ALLIED™ Commercial

QGA

Q-SERIES™

Standard Efficiency - Three-Phase - 60 Hz

COMMERCIAL
PRODUCT SPECIFICATIONS

Bulletin No. 310939
November 2024

SEER2 - 13.4
AFUE - 81%
3 to 5 Tons
Cooling Capacity - 34,000 to 57,000 Btuh
Gas Input Heat Capacity − 54,000 to 126,000 Btuh

MODEL NUMBER IDENTIFICATION

Q G A 060 S 5 D W 1 Y - 1A

Model Family
Q = Light Commercial Packaged

Unit Type
G = Gas / Electric

Major Design Sequence
A = 1st Generation

Nominal Cooling Capacity - Tons
036 = 3 Tons
048 = 4 Tons
060 = 5 Tons

Cooling Efficiency
S = 13.4 SEER2

Refrigerant Type
5 = R-454B

Blower Type
D = Direct Drive (ECM)

Heating Type
036 Models:
W = 54k Gas Heat, 1 Stage, Low NOx (036 only)
Y = 72k Gas Heat, 1 Stage, Low NOx
Z = 90k Gas Heat, 1 Stage, Low NOx
048-060 Models:
W = 90k Gas Heat, 1 Stage, Low NOx
Y = 108k Gas Heat, 1 Stage, Low NOx
Z = 126k Gas Heat, 1 Stage, Low NOx

Minor Design Sequence
1 = 1st Revision

Voltage
Y = 230V - 3 phase - 60Hz
G = 460V - 3 phase - 60Hz

Minor Revision Sequence
1A = 1st Revision

CONTENTS

APPROVALS AND WARRANTY

APPROVALS

- AHRI Standard 210/240 certified
- Heating ratings are Certified by AHRI according to U.S. Department of Energy (DOE) test procedures and Federal Trade Commission (FTC) labeling regulations
- Design Certified by ETL Intertek
- Unit and components ETL, NEC and CEC bonded for grounding to meet safety standards for servicing
- All models are ASHRAE 90.1 compliant
- Seismic Certification (with Seismic Strapping Kit applied): Latest Edition of International Building Code, California Building Code, and ASCE 7-16

California Only

- If installed in South Coast Air Quality Management District (SCAQMD) only:
- This gas unit does not meet the SCAQMD Rule 1111 NOx emission limit (14 ng/J), and thus is subject to a mitigation fee of up to $450. This furnace is not eligible for the Clean Air Furnace Rebate Program: www.CleanAirFurnaceRebate.com.
- If installed in San Joaquin Valley Air Pollution Control District (SJVAPCD) only
- This gas unit does not meet the SJVAPCD Rule 4905 NOx emission limit (14 ng/J), and thus is subject to a mitigation fee of up to $450

WARRANTY

- Heat exchanger - Limited ten years
- Compressors - Limited five years
- All other covered components - Limited one year

FEATURES AND BENEFITS

HEATING SYSTEM

Heat Exchanger
- Aluminized tubular steel for superior resistance to corrosion and oxidation
- Round surfaces create minimum air resistance and allow air to surround all surfaces for excellent heat transfer
- Compact design reduces space requirements in cabinet
- Laboratory life cycle tested

Inshot Burners
- Aluminized steel inshot burners provide efficient trouble free operation
- Burner venturi mixes air and gas in correct proportion for proper combustion
- Burner assembly is removable from the unit as a single component for ease of service
- Each burner may be removed individually

Gas Control Valve
- 24 volt redundant combination gas control valve combines manual shut off valve (On-Off), automatic electric valve (dual) and gas pressure regulation into a compact combination control

Combustion Air Inducer
- Heavy duty combustion air inducer prepurges heat exchanger and safely vents flue products
- Blower is controlled by the ignition control board
- Pressure switch proves blower operation before allowing gas valve to open
- Combustion air inducer operates during heating cycle
- Inducer operates for the first 10 seconds of every cooling cycle to prevent insects from nesting in the flue outlet during cooling season

Limit Control
- Factory installed behind heat exchanger access panel
- Automatic reset

Flame Rollout Switch
- Factory installed on burner box
- Provides protection from abnormal operating conditions
- Manual reset

Ignition Control Board
- Ignition control board with LED diagnostics

Low NOx Models
- All models are standard low NOx (40 ng/J)

Required Selections

Gas Input Choice (1 Stage) - Order one:
- 54,000 Btuh (036)
- 72,000 Btuh (036)
- 90,000 Btuh (036, 048, 060)
- 108,000 Btuh (048, 060)
- 126,000 Btuh (048, 060)

Optional Accessories

Bottom Gas Entry Kit
- Allows gas piping connection through the unit base pan

LPG/Propane Conversion Kit
- Required for field changeover from natural gas to LPG/ Propane

Vertical Vent Extension Kit
- Use to exhaust flue gases vertically above unit
- Required when unit vent is too close to fresh air intakes per building codes

COOLING SYSTEM

R-454B Refrigerant
- Non-chlorine based
- Ozone-friendly
- Factory pre-charged

Evaporator and Condenser Coils
- Copper tube with aluminum fin coils
- Factory leak tested

Anti-Microbial Condensate Drain Pan
- Anti-Microbial additive resists growth of mold and mildew on drain pan which improves indoor air quality and reduces drain line blockage
- Insulated to reduce condensation
- Side drain connection

Drain Pan Overflow Switch
- Monitors condensate level in drain pan
- Shuts down unit if drain becomes clogged

Outdoor Coil Fan Motor
- Weather protected heavy duty condenser fan motor
- Coated steel fan blades for long life
- Corrosion-resistant coated steel fan guard
- Internally mounted
- Totally enclosed fan motor

High Pressure Switch
- Protects the system from high pressure conditions
- Automatic reset.

