (in. wg)**

Air Stream	Weatherhood	Damper Section	Filter Section	Cooling Section	Heating Section
Supply	0	0	0.024	N/A	N/A
Exhaust	0	0	0.054	N/A	N/A

Note: The unit base line performance incorporates the pressure drop of the energy wheel.

Note: Filter pressure drop is based off of clean filters.

ERV-3 M.C.

**ERV-10-20L**

**PERFORMANCE AND SPECIFICATIONS**

**Description/Arrangement**

Model	Qty	Unit Weight (lb)	Outdoor Air Discharge	Outdoor Air Intake	Exhaust Air Discharge	Return Air Intake
ERV-10-20L	1	263	End	End	End	End

**Design Conditions**

Elevation (ft)	Summer DB (F)	Summer WB (F)	Winter DB (F)
3,084	93	64	5

**Air Performance**

Type	Volume (CFM)	External SP (in. wg)	Total SP (in. wg)	RPM	Operating Power (hp)	Motor Size (hp)
Supply	395	0.5	0.527	821	0.05	1/3
Exhaust Normal	570	0.5	0.556	1005	0.1	1/3

**Electrical/Motor Specifications**

V/C/P	Unit MCA (amps)	Unit MOP (amps)	Enclosure	Supply Motor RPM	Supply Efficiency	Exhaust Motor RPM	Exhaust Efficiency
208/60/1	9	15	ODP	1625	SE	1625	SE

**Unit Pressure Drop (in. wg)**

Air Stream	Weatherhood	Damper Section	Filter Section	Cooling Section	Heating Section
Supply	0	0	0.024	N/A	N/A
Exhaust	0	0	0.05	N/A	N/A

Note: The unit base line performance incorporates the pressure drop of the energy wheel.

Note: Filter pressure drop is based off of clean filters.



ERV-1 (ALF)

**Minivent-750**  
**PERFORMANCE AND SPECIFICATIONS**

**Description/Arrangement**

Model	Qty	Unit Weight (lb)	Side A Discharge	Side A Intake	Side B Discharge	Side B Intake
Minivent-750	1	240	Side	Side	Side	Side

**Design Conditions**

Elevation (ft)	Summer DB (F)	Summer WB (F)	Winter DB (F)
108	91	69	24

**Air Performance**

Type	Volume (CFM)	External SP (in. wg)	Total SP (in. wg)	RPM	Motor Size (hp)
Supply	575	0.5	0.5	1170	1/3
Exhaust Normal	600	0.5	0.5	1204	1/3

**Electrical/Motor Specifications**

V/C/P	Unit MCA (amps)	Unit MOP (amps)	Enclosure	Motor RPM	Supply Efficiency
115/60/1	18.3	25	ODP	1625	SE

## Performance Summary For 3T

Project: ~~Breakside Brewery~~  
Prepared By:

RTU-235

05/06/2016  
09:51AM

**Power Exhaust:** **(Fan Data Includes Drop)**  
 Total Application Static (ESP + Unit Opts/Acc.): 1.54 in wg  
 Fan RPM: 1198  
 Fan Power: 0.93 BHP  
 NOTE: Selected IFM RPM Range: 1035 - 1466

**Power Exhaust**  
 Return Duct Static: 0.20 in wg  
 Max. Air To Exhaust: 1050 CFM

**Electrical Data** 208/3P

Voltage Range:	187 - 253
Compressor #1 RLA:	10.4
Compressor #1 LRA:	73
Indoor Fan Motor Type:	HIGH
Indoor Fan Motor FLA:	6.9
Combustion Fan Motor FLA (ea):	0.48
Power Supply MCA:	23 ✓
Power Supply MOCP (Fuse or HACR):	30 ✓
Disconnect Size FLA:	23
Disconnect Size LRA:	134
Electrical Convenience Outlet:	None
Power Exhaust [Kit Qty / FLA(ea kit)]:	1 / 1.9
Outdoor Fan [Qty / FLA (ea)]:	1 / 1.0

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

Indoor Fan Motor FLA:	8.4
Power Supply MCA:	25
Power Supply MOCP (Fuse or HACR):	30
Disconnect Size FLA:	25
Disconnect Size LRA:	149

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

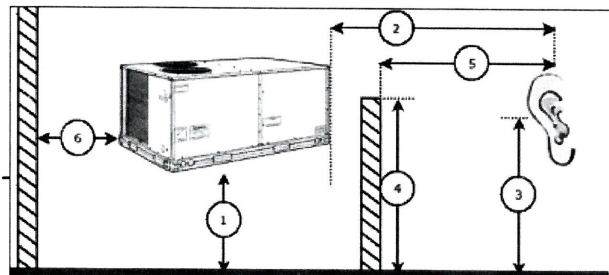
Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

**Acoustics**

Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	88.3	88.5	78.2
125 Hz	81.9	79.4	78.0
250 Hz	72.6	65.2	74.2
500 Hz	68.3	63.4	73.3
1000 Hz	64.7	62.5	70.6
2000 Hz	59.7	56.3	66.0
4000 Hz	61.3	51.6	62.4
8000 Hz	56.2	44.3	56.9
A-Weighted	72.4	69.0	76.0

**Advanced Acoustics**





## Performance Summary For 5T

Project: Breakside Brewery  
 Prepared By:

RTM-9 310

04/27/2016  
 02:25PM

Economizer: 0.12 in wg  
 Power Exhaust: (Fan Data Includes Drop)  
 Total Application Static (ESP + Unit Opts/Acc.): 1.62 in wg  
 Fan RPM: 1605  
 Fan Power: 2.08 BHP  
 NOTE: Selected IFM RPM Range: 1303 - 1687

