




Project Name: Culvers - Ladson, SC
Project Number: 239942
Project Altitude: 49
Project Location:
 3848 Ladson Rd
 Ladson, South Carolina US

Customer:
Engineer: Ollmann Ernest Martin Architects
National Account: Culvers

<input checked="" type="checkbox"/>	Accepted
<input type="checkbox"/>	Accepted as Noted
<input type="checkbox"/>	Revise and Resubmit
<input type="checkbox"/>	Rejected

These Drawings have been reviewed for general arrangement and agreement with the contract documents. Review/Acceptance neither extends nor alters any contractual obligations of the architect or contractor. This acceptance does not relieve the contractor's responsibility as defined in the contract documents.

By: JD Date: 11/9/2021



463 River Crest Ct.
 Milwaukee, WI 53149
 262-436-4760

Project Submittal

Date: 11/9/2021
Quote: 175364
Roof Top Units: 2
Split Systems: 0

Table of Contents

Tag	Qty	Model	Description
<u>RTU 1</u>	1	LGH240H4B	LGH240H4B-Y 20T CONF E=12.0
<u>RTU 2</u>	1	LGH240H4B	LGH240H4B-Y 20T CONF E=12.0



Project Submittal

Tag: RTU 1

Model: LGH240H4B - LGH240H4B-Y 20T CONF E=12.0

UNIT OVERVIEW								
Voltage	IEER EER	MCA/MOCP (amp)	Gross Cooling Ttl/Sens (MBH)	Net Cooling Ttl/Sens (MBH)	Supply Air Flow (cfm)	ESP/TSP (in.WC)	EAT DB/WB (°F)	LAT DB/WB (°F)
208V 3Ph 60Hz	13.2 12	89 / 100	234.9 / 164.3	228.1 / 157.5	5,850	0.50 / 0.73	80.0 / 67.0	53.2 / 53.2

COOLING			
Cooling Performance		Temperatures (DB/WB °F)	
Gross Cooling (Ttl/Sens)	234.9 / 164.3 MBH	Ambient	95.0
Net Cooling (Ttl/Sens)	228.1 / 157.5 MBH	Entering	80.0
Coil Moisture Removal	66.57 lb/hr	Leaving - (Coil)	53.2
System Moisture Removal	66.57 lb/hr	Leaving - (Unit)	53.2
			57.7

ARI Performance		Compressors		Refrigerant		Condensate Drain	
ARI Cooling	238.0 / 230.0 MBH	Cooling Stages	2	Type	R-410A	Qty	1
ARI Power	19,200 W	Compressor Qty	4	Charge	42 LBS. 12 OZ.	Size	1 in.
		Compressor RLA	52.8 amp			Pipe Thread	FPT

HUMIDITROL - HOT GAS REHEAT			
Humiditrol Dehumidification Performance		Temperatures (DB/WB °F)	
Gross Cooling - Stage 1(Ttl/Sens)	54.9 / 19.4 MBH	Ambient	95.0
Gross Cooling - Stage 2 (Ttl/Sens)	169.7 / 104.0 MBH	Entering	80.0
Moisture Removal - Stage 1	33.5 lb/hr	Leaving - (Stage 1)	64.2
Moisture Removal - Stage 2	61.9 lb/hr	Leaving - (Stage 2)	57.6

HEATING					
Heating Performance		Temperatures (DB/WB °F)		Specifications	
Output (High/Low)	208.0 / 135.2 MBH	Leaving	32.9	Heat Stages	2
Input (High/Low)	260.0 / 169.0 MBH			Thermal Efficiency	80.0%
Heat Rise	32.9 °F			Gas Line Size	1 in.
				Gas Pressure	7 in.WC

VENTILATION					
Air Flow (cfm)		Supply Fan		Air Resistance (in.WC)	
Supply	5,850	Nominal Power	5.00 hp	Total	0.73
Outdoor	1,750	Required Power	2.35 hp	Ext Supply	0.50
		Drive Type	CAV Belt Drive		
		RPM Range	685 - 856 rpm		
		Required RPM	753 rpm		

AIR RESISTANCE - OPTIONS/ACCESSORIES (in.WC)							
Wet Coil	Humiditrol	Heat	Economizer	Filters	Diffuser	Exhaust	ERW
0.07	0.03	0.06		0.07			

ELECTRICAL			
Voltage	208V 3Ph / 60Hz	Compressor RLA	52.8 amp
MCA	89 amp	Cooling FLA Total	83.9 amp
MOCP	100 amp	Condenser FLA	14.4 amp
Condenser Power	1950 W	Supply Fan FLA	16.7 amp
Oper Range-Nom Volt	+/- 10%		

ADDITIONAL DATA			
Cabinet	132.62 in. x 91.12 in. x 54.25 in.	Total Weight	2,906 lb
Downflow Supply	20.0 in. x 28.0 in.	Base Unit Net Weight	2,430 lb
Downflow Return	15.0 in. x 60.5 in.	OAS/Econ Weight	167 lb
Filters	(6) 24.0 in. x 24.0 in. x 2.0 in.	Humiditrol Weight	50 lb
Sound Rating	94 dBA	Curb Weight	164 lb