Loss of Charge Switch
- Shuts off unit if suction pressure falls below setting
- Loss of charge and freeze-up protection

Service Valves
- Fully serviceable brass valves installed in discharge & liquid lines

FEATURES AND BENEFITS

COMPRESSOR

Scroll Compressor
- High volumetric efficiency
- Uniform suction flow
- Constant discharge flow
- Quiet operation
- Low gas pulses during compression reduces operational sound levels
- Compressor motor is internally protected from excessive current and temperature
- Compressor is installed in the unit on resilient rubber mounts for vibration free operation

Scroll Compressor Operation
- Two involute spiral scrolls matched together generate a series of crescent-shaped gas pockets between them
- During compression, one scroll remains stationary while the other scroll orbits around it
- Gas is drawn into the outer pocket, the pocket is sealed as the scroll rotates
- As the spiral movement continues, gas pockets are pushed to the center of the scrolls. Volume between the pockets is simultaneously reduced
- When the pocket reaches the center, gas is now at high pressure and is forced out of a port located in the center of the fixed scrolls
- During compression, several pockets are compressed simultaneously resulting in a smooth continuous compression cycle
- Continuous flank contact, maintained by centrifugal force, minimizes gas leakage and maximizes efficiency
- Compressor is tolerant to the effects of slugging and contaminants. If this occurs, scrolls separate, allowing liquid or contaminants to be worked toward the center and discharged
- Muffler in discharge line reduces operating sound levels

Optional Accessories

Field Installed

Compressor Crankcase Heater
- Protects against refrigerant migration that can occur during low ambient operation

Compressor Timed-Off Control
- Prevents compressor short-cycling
- Allows time for suction and discharge pressure to equalize
- Permits compressor start-up in an unloaded condition
- Automatic reset
- Five minute delay between compressor shut-off and start-up

Freezestat
- Senses suction line temperature
- Cycles compressor off when suction line temperature falls below its setpoint

Low Ambient Kit (40°F)
- Cycles the outdoor fan while allowing compressor operation in the cooling cycle
- This intermittent fan operation allows the system to operate without icing the evaporator coil and losing capacity
- Designed for use in ambient temperatures no lower than 40°F

NOTE - Crankcase heater and freezestat are recommended on compressor equipped with a low ambient kit.

CABINET
- Conditioned areas insulated with foil faced insulation to minimize heat loss and reduce operating sound levels
- Powder paint for maximum durability
- Full perimeter heavy-gauge galvanized steel base rails
- Base rails have rigging holes
- Two sides of the base rails have forklift slots
- Raised edges around duct and power entry openings in the bottom of the unit for water protection
- Easy service access
- Steel louvered panels provides complete coil protection

Airflow Choice
- Units are shipped with supply and return air duct covers installed for downflow or horizontal conversion

Gas Piping/Electrical Inlets and Service Valves
- Electrical and gas lines inlets are located in one central area of the cabinet
- See dimension drawing
- Service valves with gauge ports are located inside the cabinet

Optional Accessories

Field Installed

Bottom Gas Entry Kit
- Field installed piping kit to facilitate bottom gas entry

Bottom Power Entry Kit
- Allows high and low voltage wiring connections through the unit base pan

Base Rail Openings Closure Kit
- Kit consists of panels and hardware to cover rigging holes and forklift slots in unit base rails

Square to Round Duct Adaptor Kits
- Downflow or horizontal kits available
- Converts square supply and return air openings on unit cabinet to round 14 in. diameter

Tool-Less Filter Access Kit
- Converts blower access panel to two-piece design
- One panel is equipped with tool-less latches for ease filter access without removing entire blower panel

NOTE - Not for seismic-rated applications.

FEATURES AND BENEFITS

CONTROLS

24 Volt Transformer
- 70VA transformer furnished and factory installed in control area

Field Installed

Smoke Detector
- Photoelectric type
- Installed in supply air and/or return air ducts
- Available with one sensor or two sensors

BLOWER
- Direct drive blower
- Blower wheel is statically and dynamically balanced
- Resiliently mounted
- Blower assembly easily removed for servicing

Constant Torque Blower Motor
- DC Brushless Motor
- High Efficiency Constant Torque
- ECM (Electronically Commutated Motor)
- Motor is programmed to provide constant torque at each of the selectable speeds
- Fixed blower “On” delay prevents cold air from entering system during gas heating demand
- See Blower Performance tables

INDOOR AIR QUALITY

Air Filters
- Filter rack furnished as standard
- See Specifications Table for sizes

NOTE - Filters must be field provided.

OPTIONS / ACCESSORIES

ECONOMIZER

Field Installed

Economizer
(Standard and High Performance Common Features)
- Convertible to downflow or horizontal
- Outdoor Air Hood is furnished
- Includes Barometric Relief Dampers with Exhaust Hood
- Barometric Relief Dampers allow relief of excess air,
- Aluminum blade dampers prevent blow back and outdoor air infiltration during off cycle
- Exhaust hood with bird screen furnished
- Single temperature control is furnished with Economizer
- Outdoor air sensor enables Economizer if the outdoor temperature is less than the setpoint of the control

Standard Economizer Features (Not for Title 24)
- Gear-driven action
- Return air and outdoor air dampers
- Plug-in connections to unit
- Nylon bearings
- Neoprene seals
- 24-volt
- Fully-modulating spring return motor

Standard Economizer Control Module
The Standard Economizer Control Module can be adjusted to operate based on outdoor air temperatures

Economizer Controls:
- Damper Minimum Position - Can be set lower than traditional minimum air requirements resulting in cost savings
- Free Cool LED - A steady green LED indicates outdoor air is suitable for free cooling

NOTE - Free Cooling runs when outdoor air temperature is lower than the set temperature on the economizer control.

NOTE: The Free Cooling default setting for outdoor air temperature sensor is 55°F.