### Power Exhaust

Return Duct Static: 0.20 in wg  
 Max. Air To Exhaust: 1050 CFM

### Electrical Data

208/3φ

Voltage Range: 187 - 253  
 Compressor #1 RLA: 15.9  
 Compressor #1 LRA: 110  
 Indoor Fan Motor Type: HIGH  
 Indoor Fan Motor FLA: 8.4  
 Combustion Fan Motor FLA (ea): 0.48  
 Power Supply MCA: 32 —  
 Power Supply MOCP (Fuse or HACR): 45 —  
 Disconnect Size FLA: 32  
 Disconnect Size LRA: 187  
 Electrical Convenience Outlet: None  
 Power Exhaust [Kit Qty / FLA(ea kit)]: 1 / 1.9  
 Outdoor Fan [Qty / FLA (ea)]: 1 / 1.4

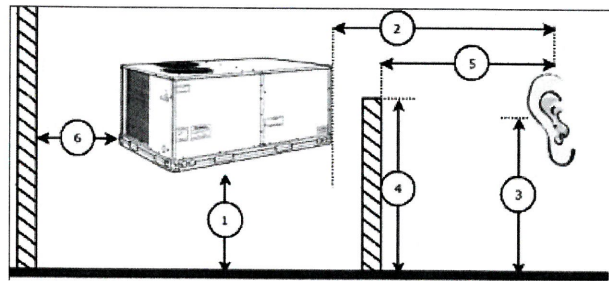
### Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

### Acoustics

Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	91.9	90.4	87.5
125 Hz	87.2	84.1	82.5
250 Hz	80.9	71.9	76.1
500 Hz	76.0	68.1	73.6
1000 Hz	72.1	67.1	71.3
2000 Hz	67.0	61.6	67.1
4000 Hz	68.6	57.6	64.1
8000 Hz	65.0	51.2	60.0
A-Weighted	79.4	73.4	77.0

### Advanced Acoustics



### Advanced Acoustics Parameters

1. Unit height above ground: 30.0 ft  
 2. Horizontal distance from unit to receiver: 50.0 ft

## Performance Summary For 4T

Project: Breakside Brewery  
 Prepared By:

RTU-1, 3, 6, 8

04/27/2016  
 02:25PM

Economizer: 0.07 in wg  
 Power Exhaust: (Fan Data Includes Drop)  
 Total Application Static (ESP + Unit Opts/Acc.): 1.57 in wg  
 Fan RPM: 1473  
 Fan Power: 1.40 BHP  
 NOTE: Selected IFM RPM Range: 1208 - 1639

### Power Exhaust

Return Duct Static: 0.20 in wg  
 Max. Air To Exhaust: 1050 CFM

### Electrical Data 208/3φ

Voltage Range: 187 - 253  
 Compressor #1 RLA: 13.7  
 Compressor #1 LRA: 83  
 Indoor Fan Motor Type: HIGH  
 Indoor Fan Motor FLA: 8.4  
 Combustion Fan Motor FLA (ea): 0.48  
 Power Supply MCA: 29  
 Power Supply MOCP (Fuse or HACR): 40  
 Disconnect Size FLA: 29  
 Disconnect Size LRA: 160  
 Electrical Convenience Outlet: None  
 Power Exhaust [Kit Qty / FLA(ea kit)]: 1 / 1.9  
 Outdoor Fan [Qty / FLA (ea)]: 1 / 1.4

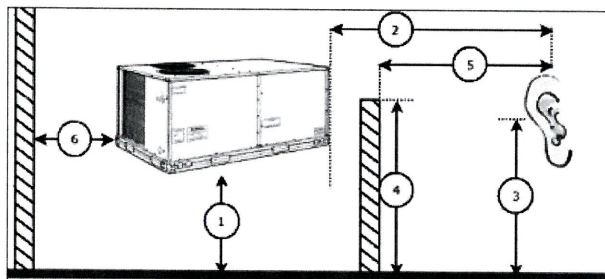
**Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage**

### Acoustics

Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	89.5	89.0	84.7
125 Hz	84.3	81.5	83.6
250 Hz	76.7	68.4	77.1
500 Hz	72.1	65.5	74.6
1000 Hz	68.5	64.7	72.3
2000 Hz	63.3	58.7	68.3
4000 Hz	65.2	54.5	64.7
8000 Hz	60.8	47.4	60.9
A-Weighted	75.8	70.9	78.0

### Advanced Acoustics



### Advanced Acoustics Parameters

1. Unit height above ground: 30.0 ft  
 2. Horizontal distance from unit to receiver: 50.0 ft



RM-4

### Performance Summary For 10 ton

Project: MFIA - Redmond ALF and Memmory Care  
 Prepared By:

07/14/2016  
 11:25AM

Voltage Range:	187 - 253
Compressor #1 RLA:	13.1
Compressor #1 LRA:	83
Compressor #2 RLA:	19.6
Compressor #2 LRA:	136
Indoor Fan Motor Type:	MED
Indoor Fan Motor FLA:	10.8
Combustion Fan Motor FLA (ea):	0.48
Power Supply MCA:	58
Power Supply MOCP (Fuse or HACR):	70
Disconnect Size FLA:	61
Disconnect Size LRA:	306
Electrical Convenience Outlet:	None
Power Exhaust [Kit Qty / FLA(ea kit)]:	1 / 3.8
Outdoor Fan [Qty / FLA (ea)]:	3 / 1.8