Project Submittal



Project Submittal

Tag: RTU 1

Factory Installed Options

High Performance Economizer Upgrade Factory Installed
 Single Enthalpy Economizer
 Standard Cap, Std Packaging
 Unit Orientation Downflow
 Supply Fan: Constant Air Volume
 208/220/230/240V 3Phase
 150Amp Disconnect Factory Installed
 Supply Motor - 5 Hp Std Eff
 Supply Drive Kit 3 (685-856 RPM)
 Barometric Relief Damper (Fac)
 260K S.S. (Dual Stage)
 Hinged Access Doors Factory Installed
 GFCI Factory Installed/Field Wired
 Phase Monitor Factory Installed
 Dirty Filter Switch Factory Installed
 Return Air Smoke Detector Factory Installed
 Tube and Fin Coil System Factory Installed
 Drain Pan Overflow Switch Factory Installed
 Humiditrol Factory Installed
 2" Pleat MERV13 - Filter Factory Installed

Field Installed Accessories

Catalog Number	Qty	Description
11F59	1	14" Downflow - Hybrid Curb Field Installed
13T12	1	Combination Coil/Hail Guards Field Installed
22H54	1	PVC Drain Trap Field Installed
17G74	1	CS7500 Comm'l Programmable T-stat w/ FDD Field Installed
47W36	1	Remote Temp Sensor Wall Mount 20K Field Installed
17M50	1	Humidity Sensor Kit Field Installed
Y3027	1	BE RTS2-AOS Multi Signal Accessory
93J98	1	93J9801 BELT, B X 61

Product Features

Cabinet

Hinged Access Panels
 Durable Outdoor Enamel Paint Finish
 Totally Enclosed Outdoor Fan Motor
 PVC Coated Fan Guard
 Corrosion-Resistant Drain Pan
 Isolated Compressor Compartment

Cooling System

Scroll Compressor
 Expansion Valves
 High Capacity Driers
 Crankcase Heater
 System can operate from 0°F to 125°F without any additional controls
 Pre-charged Refrigeration System
 Timed Off Control
 Internal Pressure Relief Valve
 Thermostat Control – 2 Stages of Cooling
 Building Automation Integrated Control - Up to 4 Stages of Cooling
 Humiditrol - Hot Gas Reheat Dehumidification System

Heating System

Redundant Automatic Gas Valve with Manual Shut-off
 Electronic Flame Sensor
 Direct Spark Ignition
 AGA-CGA Certified
 If configured for room sensor control, additional staging may be possible. Refer to performance tables within the EHB



Project Submittal

Control System

Prodigy 2.0 Control System

Auto reset high & low pressure switch with strike 3 lockout feature in Prodigy unit controller

Fan and Limit Controls

Overload Protection

Warranty

Limited warranty on stainless steel heat exchanger of 15 years

Limited warranty on compressor of 5 years

Limited warranty on Prodigy Unit Controller of 3 years

Limited warranty on High Performance Economizer of 5 years

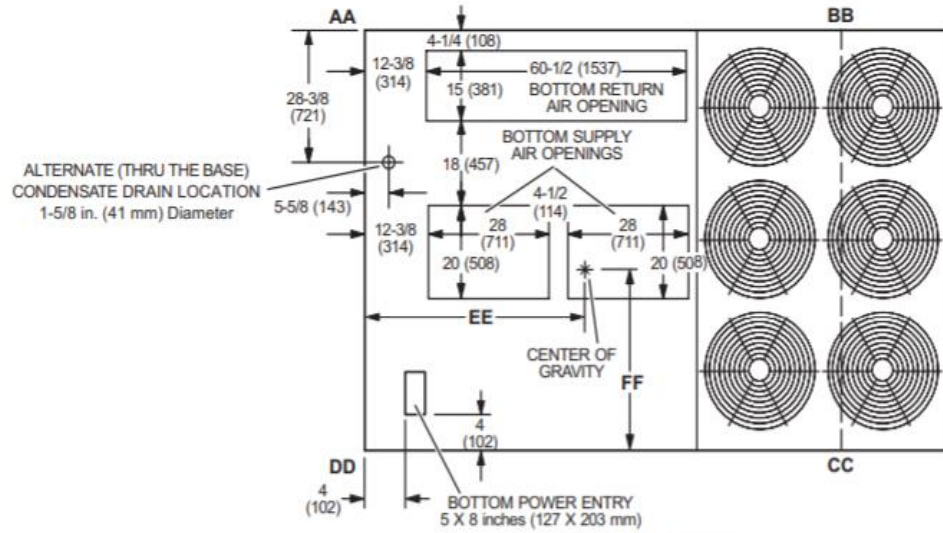
Limited warranty on all other components of 1 year