High Performance Economizer Features
- Approved for California Title 24 building standards
- Low leakage dampers are Air Movement and Control Association International (AMCA) Class 1A Certified - Maximum 3 cfm per sq. ft. leakage at 1 in. w.g.
- ASHRAE 90.1-2010 compliant
- Gear-driven action
- High torque 24-volt fully-modulating spring return damper motor
- Return air and outdoor air dampers
- Plug-in connections to unit
- Stainless steel bearings
- Enhanced neoprene blade edge seals
- Flexible stainless steel jamb seals minimize air leakage

OPTIONS / ACCESSORIES

ECONOMIZER (continued)

NOTE - High Performance Economizers are not approved for use with enthalpy controls in Title 24 applications.

NOTE - The Free Cooling setpoint for Title 24 applications must be set based on the Climate Zone where the system is installed. See Section 140.4 “Prescriptive Requirements for Space Conditioning Systems” of the California Energy Commission’s 2019 Building Energy Efficiency Standards. Refer to Installation Instructions for complete setup information and menu parameters available.

High Performance Economizer Control Module

- Module provides inputs and outputs to control economizer based on parameter settings
- Module automatically detects sensors by polling to determine which sensors are installed in system
- Module displays any alarm messages (fault detection and diagnostics) as an aid in troubleshooting
- Non-volatile memory retains parameter settings in case of power failure
- Keypad with four navigation buttons and LCD screen is furnished for setting economizer parameters
  - Menu Up/Exit ⓘ button returns to the main menu
  - Arrow Up ▲ button moves to the previous or next parameter within the selected menu
  - Arrow Down ▼ button moves to the next parameter within the selected menu
  - Select (enter) ↵ button confirms parameter selection

High Performance Economizer Control Module (continued)

Main Menu Structure:

- STATUS (economizer and system operation status)
- SETPOINTS (settings for various setpoint parameters)
- SYSTEM SETUP (settings/information about the system)
- ADVANCED SETUP (freeze protection, CO_2 settings, stage 3 delay, and additional calibration settings)
- CHECKOUT (damper positions)
- ALARMS (output signal that can be configured for remote alarm monitoring)

NOTE - Refer to Installation Instructions for complete setup information and menu parameters available.

Field Installed

Single Enthalpy Temperature Control (Not for Title 24)

- Outdoor air enthalpy sensor enables Economizer if the outdoor enthalpy is less than the setpoint of the control

OUTDOOR AIR

Field Installed

Outdoor Air Dampers - Downflow

- Single blade damper
- 0 to 25% (fixed) outdoor air adjustable
- Installs in unit
- Outdoor air hood is furnished
- Automatic model features fully modulating spring return damper motor with plug-in connection
- Manual model features a slide damper

NOTE - Maximum mixed air temperature in cooling mode is 100°F.

ROOF CURBS

Field Installed

Clip Curb (Full Perimeter)

- Interlocking tabs fasten corners together
- No tools required
- Fully gasketed around curb perimeter and supply and return openings
- Available in 8, 14, 18 and 24 inch heights
- Shipped knocked down

Adjustable Pitch Roof Curb (Full Perimeter)

Standard Curb

- Fully adjustable pitch curb provides a level platform for packaged units
- Allows flexible installations on roofs with sloped or uneven angles
- Adjustable from 2/12 to 6/12 pitch
- Fully gasketed around curb perimeter and supply and return openings
- Shipped knocked down

All Clip and Adjustable Pitch Curbs

- IBC 2018 compliant
- CBC 2019 compliant
- Seismic rating - SDS 2.0g, z/h=1, Ip=1.5
- Wind rating - 240 mph (Lateral), 214 mph (Uplift)
- Maximum load rating - 800 lbs.

Adaptor Curbs (not shown)

- Adaptor curbs are locally sourced

NOTE - Please contact your Allied representative for guidance in your area.

Strapping Kit - Hurricane

- Galvanized steel .07 in. thick minimum
- Attaches unit base rails to host structure

Strapping Kit - Seismic

- Heavy-gauge galvanized steel
- Kit contains 4 brackets and mounting hardware

OPTIONS / ACCESSORIES

Item			Catalog No.	Model No. QGA036	QGA048	QGA060
COOLING SYSTEM						
Compressor Crankcase Heater 230V 1-ph or 3-ph			**11X27**	X	X	X
Compressor Crankcase Heater 460V 3-ph			**21D21**	X	X	X
Compressor Timed-Off Control			**47J27**	X	X	X
Freezestat			**21D23**	X	X	X
Low Ambient Kit (40°F)			**21D20**	X	X	X
HEATING SYSTEM						
Gas Heat Input		54 kBtuh input	Factory	X		
		72 kBtuh input	Factory	X		
		90 kBtuh input	Factory	X	X	X
		108 kBtuh input	Factory		X	X
		126 kBtuh input	Factory		X	X
LPG/Propane Conversion Kit			**22B87**	X	X	X
Bottom Gas Entry Kit			**21D34**	X	X	X
Vertical Vent Extension Kit			**21J79**	X	X	X
CABINET						
Base Rail Openings Closure Kit			**21J84**	X	X	X
Square to Round Duct Adaptor Kits	Downflow	14 in. dia.	**20X82**	X		
		14 in. dia.	**21D26**		X	X
	Horizontal	14 in. dia.	**21J92**	X		
		14 in. dia.	**21D24**		X	X
		16 in. dia.	**22U78**		X	X
		18 in. dia.	**22U79**		X	X
Tool-Less Filter Access Kit			**21J80**	X	X	X
CONTROLS						
Smoke Detector - Supply or Return (one sensor)			**21U21**	X	X	X
Smoke Detector - Supply and Return (two sensors)			**21U22**	X	X	X
ELECTRICAL						
Bottom Power Entry Kit			**21J78**	X	X	X
ECONOMIZER						
Standard Economizer With Outdoor Air Hood (Not for Title 24)						
Downflow or Horizontal (Includes Barometric Relief Dampers and Exhaust Hood)			**21U15**	X	X	X
High Performance Economizer With Outdoor Air Hood (Approved for California Title 24 Building Standards / AMCA Class 1A Certified)						
Downflow or Horizontal (Includes Barometric Relief Dampers and Exhaust Hood)			**21U17**	X	X	X
Economizer Controls						
Single Enthalpy Control (Standard)			**21Z09**	X	X	X
Single Enthalpy Control (High Performance)			**11G21**	X	X	X
OUTDOOR AIR						