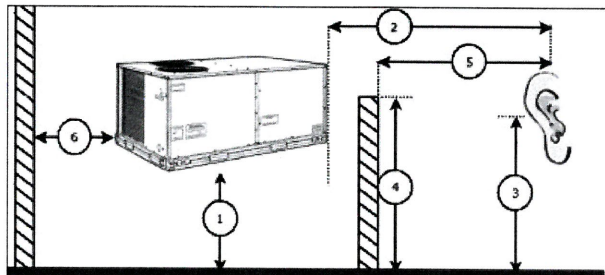
Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

#### Acoustics

Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	96.6	93.5	89.3
125 Hz	93.4	85.6	86.0
250 Hz	78.3	68.1	82.9
500 Hz	73.0	65.6	80.7
1000 Hz	68.1	63.2	78.5
2000 Hz	65.2	59.0	73.6
4000 Hz	69.4	59.1	69.6
8000 Hz	69.3	57.6	64.5
A-Weighted	80.5	73.3	83.0

#### Advanced Acoustics



#### Advanced Acoustics Parameters

1. Unit height above ground:	30.0	ft
2. Horizontal distance from unit to receiver:	50.0	ft
3. Receiver height above ground:	5.7	ft
4. Height of obstruction:	0.0	ft
5. Horizontal distance from obstruction to receiver:	0.0	ft
6. Horizontal distance from unit to obstruction:	0.0	ft

#### Detailed Acoustics Information

**PRODUCT SPECIFICATIONS**

**VTH MODEL SPECIFICATIONS—COOLING/ELECTRIC HEAT**

**ELECTRICAL DATA (208/240V-1 PH-60HZ) VTHP-1 & 2**

MODEL	ELECTRIC HEAT DATA						ELOWER DATA		CONDENSER DATA				MIN. CIRCUIT AMPS		MAX. CIRCUIT PROTECTION		SHIP WGT (LEs)
	kW		ETU/H		HEATING AMPS		EVAPORATOR MOTOR		COMPRESSOR		MOTOR		208V	230V	208V	230V	
	240V	208V	240V	208V	240V	208V	AMPS	HP	RLA	LRA	FLA	HP					
VTH093E	2	1.5	6800	5,100	9	7.9							10	12	15	15	245
	3	2.3	10,200	7,700	13.2	11.5	0.7	½	4.5	25	0.5	⅓ <sub>15</sub>	15	17	15	20	
	4	3	13,600	10,200	17.4	15.1							19	22	20	25	
VTH123E	2	1.5	6800	5,100	9	7.9							10	12	15	15	245
	3	2.3	10,200	7,700	13.2	11.5	0.7	½	5.6	29	0.5	⅓ <sub>15</sub>	15	17	15	20	
	4	3	13,600	10,200	17.4	15.1							19	23	20	25	
VTH183E	2	1.5	6,800	5,100	9.2	8.1							13	13	20	20	255
	3	2.3	10,200	7,700	13.4	11.7							15	17	20	20	
	4	3	13,600	10,200	17.5	15.3							20	22	25	25	
	5	3.8	17,000	12,800	22	19	0.9	¾	6.5	43	0.7	⅓ <sub>10</sub>	24	28	25	30	
	6	4.5	20,500	15,350	26	23							29	33	30	35	
	8	6	27,300	20,500	34	30							38	43	40	45	
VTH243E	3	2.3	10,200	7,700	14	12.3							20	20	30	30	255
	4	3	13,600	10,200	18.2	15.9							22	24	30	30	
	5	3.8	17,000	12,800	22	20							26	29	30	30	
	6	4.5	20,500	15,350	27	23	2.6	¾	11.5	54	2.3	¾	31	35	35	40	
	8	6	27,300	20,500	35	30							40	45	40	50	
	10	7.5	34,100	25,600	43	38							49	55	50	60	

**IMPORTANT:**

- Heat pump does not operate simultaneously with electric heat.
- Electrical data in the aEove taEle only applies to units manufactured after 8/1/2000 (data code G08). Contact factory for electrical data for units manufactured prior to 8/1/2000.
- Compressors in these models (after 8/1/2000) do not operate simultaneously with heater elements.
- Models manufactured Eefore 8/1/2000 (excluding the VTH24-HP) did feature simultaneous operation and therefore had higher circuit ampacities.

**PERFORMANCE DATA**

MODEL	COOLING DATA		HEATING DATA <sup>2</sup>		
	BTU/H	EER	BTU/H	WATTS	COP
VTH093E	8,900	9.0	8,500	795	3.0
VTH123E	11,400	9.0	11,500	1,001	3.0
VTH183E	17,400	9.0	16,700	1,582	3.0
VTH243E	22,600	9.0	22,400	1,967	3.0

<sup>1</sup> Tested in accordance with ARI Standard 310/380-93 at 95°F DB/75°F WB outdoors and 80°F DB/67°F WB indoors.