See Limited Warranty Certificate included with unit for details

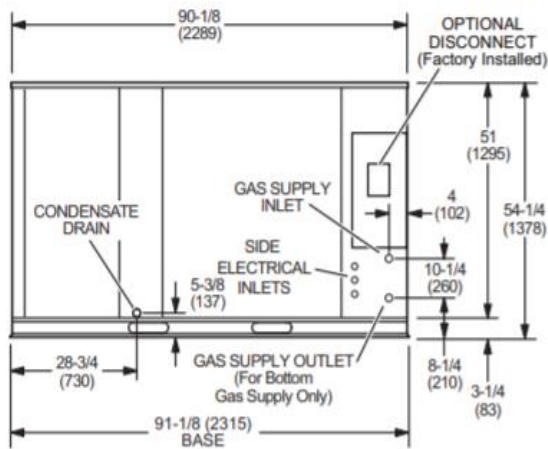


Project Submittal

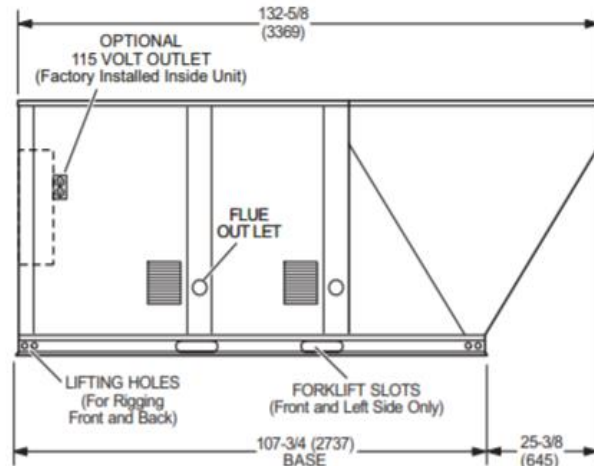
Corner Weights (lb)								Center of Gravity (in.)			
AA		BB		CC		DD		EE		FF	
Base	Max	Base	Max	Base	Max	Base	Max	Base	Max	Base	Max
507	617	533	620	713	741	677	738	55.25	54.00	39.00	41.50



TOP VIEW

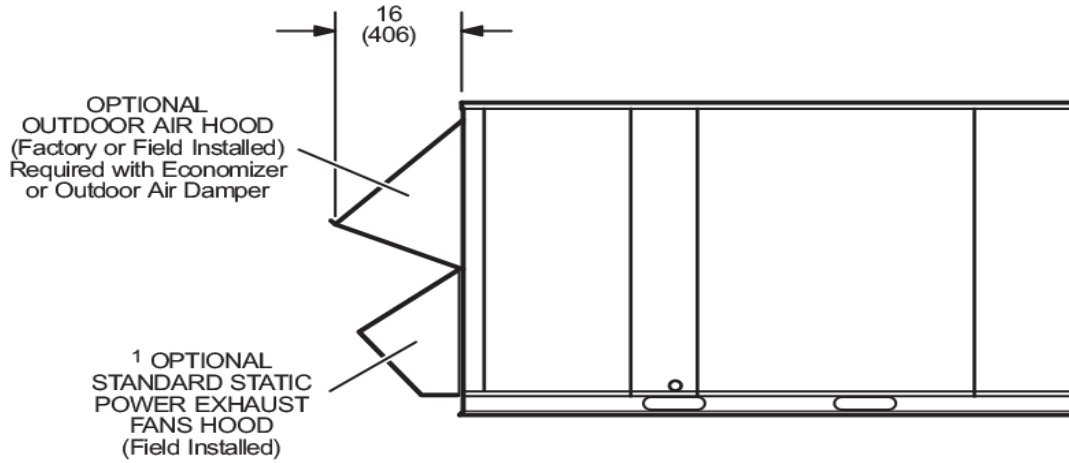


END VIEW



SIDE VIEW

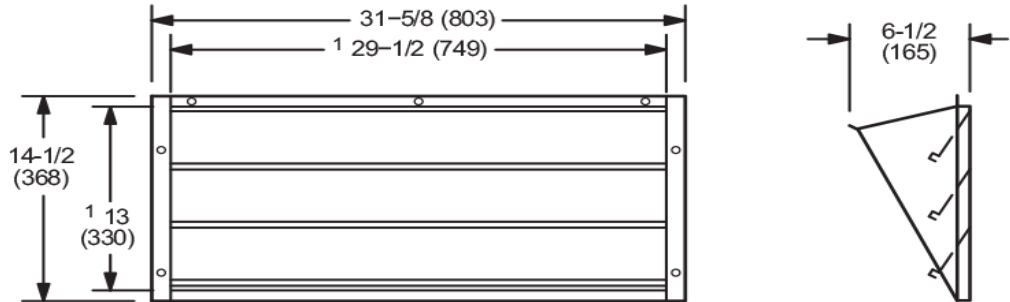
OPTIONAL OUTDOOR AIR HOOD DETAIL WITH STANDARD STATIC POWER EXHAUST FANS



1 Field Installed in Return Air Duct for Horizontal Applications.

HORIZONTAL BAROMETRIC RELIEF DAMPERS

(Field installed in horizontal return air duct adjacent to unit)