X = Field Installed

OPTIONS / ACCESSORIES

Item	Catalog No.	Model No.		
		QGA036	QGA048	QGA060
Outdoor Air Dampers With Outdoor Air Hood				
Motorized	**21U19**	X	X	X
Manual	**21U20**	X	X	X
ROOF CURBS				
Clip Curbs				
8 in height	**21J17**	X	X	X
14 in height	**21J19**	X	X	X
18 in height	**21J20**	X	X	X
24 in height	**21J25**	X	X	X
Adjustable Pitch Roof Curb (Knock-Down Style)				
14 in height	**21U04**	X	X	X
Adjustable Pitch Roof Curb (Welded Style)				
14 in height	**22V55**	X	X	X
Strapping Kits for Roof Curbs				
Strapping Kit - Hurricane (Slab Mount)	**21J74**	X	X	X
Strapping Kit - Hurricane (Rail Mount)	**22G53**	X	X	X
Strapping Kit - Seismic	**21J75**	X	X	X

X = Field Installed

SPECIFICATIONS

General Data	Nominal Tonnage	**3 Ton**	**4 Ton**	**5 Ton**
	Model Number	**QGA036S5D**	**QGA048S5D**	**QGA060S5D**
	Efficiency Type	**Standard**	**Standard**	**Standard**
	Blower Type	Direct Drive (ECM)	Direct Drive (ECM)	Direct Drive (ECM)
Cooling Performance	Gross Cooling Capacity - Btuh	35,000	47,500	58,000
	[1] Net Cooling Capacity - Btuh	34,000	45,500	56,000
	AHRI Rated Air Flow - cfm	1200	1650	1750
	Total Unit Power - kW	3.2	3.83	3.83
	[1] SEER2	13.4	13.4	13.4
	[1] EER21	10.6	10.6	10.6
Refrigerant Charge	Refrigerant Type	R-454B	R-454B	R-454B
		5 lbs. 6 oz.	5 lbs. 5 oz.	7 lbs. 13 oz.
Gas Heating Options		See Page 10		
Compressor Type		Scroll (1)	Scroll (1)	Scroll (1)
Outdoor Coil	Net face area (total) - sq. ft.	19.53	19.53	33.57
	Tube diameter - in.	5/16	5/16	5/16
	Number of rows	1	1	2
	Fins per inch	26	26	22
Outdoor Coil Fan	Motor - (No.) horsepower	(1) 1/3	(1) 1/3	(1) 1/3
	Motor rpm	825	825	825
	Total Motor Input - watts	280	280	280
	Diameter - (No.) in.	(1) 24	(1) 24	(1) 24
	Number of blades	3	3	3
Indoor Coil	Net face area (total) - sq. ft.	6.75	6.75	6.75
	Tube diameter - in.	5/16	5/16	3/8
	Number of rows	3	3	3
	Fins per inch	15	15	15
	Drain connection (Number) and size - in.	(1) 3/4 in. NPT coupling		
	Expansion device type	Refrigerant Metering Orifice		
Indoor Blower	Nominal motor HP	0.75 HP (ECM)	1.0 HP (ECM)	1.0 HP (ECM)
	Blower wheel nominal diameter x width - in.	(1) 12 x 9	(1) 12 x 9	(1) 12 x 10
[2] Filters	Type of filter	Disposable		
	Number and size - in.	(2) 20 x 20 x 1	(2) 20 x 20 x 1	(2) 20 x 20 x 1
Electrical characteristics		208/230V or 460V-60Hz -3ph		

NOTE - Net capacity includes evaporator blower motor heat deduction. Gross capacity does not include evaporator blower motor heat deduction.

[1] AHRI Certified to AHRI Standard 210/240: 95°F outdoor air temperature and 80°F db/67°F wb entering evaporator air; minimum external duct static pressure.

[2] Filters are not furnished and must be field provided.

SPECIFICATIONS - GAS HEAT

General Data	Model No.	QGA036S5D	QGA036S5D	QGA036S5D QGA048S5D QGA060S5D	QGA048S5D QGA060S5D	QGA048S5D QGA060S5D
Heating Capacity Btuh	Input	54,000	72,000	90,000	108,000	126,000
	Output	43,740	58,320	72,900	87,480	102,060
[1] AFUE		81%	81%	81%	81%	81%
Temperature Rise - °F		30-60	30-60	35-65	40-70	45-75
Gas Supply Connection (FPT) - in.		1/2	1/2	1/2	1/2	1/2
Min. Recommended Gas Supply Pressure		5 in. w.g. Natural Gas, 11 in. w.g. LPG/Propane				

[1] Annual Fuel Utilization Efficiency based on U.S. DOE test procedures and FTC labeling regulations.

HIGH ALTITUDE DERATE

Units may be installed at altitudes up to 4500 feet above sea level without any modification. At altitudes above 4500 feet, units must be derated 4% for every 1000 feet above sea level. Example - At an altitude of 6000 feet the unit would require a derate of 24%.

NOTE - This is the only permissible derate for these units.

RATINGS

NOTE − For Temperatures and Capacities not shown in tables, see bulletin − Cooling Unit Rating Table Correction Factor Data in Miscellaneous Engineering Data section.