<sup>2</sup> 47°F DB, 43°F WB Outdoor/70°F DB, 60°F WB Indoor



PTHP-1 (ALFSTUDIOS)

### Product Specifications: PTC / PTH Models — Electric Heat Performance

(Primary Heating for PTC Models; Auxiliary Heating for PTH Models; See below for Power Cord Configuration)

VOLTAGE	ELECTRIC HEATER SIZE (kW)	NO. OF STAGES	NOMINAL HEATING (BTU/h)			TOTAL WATTS <sup>6</sup>	TOTAL AMPS	MIN. CIRCUIT AMPACITY <sup>2</sup>	MOP <sup>4</sup> (AMPS)	POWER CORD
			@ 230V	@ 208V	@ 265V					
230/208V	1.5 / 1.3	1	5,100	4,200	--	1,570 / 1,295	6.8 / 6.2	8.5	15	6-15 P
230/208V	2.5 / 2.1	1	8,500	6,800	--	2,570 / 2,115	11.2 / 10.1	14.1	15	6-15 P
230/208V	3.5 / 3.0	1	12,000	9,900	--	3,570 / 2,935	15.5 / 14.1	19.5	20	6-20 P
230/208V	5.0 / 4.1	1	17,100	14,000	--	5,070 / 4,160	22.1 / 20.0	27.6	30	6-30 P
265V	1.5	1	--	--	5,100	1,570	5.9	7.4	15	7-20P
265V	2.5	1	--	--	8,500	2,570	9.7	12.2	15	7-20 P
265V	3.7	1	--	--	12,600	3,770	14.2	17.9	20	7-20 P
265V	5	1	--	--	17,100	5,070	19.2	23.9	25	7-30 P

**NOTES**

- <sup>1</sup> All 265-volt models must use an Amana® brand sub-base (PTSB4\*\*E) or an Amana® brand hard-wire kit (PTPWHWK4).
- <sup>2</sup> Minimum branch circuit ampacity ratings conform to the National Electric Code; however, local codes should apply.
- <sup>3</sup> Minimum voltage on 230/208-volt models is 197 volts; maximum is 253 volts. Minimum voltage on 265-volt models is 239 volts; maximum is 292 volts.
- <sup>4</sup> Overcurrent protection for all units without electric heaters is 15 amps. Overcurrent protection on 265-volt models must be cartridge-style time-delay fuses (included and factory-installed on all Amana® brand 265-volt chassis).
- <sup>5</sup> Heating capacity and efficiency based on unit operation without condensate pump; unit automatically switches to electric heat at approximately 24°F outdoor ambient.
- <sup>6</sup> Total watts for 15,000 BTU/h models; subtract 20 watts for PT07/09/12
- <sup>7</sup> Specify two-digit heater kW size to complete model number.
- <sup>8</sup> R-410A refrigerant used in all systems.
- <sup>9</sup> All units meet or exceed ASHRAE 90.1 standards.
- <sup>10</sup> All units less than 250 volts have a Leak Current Detector Interrupter (LCDI) power cord and meet UL 484 standards.

## 10. Electric Characteristics

Unit Combination		Power Supply				Compressor		OFM		IFM	
Indoor Unit	Outdoor Unit	Hz - Volts	Voltage Range	MCA	MFA	RHz	RLA	W	FLA	W	FLA
FTK09NMVJU	RK09NMVJU	60 - 208	Min. 187 V Max. 253 V	12.1	15	64	6.8	14	0.13	21	0.20
		60 - 230									
FTK12NMVJU	RK12NMVJU	60 - 208	Min. 187 V Max. 253 V	12.2	15	88	7.5	18	0.15	28	0.23
		60 - 230									
FTK18NMVJU	RK18NMVJU	60 - 208	Min. 187 V Max. 253 V	18.3	20	70	10.0	69	0.45	46	0.30
		60 - 230									
FTK24NMVJU	RK24NMVJU	60 - 208	Min. 187 V Max. 253 V	18.3	20	92	12.0	58	0.38	46	0.30
		60 - 230									
FTX09NMVJU	RX09NMVJU	60 - 208	Min. 187 V Max. 253 V	12.1	15	88	8.5	14	0.13	21	0.20
		60 - 230									
FTX12NMVJU	RX12NMVJU	60 - 208	Min. 187 V Max. 253 V	12.2	15	96	8.5	18	0.15	28	0.23
		60 - 230									
FTX18NMVJU	RX18NMVJU	60 - 208	Min. 187 V Max. 253 V	18.3	20	90	10.8	69	0.45	46	0.30
		60 - 230									
FTX24NMVJU	RX24NMVJU	60 - 208	Min. 187 V Max. 253 V	18.3	20	96	12.0	58	0.38	46	0.30
		60 - 230									

### Symbols:

MCA	: Min. circuit amps (A)
MFA	: Max. fuse amps (A)
RHz	: Rated operating frequency (Hz)
RLA	: Rated load amps (A)
OFM	: Outdoor fan motor
IFM	: Indoor fan motor
W	: Fan motor rated output (W)
FLA	: Full load amps (A)

### Notes:

1. RHz is the max frequency that comes in cooling operation and heating operation.
2. RLA is the max current that comes in cooling operation and heating operation.
3. Maximum allowable voltage variation between phases is 2%.
4. Select wire size based on the larger value of MCA.
5. Instead of a fuse, use a circuit breaker.
6. Be sure to install a ground leak detector.  
(This unit uses an inverter, which means that a ground leak detector capable of handling high harmonics must be used in order to prevent malfunctioning of the ground leak detector.)