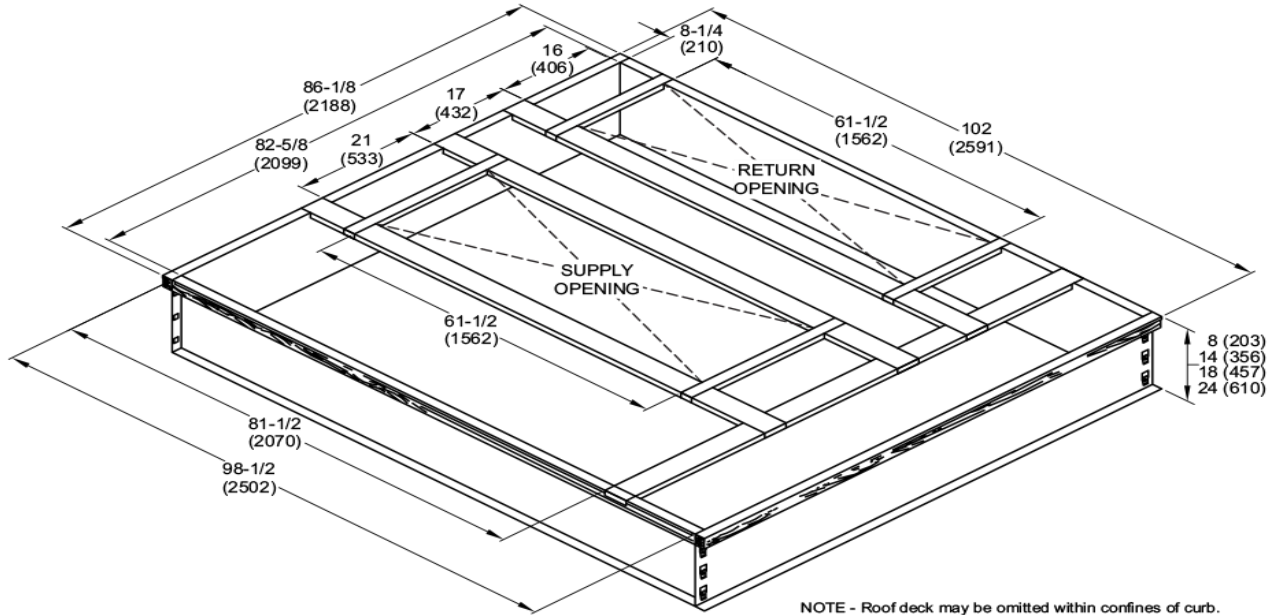
FRONT VIEW

SIDE VIEW

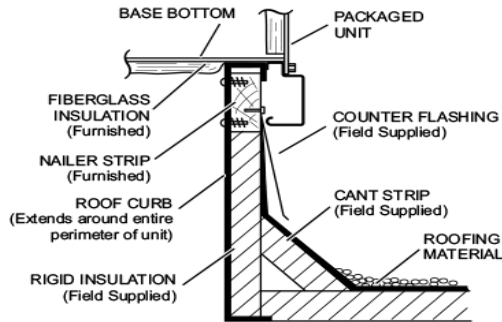
NOTE - Two furnished per order no.

1 NOTE - Opening size required in return air duct.

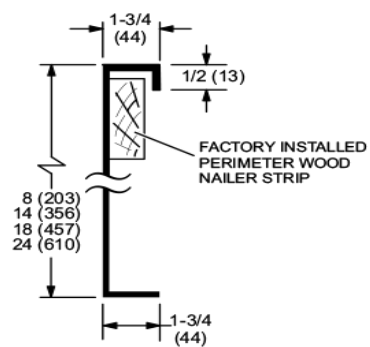
HYBRID ROOF CURBS - DOUBLE DUCT OPENING



TYPICAL FLASHING DETAIL FOR ROOF CURB

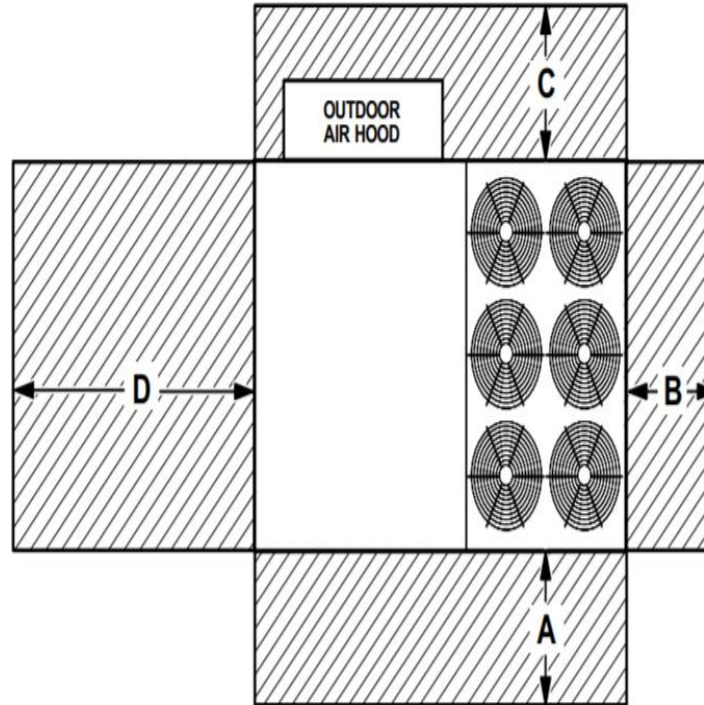


DETAIL ROOF CURB



UNIT CLEARANCES

Unit With Economizer



¹ Unit Clearance	A		B		C		D		Top Clearance
	in.	mm	in.	mm	in.	mm	in.	mm	
Service Clearance	60	1524	36	914	36	934	66	1676	Unobstructed
Clearance to Combustibles	36	914	1	25	1	25	1	25	
Minimum Operation Clearance	45	1143	36	914	36	914	41	1041	

NOTE - Entire perimeter of unit base requires support when elevated above the mounting surface.