3 Ton - QGA036S5D

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			85° F (29.4° C)						95° F (35° C)						105° F (40.6° C)						115° F (46.1° C)					
			Total Cool Cap.		Comp. Motor Watts Input	Sensible/Total Ratio (S/T) Dry Bulb			Total Cool Cap.		Comp. Motor Watts Input	Sensible/Total Ratio (S/T) Dry Bulb			Total Cool Cap.		Comp. Motor Watts Input	Sensible/Total Ratio (S/T) Dry Bulb			Total Cool Cap.		Comp. Motor Watts Input	Sensible/Total Ratio (S/T) Dry Bulb		
	cfm	L/s	kBtuh	kW		75°F 23.9°C	80°F 26.7°C	85°F 29.4°C	kBtuh	kW		75°F 23.9°C	80°F 26.7°C	85°F 29.4°C	kBtuh	kW		75°F 23.9°C	80°F 26.7°C	85°F 29.4°C	kBtuh	kW		75°F 23.9°C	80°F 26.7°C	85°F 29.4°C
59°F (15°C)	1000	470	35.6	10.4	2270	.91	1.00	1.00	34.2	10.0	2580	.93	1.00	1.00	33.0	9.7	2910	.95	1.00	1.00	31.8	9.3	3290	.97	1.00	1.00
	1200	565	37.8	11.1	2280	.96	1.00	1.00	36.4	10.7	2580	.98	1.00	1.00	35.0	10.3	2930	1.00	1.00	1.00	33.6	9.8	3300	1.00	1.00	1.00
	1400	660	39.5	11.6	2290	1.00	1.00	1.00	38.0	11.1	2590	1.00	1.00	1.00	36.6	10.7	2930	1.00	1.00	1.00	34.8	10.2	3310	1.00	1.00	1.00
63°F (17.2°C)	1000	470	37.2	10.9	2280	.74	.88	.99	35.6	10.4	2580	.76	.90	1.00	34.0	10.0	2920	.78	.92	1.00	32.4	9.5	3300	.80	.94	1.00
	1200	565	38.5	11.3	2280	.80	.94	1.00	37.0	10.8	2590	.80	.96	1.00	35.4	10.4	2930	.82	.98	1.00	33.8	9.9	3300	.85	1.00	1.00
	1400	660	40.0	11.7	2290	.83	.98	1.00	38.5	11.3	2590	.85	1.00	1.00	36.6	10.7	2930	.87	1.00	1.00	35.0	10.3	3310	.90	1.00	1.00
67°F (19.4°C)	1000	470	39.5	11.6	2290	.61	.73	.84	37.8	11.1	2590	.61	.73	.87	36.0	10.6	2930	.62	.76	.89	34.2	10.0	3310	.63	.78	.91
	1200	565	41.0	12.0	2290	.64	.77	.91	39.0	11.4	2590	.64	.79	.93	37.4	11.0	2940	.65	.81	.95	35.4	10.4	3310	.67	.83	.97
	1400	660	42.0	12.3	2290	.67	.82	.96	40.5	11.9	2600	.68	.83	.98	38.5	11.3	2940	.69	.86	1.00	36.4	10.7	3320	.70	.88	1.00
71°F (21.7°C)	1000	470	41.5	12.2	2290	.48	.60	.70	39.5	11.6	2600	.48	.61	.72	38.0	11.1	2940	.49	.61	.73	36.2	10.6	3320	.48	.61	.75
	1200	565	43.0	12.6	2300	.49	.63	.76	41.0	12.0	2600	.50	.64	.77	39.5	11.6	2950	.51	.65	.79	37.4	11.0	3330	.51	.65	.81
	1400	660	44.5	13.0	2300	.51	.66	.80	42.5	12.5	2610	.51	.67	.81	40.5	11.9	2950	.51	.68	.84	38.5	11.3	3330	.52	.70	.87

RATINGS

NOTE − For Temperatures and Capacities not shown in tables, see bulletin − Cooling Unit Rating Table Correction Factor Data in Miscellaneous Engineering Data section.