3D093165



OAC-5  
OAC-4  
OAC-2

OAC-3  
OAC-1

OAC-10  
OAC-9  
OAC-8  
OAC-7

OUTDOOR UNITS					
MODEL NAME		2MXS18NMVJU	3MXS24NMVJU	4MXS36NMVJU	RMXS48LVJU
Cooling Capacity (Rated - Max)	BTU/h	18,000-21,000	24,000-30,000	36,000-38,000	48,000
Heating Capacity (Rated - Max)	BTU/h	18,900-25,000	24,000-36,000	36,000-43,000	54,000
Max Connected Capacity	BTU/h	24,000	39,000	48,000	62,400
Min-Max No. of Indoor Units	Connections	2	2-3	2-4	2-8
Sound Pressure (Cooling/Heating)	dB(A)	50/51	52/54	52/54	57/58
Operating Range - Cooling	°F DB	14 - 115	14 - 115	14 - 115	14 - 115
Operating Range - Heating		5 - 75	5 - 75	5 - 75	5 - 75
Operating Range - Heating with Drain Pan Heater	°F DB	-4 - 75	-4 - 75	-4 - 75	-4 - 75
PIPING DIMENSIONS					
Max. Length (for all rooms)	ft.	164	230	230	433
Max. Length (for one room)	ft.	82	82	82	82
Max. Piping Height	ft.	49.2	49.2	49.2	98.4
ELECTRICAL DATA					
Power Supply	V/Ph/Hz	208-230/1/60	208-230/1/60	208-230/1/60	208-230/1/60
Minimum Circuit Amps	A	15.8	18.7	19.8	27
Max. Overcurrent Protection	A	20	20	20	30
Dimensions (H x W x D)	in.	29 x 34 $\frac{3}{4}$ x 12 $\frac{3}{4}$	29 x 34 $\frac{3}{4}$ x 12 $\frac{3}{4}$	29 x 34 $\frac{3}{4}$ x 12 $\frac{3}{4}$	52 $\frac{1}{16}$ x 35 $\frac{1}{16}$ x 12 $\frac{3}{4}$
Net Weight	lbs.	128	132	137	129
SEER/ EER	Non-Ducted	18.9/ 12.5	17.9/ 12.7	17.7/ 9.2	18.8/ 10.3
	Mixed	16.5/ 11.0	15.9/ 11.2	15.9/ 8.5	16.5/ 9.8
	Ducted	14.0/ 9.5	14.0/ 9.7	14.0/ 7.9	14.1/ 9.3
HSPF/ COP	Non-Ducted	10.7/ 4.1	12.5/ 4.6	12.2/ 4.5	11.3/ 3.0
	Mixed	9.5/ 4.1	10.4/ 3.2	10.2/ 3.4	16.5/ 2.9
	Ducted	8.2/ 4.1	8.2/ 3.9	8.2/ 3.9	14.1/ 2.7

INDOOR WALL-MOUNTED UNITS							
Model Name		CTXS07LVJU	FTXS09LVJU	FTXS12LVJU	FTXS15LVJU	FTXS18LVJU	FTXS24LVJU
Outdoor Unit Compatibility		2MXS18NMVJU 3MXS24NMVJU 4MXS36NMVJU RMXS48LVJU	2MXS18NMVJU 3MXS24NMVJU 4MXS36NMVJU RMXS48LVJU	2MXS18NMVJU 3MXS24NMVJU 4MXS36NMVJU RMXS48LVJU	2MXS18NMVJU 3MXS24NMVJU 4MXS36NMVJU RMXS48LVJU	3MXS24NMVJU 4MXS36NMVJU RMXS48LVJU	4MXS36NMVJU RMXS48LVJU
Airflow-Wet (H/M/L/SL)	CFM	332/261/ 194/145	381/279/ 194/145	403/307/ 205/155	568/477/ 385/360	583/484/ 385/360	643/494/ 350/328
Airflow-Dry (H/M/L/SL)	CFM	350/290/ 233/219	420/321/ 233/219	438/335/ 240/212	593/505/ 417/371	625/526/ 431/399	699/572/ 445/403
Sound Pressure - Cooling (H/M/L/SL)	dB(A)	38/32/25/22	41/33/25/22	45/37/29/23	45/40/35/32	46/41/36/33	51/44/37/34
Sound Pressure - Heating (H/M/L/SL)	dB(A)	38/33/28/25	42/35/28/25	45/39/29/26	43/38/33/30	45/40/35/32	48/42/37/34
Piping Connections	Liquid (O.D.)	in.	Ø 1/4	Ø 1/4	Ø 1/4	Ø 1/4	Ø 1/4
	Gas (O.D.)	in.	Ø 3/8	Ø 3/8	Ø 3/8	Ø 1/2	Ø 5/8
	Condensate Drain	in.	Ø 5/8	Ø 5/8	Ø 5/8	Ø 5/8	Ø 5/8
Dimensions (H x W x D)	in.	11 $\frac{1}{8}$ x 31 $\frac{1}{2}$ x 8 $\frac{7}{16}$			13 $\frac{1}{8}$ x 41 $\frac{1}{8}$ x 9 $\frac{1}{8}$		
Net Weight	lbs.	20	20	22	31	31	31



**Submittal Data Sheet**

Branch Provider Box (3 Port)

BPMKS049A3U

BP 7.1 & 7.2  
8.1 & 8.2  
9.1 & 9.2  
10.1 & 10.2

**PERFORMANCE**

Indoor Unit Model No.	BPMKS049A3U	Indoor Unit Name:	Branch Provider Box (3 Port)
Type:		Rated Cooling Conditions:	Indoor (°F DB/WB): / Ambient (°F DB/WB): /
Rated Cooling Capacity (Btu/hr):	48,000	Rated Heating Conditions:	Indoor (°F DB/WB): / Ambient (°F DB/WB): /
Sensible Capacity (Btu/hr):		Rated Piping Length(ft):	
Cooling Input Power (kW):	0.000	Rated Height Separation (ft):	
Heating Input Power (kW):	0.00		