¹ **Service Clearance** - Required for removal of serviceable parts.

Clearance to Combustibles - Required clearance to combustible material.

Minimum Operation Clearance - Required clearance for proper unit operation.



ComfortSense[®]

4 Heat / 2 Cool Universal Multi-Stage



Project Submittal

Tag: RTU 2

Model: LGH240H4B - LGH240H4B-Y 20T CONF E=12.0

UNIT OVERVIEW								
Voltage	IEER EER	MCA/MOCP (amp)	Gross Cooling Ttl/Sens (MBH)	Net Cooling Ttl/Sens (MBH)	Supply Air Flow (cfm)	ESP/TSP (in.WC)	EAT DB/WB (°F)	LAT DB/WB (°F)
208V 3Ph 60Hz	13.2 12	89 / 100	236.7 / 168.2	229.1 / 160.6	6,150	0.50 / 0.75	80.0 / 67.0	54.0 / 54.0

COOLING			
Cooling Performance		Temperatures (DB/WB °F)	
Gross Cooling (Ttl/Sens)	236.7 / 168.2 MBH	Ambient	95.0
Net Cooling (Ttl/Sens)	229.1 / 160.6 MBH	Entering	80.0
Coil Moisture Removal	64.55 lb/hr	Leaving - (Coil)	54.0
System Moisture Removal	64.55 lb/hr	Leaving - (Unit)	55.1
			54.4

ARI Performance		Compressors		Refrigerant		Condensate Drain	
ARI Cooling	238.0 / 230.0 MBH	Cooling Stages	2	Type	R-410A	Qty	1
ARI Power	19,200 W	Compressor Qty	4	Charge	42 LBS. 12 OZ.	Size	1 in.
		Compressor RLA	52.8 amp			Pipe Thread	FPT

HUMIDITROL - HOT GAS REHEAT			
Humiditrol Dehumidification Performance		Temperatures (DB/WB °F)	
Gross Cooling - Stage 1(Ttl/Sens)	55.3 / 20.3 MBH	Ambient	95.0
Gross Cooling - Stage 2 (Ttl/Sens)	170.5 / 106.1 MBH	Entering	80.0
Moisture Removal - Stage 1	33.0 lb/hr	Leaving - (Stage 1)	76.8
Moisture Removal - Stage 2	60.7 lb/hr	Leaving - (Stage 2)	63.6
			58.0

HEATING					
Heating Performance		Temperatures (DB/WB °F)		Specifications	
Output (High/Low)	208.0 / 135.2 MBH	Leaving	31.3	Heat Stages	2
Input (High/Low)	260.0 / 169.0 MBH			Thermal Efficiency	80.0%
Heat Rise	31.3 °F			Gas Line Size	1 in.
				Gas Pressure	7 in.WC

VENTILATION					
Air Flow (cfm)		Supply Fan		Air Resistance (in.WC)	
Supply	6,150	Nominal Power	5.00 hp	Total	0.75
Outdoor	1,700	Required Power	2.61 hp	Ext Supply	0.50
		Drive Type	CAV Belt Drive		
		RPM Range	685 - 856 rpm		
		Required RPM	772 rpm		

AIR RESISTANCE - OPTIONS/ACCESSORIES (in.WC)							
Wet Coil	Humiditrol	Heat	Economizer	Filters	Diffuser	Exhaust	ERW
0.08	0.03	0.07	0.01	0.07			

ELECTRICAL			
Voltage	208V 3Ph / 60Hz	Compressor RLA	52.8 amp
MCA	89 amp	Cooling FLA Total	83.9 amp
MOCP	100 amp	Condenser FLA	14.4 amp
Condenser Power	1950 W	Supply Fan FLA	16.7 amp
Oper Range-Nom Volt	+/- 10%		

ADDITIONAL DATA			
Cabinet	132.62 in. x 91.12 in. x 54.25 in.	Total Weight	2,906 lb
Downflow Supply	20.0 in. x 28.0 in.	Base Unit Net Weight	2,430 lb
Downflow Return	15.0 in. x 60.5 in.	OAS/Econ Weight	167 lb
Filters	(6) 24.0 in. x 24.0 in. x 2.0 in.	Humiditrol Weight	50 lb
Sound Rating	94 dBA	Curb Weight	164 lb



Project Submittal



Tag: RTU 2

Factory Installed Options

- High Performance Economizer Upgrade Factory Installed
- Single Enthalpy Economizer
- Standard Cap, Std Packaging
- Unit Orientation Downflow
- Supply Fan: Constant Air Volume
- 208/220/230/240V 3Phase
- 150Amp Disconnect Factory Installed
- Supply Motor - 5 Hp Std Eff
- Supply Drive Kit 3 (685-856 RPM)
- Barometric Relief Damper (Fac)
- 260K S.S. (Dual Stage)
- Hinged Access Doors Factory Installed
- GFCI Factory Installed/Field Wired
- Phase Monitor Factory Installed
- Dirty Filter Switch Factory Installed
- Return Air Smoke Detector Factory Installed
- Tube and Fin Coil System Factory Installed
- Drain Pan Overflow Switch Factory Installed
- Humiditrol Factory Installed
- 2" Pleat MERV13 - Filter Factory Installed