4 Ton - QGA048S5D

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			85° F (29.4° C)						95° F (35° C)						105° F (40.6° C)						115° F (46.1° C)					
			Total Cool Cap.		Comp. Motor Watts Input	Sensible/Total Ratio (S/T) Dry Bulb			Total Cool Cap.		Comp. Motor Watts Input	Sensible/Total Ratio (S/T) Dry Bulb			Total Cool Cap.		Comp. Motor Watts Input	Sensible/Total Ratio (S/T) Dry Bulb			Total Cool Cap.		Comp. Motor Watts Input	Sensible/Total Ratio (S/T) Dry Bulb		
	cfm	L/s	kBtuh	kW		75°F 23.9°C	80°F 26.7°C	85°F 29.4°C	kBtuh	kW		75°F 23.9°C	80°F 26.7°C	85°F 29.4°C	kBtuh	kW		75°F 23.9°C	80°F 26.7°C	85°F 29.4°C	kBtuh	kW		75°F 23.9°C	80°F 26.7°C	85°F 29.4°C
59°F (15°C)	1300	615	43.5	12.7	2590	.94	1.00	1.00	42.0	12.3	2960	.96	1.00	1.00	40.5	11.9	3370	.98	1.00	1.00	38.5	11.3	3840	1.00	1.00	1.00
	1600	755	46.0	13.5	2600	1.00	1.00	1.00	44.5	13.0	2970	1.00	1.00	1.00	42.5	12.5	3390	1.00	1.00	1.00	40.5	11.9	3850	1.00	1.00	1.00
	1900	895	48.0	14.1	2620	1.00	1.00	1.00	46.5	13.6	2990	1.00	1.00	1.00	44.5	13.0	3400	1.00	1.00	1.00	42.5	12.5	3860	1.00	1.00	1.00
63°F (17.2°C)	1300	615	45.0	13.2	2600	.77	.91	1.00	43.5	12.7	2970	.79	.92	1.00	41.0	12.0	3380	.80	.95	1.00	39.0	11.4	3850	.83	.98	1.00
	1600	755	47.0	13.8	2610	.83	.98	1.00	45.0	13.2	2980	.84	1.00	1.00	43.0	12.6	3390	.86	1.00	1.00	41.0	12.0	3860	.89	1.00	1.00
	1900	895	48.0	14.1	2620	.88	1.00	1.00	46.5	13.6	2990	.90	1.00	1.00	45.0	13.2	3400	.92	1.00	1.00	42.5	12.5	3860	.95	1.00	1.00
67°F (19.4°C)	1300	615	47.5	13.9	2610	.63	.75	.88	45.5	13.3	2980	.63	.77	.90	43.5	12.7	3390	.64	.79	.92	41.0	12.0	3860	.66	.81	.95
	1600	755	49.5	14.5	2620	.66	.81	.95	47.5	13.9	2990	.67	.83	.97	45.0	13.2	3400	.69	.85	1.00	43.0	12.6	3860	.70	.87	1.00
	1900	895	51.0	14.9	2630	.70	.86	1.00	49.0	14.4	3000	.71	.88	1.00	46.5	13.6	3400	.72	.91	1.00	44.0	12.9	3870	.75	.93	1.00
71°F (21.7°C)	1300	615	50.0	14.7	2620	.48	.61	.73	48.0	14.1	2990	.49	.62	.75	46.0	13.5	3400	.49	.63	.77	43.5	12.7	3860	.50	.65	.79
	1600	755	52.0	15.2	2630	.51	.65	.79	50.0	14.7	3000	.51	.66	.81	47.5	13.9	3410	.52	.68	.83	45.0	13.2	3870	.53	.70	.86
	1900	895	53.5	15.7	2630	.53	.69	.85	51.0	14.9	3000	.54	.70	.87	48.5	14.2	3410	.54	.72	.89	46.0	13.5	3870	.56	.74	.92

5 Ton - QGA060S5D

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			85° F (29.4° C)						95° F (35° C)						105° F (40.6° C)						115° F (46.1° C)					
			Total Cool Cap.		Comp. Motor Watts Input	Sensible/Total Ratio (S/T) Dry Bulb			Total Cool Cap.		Comp. Motor Watts Input	Sensible/Total Ratio (S/T) Dry Bulb			Total Cool Cap.		Comp. Motor Watts Input	Sensible/Total Ratio (S/T) Dry Bulb			Total Cool Cap.		Comp. Motor Watts Input	Sensible/Total Ratio (S/T) Dry Bulb		
	cfm	L/s	kBtuh	kW		75°F 23.9°C	80°F 26.7°C	85°F 29.4°C	kBtuh	kW		75°F 23.9°C	80°F 26.7°C	85°F 29.4°C	kBtuh	kW		75°F 23.9°C	80°F 26.7°C	85°F 29.4°C	kBtuh	kW		75°F 23.9°C	80°F 26.7°C	85°F 29.4°C
59°F (15°C)	1450	685	55.5	16.3	3470	.89	1.00	1.00	54.0	15.8	3920	.91	1.00	1.00	51.5	15.1	4430	.93	1.00	1.00	49.5	14.5	5020	.95	1.00	1.00
	1800	850	60.0	17.6	3490	.96	1.00	1.00	57.5	16.9	3950	.98	1.00	1.00	55.0	16.1	4460	1.00	1.00	1.00	53.0	15.5	5060	1.00	1.00	1.00
	2100	990	62.5	18.3	3500	1.00	1.00	1.00	60.0	17.6	3960	1.00	1.00	1.00	58.0	17.0	4480	1.00	1.00	1.00	55.0	16.1	5080	1.00	1.00	1.00
63°F (17.2°C)	1450	685	58.5	17.1	3490	.74	.86	.98	56.5	16.6	3940	.76	.88	1.00	54.0	15.8	4440	.77	.90	1.00	51.0	14.9	5030	.79	.93	1.00
	1800	850	61.5	18.0	3500	.79	.93	1.00	58.5	17.1	3950	.81	.95	1.00	56.0	16.4	4470	.82	.98	1.00	53.5	15.7	5060	.85	1.00	1.00
	2100	990	63.5	18.6	3510	.83	.98	1.00	60.5	17.7	3960	.85	1.00	1.00	57.5	16.9	4480	.87	1.00	1.00	55.5	16.3	5080	.90	1.00	1.00
67°F (19.4°C)	1450	685	61.5	18.0	3500	.60	.72	.83	59.5	17.4	3960	.61	.73	.85	56.5	16.6	4470	.62	.75	.87	53.5	15.7	5060	.63	.77	.89
	1800	850	65.0	19.0	3510	.64	.77	.90	61.5	18.0	3970	.65	.79	.92	59.5	17.4	4490	.66	.81	.95	56.0	16.4	5090	.67	.83	.98
	2100	990	66.5	19.5	3520	.67	.81	.96	64.0	18.8	3980	.68	.83	.99	60.5	17.7	4500	.69	.86	1.00	57.5	16.9	5100	.71	.88	1.00
71°F (21.7°C)	1450	685	65.0	19.0	3510	.47	.59	.70	62.5	18.3	3970	.48	.60	.71	59.5	17.4	4490	.48	.61	.73	56.5	16.6	5090	.49	.62	.75
	1800	850	67.5	19.8	3520	.49	.63	.75	65.5	19.2	3990	.50	.64	.77	62.0	18.2	4510	.50	.65	.79	59.0	17.3	5120	.52	.67	.81
	2100	990	69.5	20.4	3530	.51	.66	.80	67.0	19.6	4000	.52	.67	.82	63.5	18.6	4520	.53	.69	.84	60.5	17.7	5130	.54	.71	.86