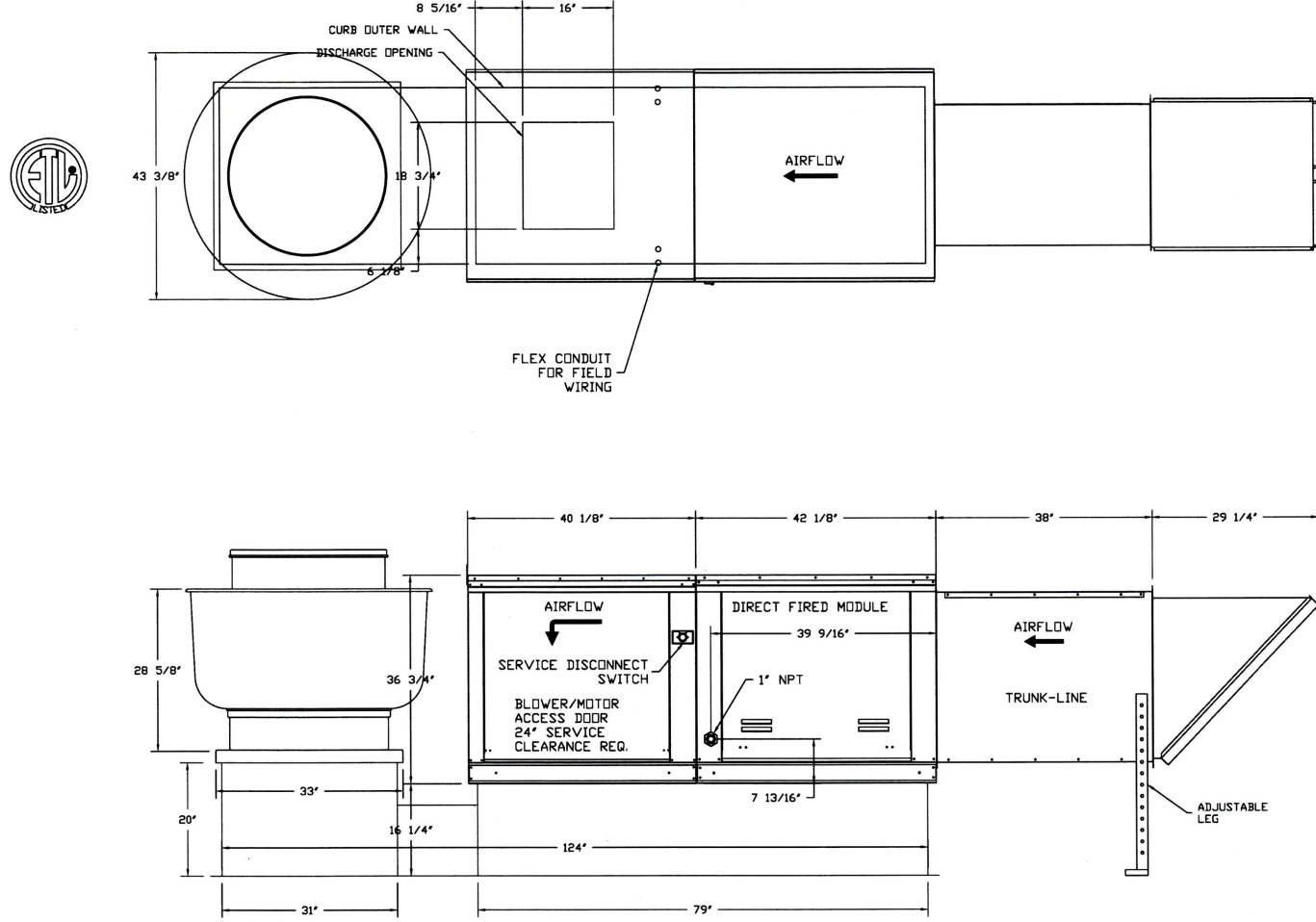
**INDOOR UNIT DETAILS**

Power Supply (V/Hz/Ph):	208-230 / 60 / 1	Airflow Rate ( ) (CFM):	
Power Supply Connections:	L1, L2, Ground	Moisture Removal (Gal/hr):	
Min. Circuit Amps MCA (A):	0.10	Gas Pipe Connection (inch):	5/8
Max Overcurrent Protection (MOP) (A):	15.00	Liquid Pipe Connection (inch):	1/4
Dimensions (HxWxD) (in):	7-1/16 x 11-9/16 x 13-3/4	Condensate Connection (inch):	
Panel (HxWxD) (in):		Sound Pressure (H) (dBA):	32
Net Weight (lb):	20	Sound Power Level (dBA):	32
Panel Weight (lb):		Ext. Static Pressure (Rated/Max) (inWg):	0.00 / 0.00