Field Installed Accessories

Catalog Number	Qty	Description
11F59	1	14" Downflow - Hybrid Curb Field Installed
13T12	1	Combination Coil/Hail Guards Field Installed
22H54	1	PVC Drain Trap Field Installed
17G74	1	CS7500 Comm'l Programmable T-stat w/ FDD Field Installed
47W36	1	Remote Temp Sensor Wall Mount 20K Field Installed
17M50	1	Humidity Sensor Kit Field Installed
Y3027	1	BE RTS2-AOS Multi Signal Accessory
93J98	1	93J9801 BELT, B X 61

Product Features

Cabinet

- Hinged Access Panels
- Durable Outdoor Enamel Paint Finish
- Totally Enclosed Outdoor Fan Motor
- PVC Coated Fan Guard
- Corrosion-Resistant Drain Pan
- Isolated Compressor Compartment

Cooling System

- Scroll Compressor
- Expansion Valves
- High Capacity Driers
- Crankcase Heater
- System can operate from 0°F to 125°F without any additional controls
- Pre-charged Refrigeration System
- Timed Off Control
- Internal Pressure Relief Valve
- Thermostat Control – 2 Stages of Cooling
- Building Automation Integrated Control - Up to 4 Stages of Cooling
- Humiditrol - Hot Gas Reheat Dehumidification System

Heating System

- Redundant Automatic Gas Valve with Manual Shut-off
- Electronic Flame Sensor
- Direct Spark Ignition
- AGA-CGA Certified
- If configured for room sensor control, additional staging may be possible. Refer to performance tables within the EHB



Project Submittal

Control System

Prodigy 2.0 Control System

Auto reset high & low pressure switch with strike 3 lockout feature in Prodigy unit controller

Fan and Limit Controls

Overload Protection

Warranty

Limited warranty on stainless steel heat exchanger of 15 years

Limited warranty on compressor of 5 years

Limited warranty on Prodigy Unit Controller of 3 years

Limited warranty on High Performance Economizer of 5 years

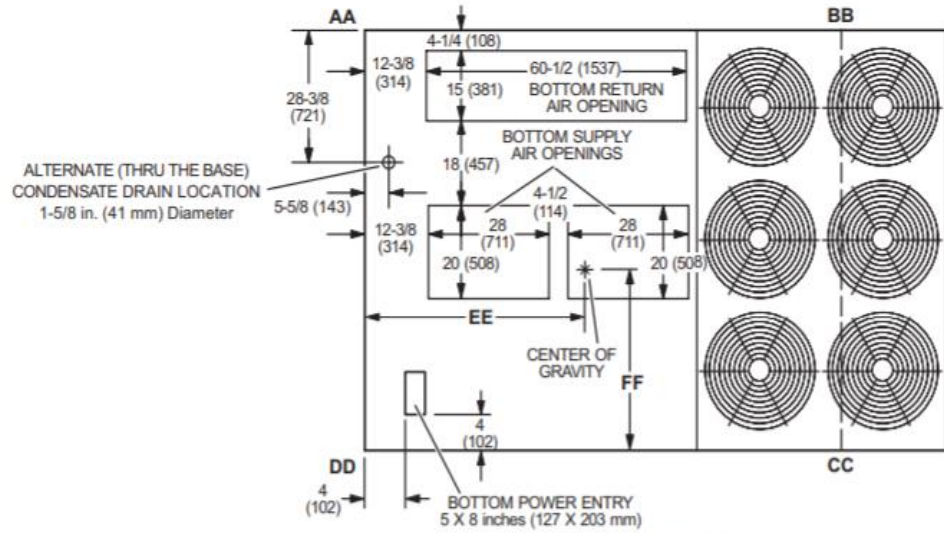
Limited warranty on all other components of 1 year