BLOWER DATA

QGA036S5D

Blower Tap		External Static (in.w.g.)									
		0.1	**0.2**	**0.3**	**0.4**	**0.5**	**0.6**	**0.7**	**0.8**	**0.9**	**1.0**
Tap 1 (Fan Only)	Cfm	897	816	734	629	549	486	411	342	---	---
	RPM	471	520	573	632	677	723	762	790	---	---
	Watts	89	95	103	111	117	123	129	132	---	---
Tap 2 (Low Cooling)	Cfm	1444	1390	1336	1283	1226	1166	1106	1042	975	895
	RPM	686	713	740	768	797	829	861	897	938	979
	Watts	261	270	278	287	296	305	315	326	339	352
Tap 3 (High Cooling)	Cfm	1616	1567	1523	1476	1432	1391	1347	1309	1256	1204
	RPM	734	762	789	816	847	876	903	934	965	1000
	Watts	355	366	375	386	398	409	420	431	444	457
Tap 4 (54k Heat Exchanger	Cfm	1058	1008	958	905	856	802	749	700	650	598
	RPM	654	683	712	742	779	810	842	872	902	934
	Watts	164	169	175	182	188	195	201	208	213	221
Tap 5 (54k Heat Exchanger	Cfm	1318	1276	1235	1202	1157	1116	1072	1028	985	945
	RPM	786	813	836	860	886	910	939	968	995	1022
	Watts	293	302	309	317	324	332	341	350	358	367
Tap 4 (72k Heat Exchanger	Cfm	1120	1063	1003	938	871	799	725	670	614	554
	RPM	588	621	643	681	714	721	758	775	794	817
	Watts	136	143	151	158	166	176	184	191	198	205
Tap 5 (72k Heat Exchanger	Cfm	1394	1344	1296	1247	1205	1152	1097	1043	984	913
	RPM	600	640	693	740	798	830	872	930	960	1012
	Watts	237	246	255	264	273	282	293	302	314	325
Tap 4 (90k Heat Exchanger	Cfm	1600	1556	1511	1468	1425	1382	1339	1295	1247	1207
	RPM	767	796	820	847	874	902	927	955	983	1010
	Watts	357	367	376	387	396	406	416	427	436	448
Tap 5 (90k Heat Exchanger	Cfm	1918	1878	1840	1805	1767	1733	1694	1660	1625	1586
	RPM	893	917	937	958	982	1002	1028	1050	1074	1095
	Watts	597	609	620	631	643	652	667	679	693	701

NOTE - All air data is measured external to unit with dry coil and without air filters.

BLOWER DATA

QGA048S5D

Blower Tap		External Static (in.w.g.)									
		0.1	**0.2**	**0.3**	**0.4**	**0.5**	**0.6**	**0.7**	**0.8**	**0.9**	**1.0**
Tap 1 (Fan Only)	Cfm	1225	1098	1036	968	903	831	724	658	604	555
	RPM	582	593	629	669	710	754	807	840	873	905
	Watts	180	167	174	182	190	198	210	216	224	229
Tap 2 (Low Cooling)	Cfm	1791	1745	1695	1644	1592	1544	1495	1444	1395	1339
	RPM	832	854	878	900	923	945	968	992	1019	1046
	Watts	458	467	477	485	495	506	515	526	539	549
Tap 3 (High Cooling)	Cfm	1951	1909	1867	1828	1787	1749	1712	1672	1635	1595
	RPM	849	873	894	918	940	961	984	1008	1029	1053
	Watts	586	598	609	622	633	645	657	670	681	693
Tap 4 (90k Heat Exchanger	Cfm	1545	1497	1452	1403	1356	1309	1256	1209	1159	1108
	RPM	732	759	787	816	843	871	903	934	962	995
	Watts	299	310	320	329	341	349	359	371	380	391
Tap 5 (90k Heat Exchanger	Cfm	1836	1794	1752	1711	1674	1632	1592	1553	1511	1465
	RPM	843	864	890	913	936	960	985	1009	1033	1062
	Watts	476	487	500	509	521	532	544	555	566	581
Tap 4 (108k Heat Exchanger	Cfm	1568	1515	1467	1417	1369	1324	1273	1226	1172	1117
	RPM	709	739	769	797	827	857	887	921	953	988
	Watts	292	302	313	323	334	343	354	366	377	390
Tap 5 (108k Heat Exchanger	Cfm	1939	1893	1851	1809	1769	1726	1687	1652	1612	1572
	RPM	843	867	891	917	941	969	993	1015	1041	1065
	Watts	515	526	540	553	566	579	592	604	617	630
Tap 4 (126k Heat Exchanger	Cfm	1651	1597	1553	1505	1461	1416	1369	1316	1264	1221
	RPM	746	776	803	831	857	887	914	944	977	1007
	Watts	338	350	360	371	381	392	403	415	426	437
Tap 5 (126k Heat Exchanger	Cfm	1943	1899	1855	1816	1773	1733	1692	1655	1616	1576
	RPM	857	880	904	928	953	977	1001	1025	1048	1073
	Watts	528	540	552	565	578	590	603	615	629	641

NOTE - All air data is measured external to unit with dry coil and without air filters.