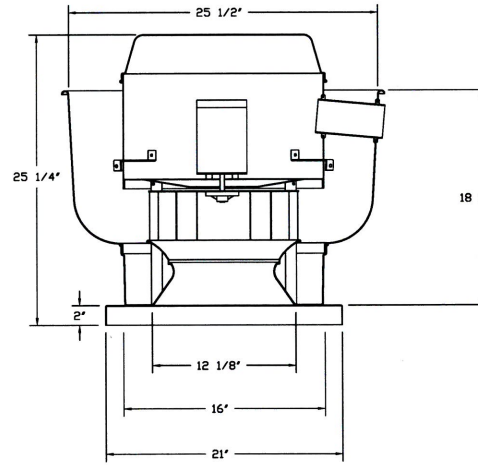


FAN #1 NRTP-B-A2-D250-G15-NCA24HPFA - COMBINATION UNIT W/ HEATER (GEF-1 / MAU-1)  
 1. COMBINATION UNIT WITH AN UPPLAST CENTRIFUGAL HIGH PRESSURE EXHAUST FAN WITH A 24.75" WHEEL AND A #2 MODULAR DIRECT-FIRED MAKE-UP AIR UNIT WITH A 15" BLOWER WHEEL RATED FOR A MAXIMUM OF 275,000 BTUS.  
 2. TRUNKLINE W/INTAKE HOOD W/EZ FILTERS-LOW CFM  
 3. DOWN DISCHARGE - AIR FLOW RIGHT -> LEFT  
 4. GREASE CUP FOR KITCHEN-DUTY CENTRIFUGAL EXHAUST FANS.  
 5. BOX DIMENSIONS 17-1/8" L X 5-1/16" W X 3-3/4" H (38 GA) (INCLUDES DOWN SPOUT)  
 6. COILING INTERLOCK RELAY, 24VAC COIL, 120V CONTACTS, LOCKS OUT BURNER CIRCUIT WHEN AC IS ENERGIZED.  
 7. MOTORIZED BACK DRAFT DAMPER 22.75" X 24" FOR SIZE 2 STANDARD & MODULAR DIRECT FIRED HEATERS W/EXTENDED SHAFT, STANDARD GALVANIZED CONSTRUCTION, 3/4" REAR FLANGE, LF120S ACTUATOR INCLUDED  
 8. LOW FIRE START, ALLOWS THE BURNER CIRCUIT TO ENERGIZE WHEN THE MODULATION CONTROL IS IN A LOW FIRE POSITION.  
 9. GAS PRESSURE GAUGE, 0-35", 2.5" DIAMETER, 1/4" THREAD SIZE  
 10. GAS PRESSURE GAUGE, -5 TO +15 INCHES WC, 2.5" DIAMETER, 1/4" THREAD SIZE  
 11. EXTRA SET OF V-BELTS. ONLY TO BE ORDERED AS FAN OPTION AT TIME FAN IS ORDERED.

SUPPLY SIDE HEATER INFORMATION  
 WINTER TEMPERATURE = 12°F. TEMP. RISE = 68°F.  
 BTUS CALCULATED OFF ACTUAL AIR DENSITY  
 OUTPUT BTUS AT ALTITUDE OF 0.0 Ft. = 2315424  
 INPUT BTUS AT ALTITUDE OF 3002 Ft. = 206790  
 OUTPUT BTUS AT ALTITUDE OF 3002 Ft. = 224772



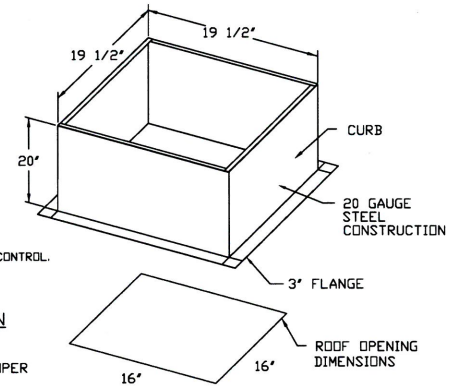
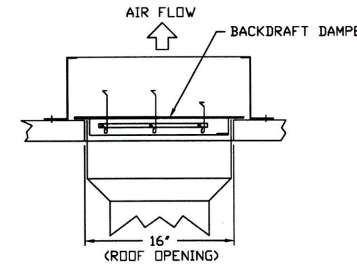
FAN #2 DU33HFA - EXHAUST FAN (KEF-1)



- FEATURES:**
- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS)
  - ROOF MOUNTED FANS
  - UL705
  - VARIABLE SPEED CONTROL
  - INTERNAL WIRING
  - WEATHERPROOF DISCONNECT
  - THERMAL OVERLOAD PROTECTION (SINGLE PHASE)

- OPTIONS**
- ECM WIRING PACKAGE-EXHAUST FANS - MANUAL SPEED CONTROL.
  - SCR-11 BIRD SCREEN
  - I 15-BDD DAMPER

**BACKDRAFT DAMPER INSTALLATION**



**EXHAUST FAN INFORMATION - Job#2715300**

FAN UNIT NO.	TAG	FAN UNIT MODEL #	CFM	ESP.	RPM	H.P.	B.H.P.	Ø	VOLT	FLA	WEIGHT (LBS.)	SDNES
1	GEF-1 / MAU-1	NRTP-B-A2-D250-G15-NCA24HPFA	4795	1.500	1080	3.000	2.0470	3	208	9.5	1108	22
2	KEF-1	DU33HFA	600	0.750	1504	0.333	0.2080	1	115	4.4	58	11.8

*GEF-2*  
*KEF-1*

**MUA FAN INFORMATION - Job#2715300**

FAN UNIT NO.	TAG	FAN UNIT MODEL #	BLOWER	HOUSING	CFM	ESP.	RPM	H.P.	B.H.P.	Ø	VOLT	FLA	WEIGHT (LBS.)	SDNES	BURNER EFFICIENCY(%)
1	GEF-1 / MAU-1	NRTP-B-A2-D250-G15-NCA24HPFA	G15-PB	A2-D250B	3000	1.000	1029	3.000	1.9020	3	208	9.5	1108	19.3	92

**GAS FIRED MAKE-UP AIR UNIT(S)**

FAN UNIT NO.	TAG	INPUT BTUS	OUTPUT BTUS	TEMP. RISE	REQUIRED INPUT GAS PRESSURE	GAS TYPE
1	GEF-1 / MAU-1	224772	206790	68 deg F	7 in. w.c. - 14 in. w.c.	Natural