See Limited Warranty Certificate included with unit for details

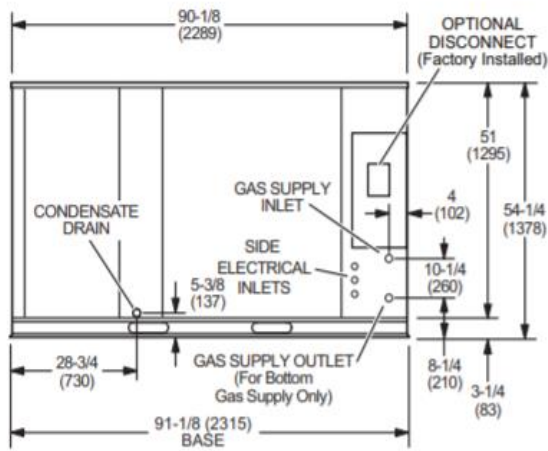


Project Submittal

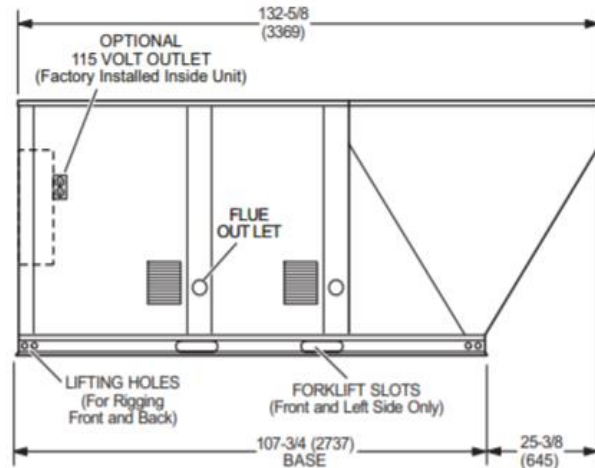
Corner Weights (lb)								Center of Gravity (in.)			
AA		BB		CC		DD		EE		FF	
Base	Max	Base	Max	Base	Max	Base	Max	Base	Max	Base	Max
507	617	533	620	713	741	677	738	55.25	54.00	39.00	41.50



TOP VIEW

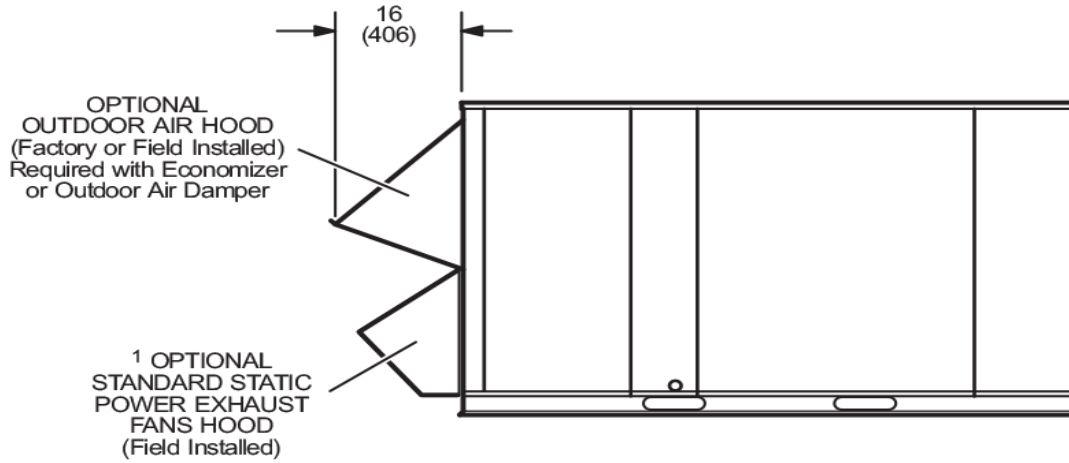


END VIEW



SIDE VIEW

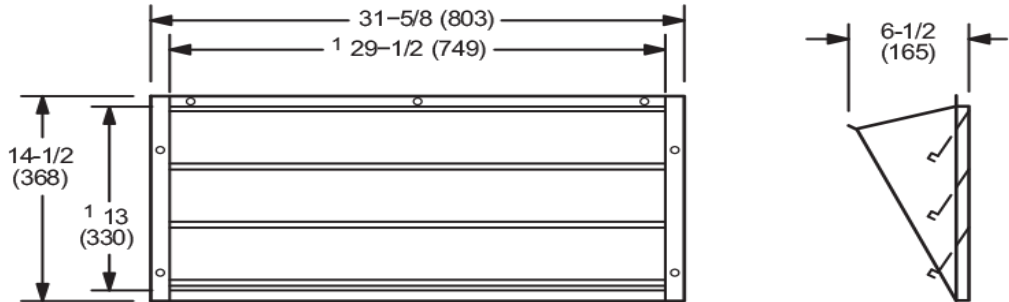
OPTIONAL OUTDOOR AIR HOOD DETAIL WITH STANDARD STATIC POWER EXHAUST FANS



1 Field Installed in Return Air Duct for Horizontal Applications.

HORIZONTAL BAROMETRIC RELIEF DAMPERS

(Field installed in horizontal return air duct adjacent to unit)



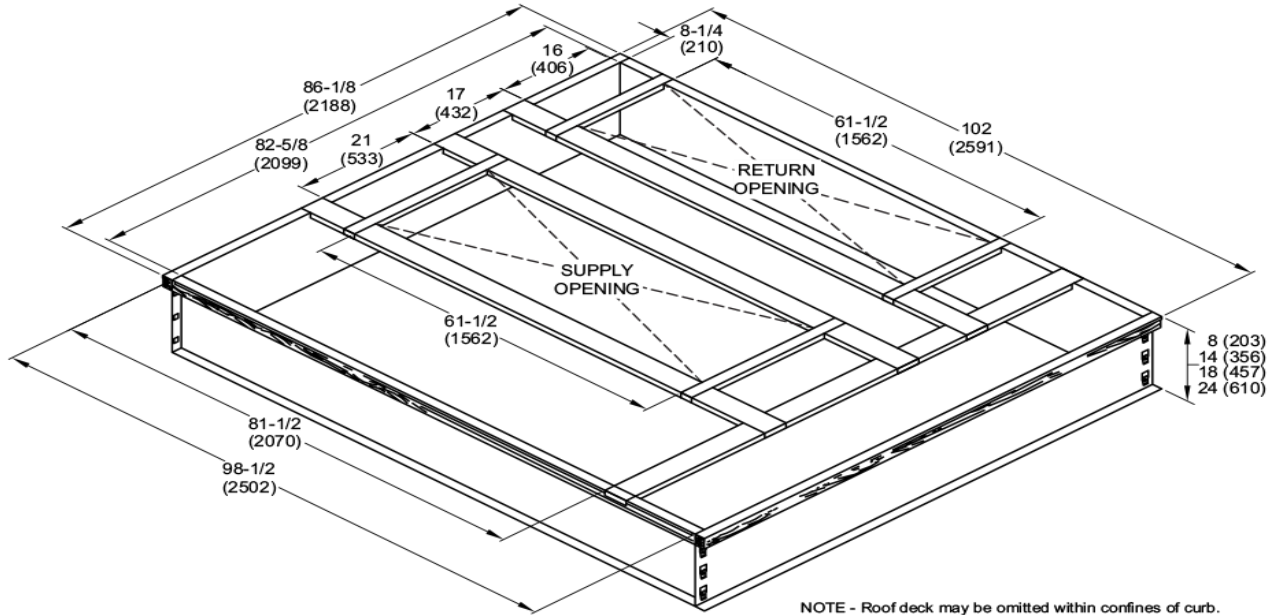
FRONT VIEW

SIDE VIEW

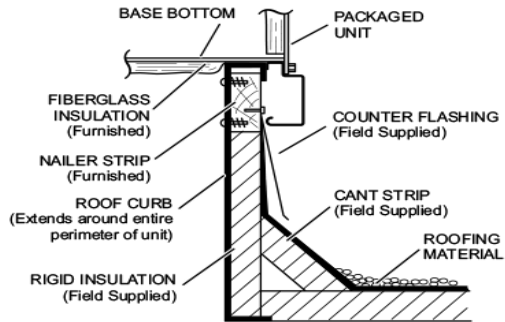
NOTE - Two furnished per order no.

1 NOTE - Opening size required in return air duct.

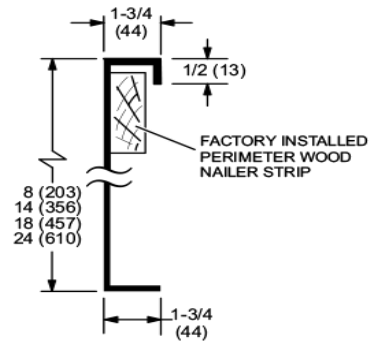
HYBRID ROOF CURBS - DOUBLE DUCT OPENING



TYPICAL FLASHING DETAIL FOR ROOF CURB

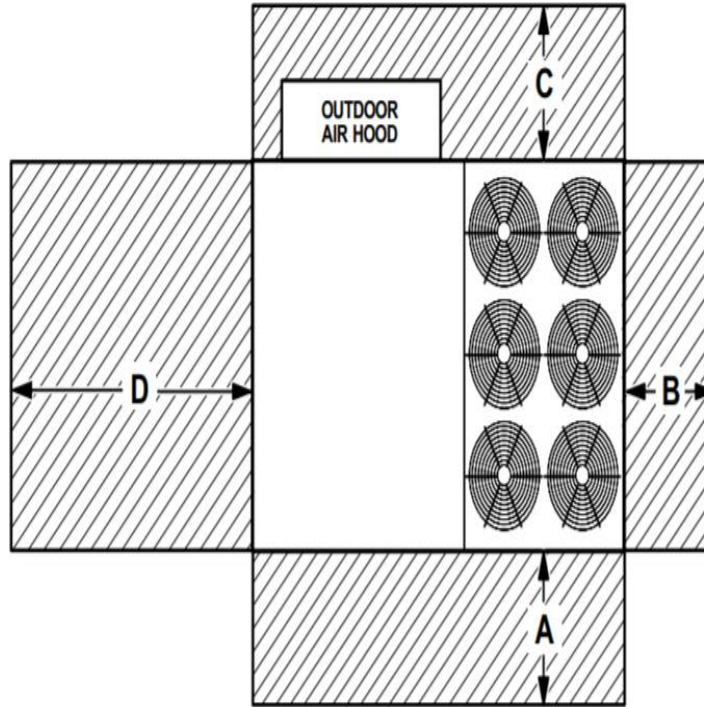


DETAIL ROOF CURB



UNIT CLEARANCES

Unit With Economizer



¹ Unit Clearance	A		B		C		D		Top Clearance
	in.	mm	in.	mm	in.	mm	in.	mm	
Service Clearance	60	1524	36	914	36	934	66	1676	Unobstructed
Clearance to Combustibles	36	914	1	25	1	25	1	25	
Minimum Operation Clearance	45	1143	36	914	36	914	41	1041	

NOTE - Entire perimeter of unit base requires support when elevated above the mounting surface.

¹ **Service Clearance** - Required for removal of serviceable parts.

Clearance to Combustibles - Required clearance to combustible material.

Minimum Operation Clearance - Required clearance for proper unit operation.



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