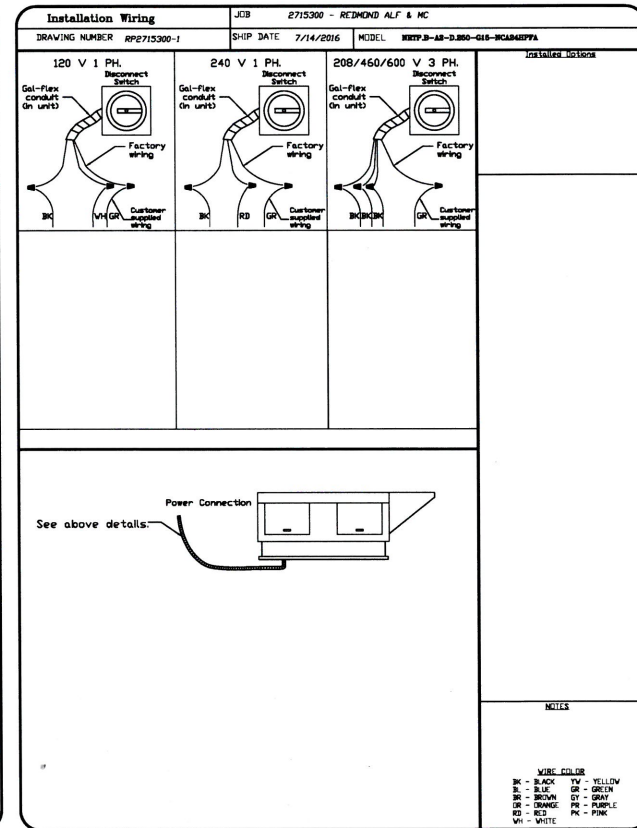
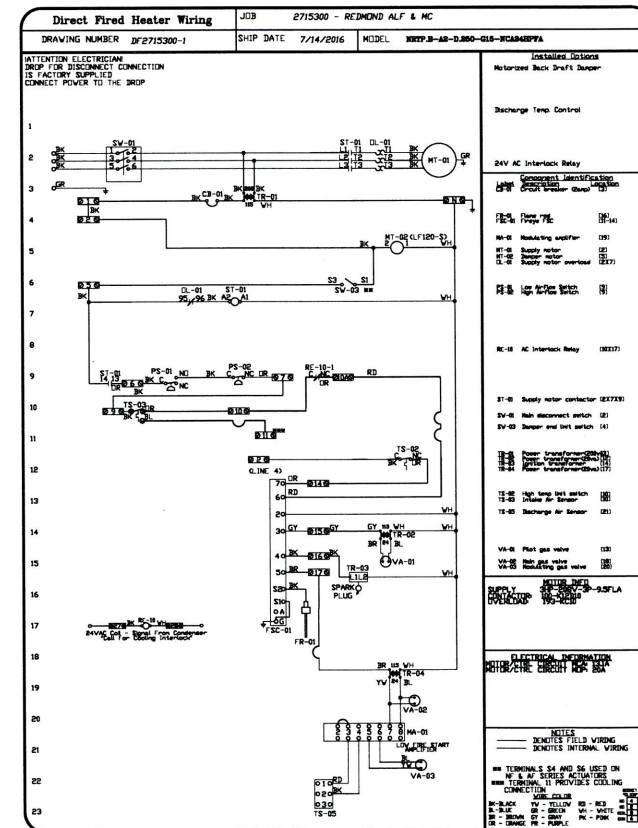
*MAU-1*

**FAN OPTIONS**

FAN UNIT NO.	TAG	OPTION (Qty. - Descr.)
1	GEF-1 / MAU-1	1 - Grease Box 1 - AC Interlock Relay - 24VAC Coil 1 - Motorized Backdraft Damper For A2-D Housing 1 - Low Fire Start 1 - Inlet Pressure Gauge, 0-35" 1 - Manifold Pressure Gauge, -5 to 15" wc 1 - Extra Set of Belts
2	KEF-1	1 - ECM Wiring Package-Exhaust Fans - Manual Speed Control. 1 - SCR-11 Bird Screen 1 - I 15-BDD Damper

**CURB ASSEMBLIES**

NO.	DN FAN	WEIGHT	ITEM	SIZE
1	# 1	118 LBS	Curb	31.000"W x 124.000"L x 20.000/20.000"H Insulated Vented
2	# 1		Rail	4.000"W x 4.000"L x 36.000"H
2	# 2	27 LBS	Curb	19.500"W x 19.500"L x 20.000"H



FOR QUESTIONS, CALL  
 KURT CURTIS, REGIONAL MANAGER  
 PHONE: (360) 828-5418  
 FAX: (919) 227-5983  
 EMAIL: kurt.curtis@captiveaire.com

**REVISIONS**

NO.	DESCRIPTION	DATE
1		
2		
3		
4		

**CAPTIVE**

OREGON OFFICE  
 2702 NE 114th Ave, Suite 2, Vancouver, WA, 98664 PHONE: (360) 828-5418 FAX: (919) 227-5983 EMAIL: neg00@captiveaire.com

REDMOND ALF & MC  
 REDMOND, OR, 97756

DATE: 7/14/2016  
 DWG.#: 2715300  
 DRAWN BY: kurtis  
 SCALE: 3/4" = 1'-0"  
 MASTER DRAWING

SHEET NO. 1