BLOWER DATA

QGA060S5D

Blower Tap		External Static (in.w.g.)									
		0.1	**0.2**	**0.3**	**0.4**	**0.5**	**0.6**	**0.7**	**0.8**	**0.9**	**1.0**
Tap 1 (Fan Only)	Cfm	1374	1314	1263	1208	1151	1094	1030	965	884	787
	RPM	631	659	691	722	758	793	834	874	918	966
	Watts	221	228	236	244	254	263	274	284	296	309
Tap 2 (Low Cooling)	Cfm	1937	1893	1851	1805	1763	1720	1677	1635	1596	1554
	RPM	831	851	873	892	919	942	966	991	1018	1043
	Watts	523	532	543	553	565	577	589	601	613	626
Tap 3 (High Cooling)	Cfm	2281	2258	2214	2180	2139	2110	2069	2023	1954	1882
	RPM	967	986	1004	1020	1038	1055	1073	1090	1103	1114
	Watts	851	862	874	884	896	907	916	917	901	880
Tap 4 (90k Heat Exchanger	Cfm	1469	1410	1356	1304	1247	1196	1138	1079	1020	947
	RPM	642	678	711	739	776	809	845	880	919	957
	Watts	207	217	226	234	244	253	263	273	283	293
Tap 5 (90k Heat Exchanger	Cfm	1838	1792	1744	1699	1654	1612	1568	1519	1474	1430
	RPM	769	796	822	850	872	899	928	958	982	1011
	Watts	375	382	392	404	414	424	437	449	460	471
Tap 4 (108k Heat Exchanger	Cfm	1648	1595	1546	1493	1447	1398	1352	1305	1256	1211
	RPM	729	759	786	813	843	870	897	927	960	993
	Watts	298	309	318	328	338	347	357	367	379	390
Tap 5 (108k Heat Exchanger	Cfm	2033	1990	1946	1904	1862	1821	1781	1743	1705	1665
	RPM	868	893	914	940	961	986	1006	1030	1051	1075
	Watts	525	540	550	562	573	585	596	608	619	633
Tap 4 (126k Heat Exchanger	Cfm	1639	1584	1539	1492	1446	1399	1355	1308	1258	1210
	RPM	737	766	795	825	853	881	909	941	970	1005
	Watts	301	311	322	332	342	353	362	373	383	394
Tap 5 (126k Heat Exchanger	Cfm	1988	1945	1899	1856	1822	1785	1743	1707	1671	1636
	RPM	864	890	914	939	961	987	1011	1035	1058	1081
	Watts	507	520	532	545	557	569	581	593	605	616

NOTE - All air data is measured external to unit with dry coil and without air filters.

BLOWER DATA

AIR RESISTANCE DATA - in. w.g.

Air Volume cfm	Wet Indoor Coil			Optional Economizer
	036, 042	048	060	
600	0.01	0.01	- - -	0.02
700	0.01	0.01	0.01	0.03
800	0.01	0.01	0.01	0.04
900	0.02	0.01	0.01	0.05
1000	0.02	0.02	0.02	0.06
1100	0.02	0.02	0.02	0.07
1200	0.03	0.02	0.02	0.08
1300	0.03	0.03	0.03	0.10
1400	0.04	0.03	0.03	0.12
1500	0.05	0.04	0.03	0.13
1600	0.05	0.05	0.03	0.15
1700	0.05	0.05	0.04	0.18
1800	0.06	0.05	0.04	0.20
1900	0.06	0.06	0.04	0.21
2000	0.07	0.06	0.05	0.24

DUCT ADAPTER RESISTANCE DATA - in. w.g.

Air Volume cfm	Rectangular to Round Duct Adaptor Kits					
	Downflow		Horizontal			
	14 in. Diameter		14 in. Diameter		16 in. Diameter	18 in. Diameter
	36	48, 60	36	48, 60	48, 60	48, 60
500	0.03	- - -	0.04	- - -	- - -	- - -
600	0.05	- - -	0.07	- - -	- - -	- - -
700	0.08	0.13	0.08	0.13	- - -	- - -
800	0.10	0.17	0.12	0.16	- - -	- - -
900	0.12	0.21	0.15	0.21	- - -	- - -
1000	0.17	0.24	0.19	0.25	0.11	0.03
1100	0.18	0.30	0.23	0.30	0.11	0.03
1200	0.20	0.36	0.29	0.37	0.13	0.03
1300	0.26	0.43	0.31	0.43	0.17	0.03
1400	0.31	0.50	0.39	0.51	0.20	0.03
1500	- - -	0.57	- - -	0.57	0.21	0.05
1600	- - -	0.63	- - -	0.65	0.26	0.05
1700	- - -	0.71	- - -	0.72	0.30	0.06
1800	- - -	0.80	- - -	0.81	0.30	0.06
1900	- - -	0.91	- - -	0.90	0.40	0.06
2000	- - -	0.99	- - -	1.01	0.41	0.06

ELECTRICAL DATA

	Model No.	QGA036S5D	
[1] **Voltage - 60Hz**		**208/230V-3ph**	**460V-3ph**
Compressor	Rated Load Amps	12.2	5.8
	Locked Rotor Amps	102.8	50
Outdoor Fan Motor	Full Load Amps	1.8	1
Indoor Blower Motor	Horsepower	0.75	0.75
	Type	ECM	ECM
	Full Load Amps	2.4	3.2
[2] Maximum Overcurrent Protection (MOCP)	Unit Only	30	15
[3] Minimum Circuit Ampacity (MCA)	Unit Only	21	11.9

	Model No.	QGA048S5D	
[1] **Voltage - 60Hz**		**208/230V-3ph**	**460V-3ph**
Compressor	Rated Load Amps	12.2	5.1
	Locked Rotor Amps	120.4	41
Outdoor Fan Motor	Full Load Amps	1.8	1
Indoor Blower Motor	Horsepower	1.0	1.0
	Type	ECM	ECM
	Full Load Amps	7.6	4
[2] Maximum Overcurrent Protection (MOCP)	Unit Only	35	15
[3] Minimum Circuit Ampacity (MCA)	Unit Only	26.2	11.9

	Model No.	QGA060S5D	
[1] **Voltage - 60Hz**		**208/230V-3ph**	**460V-3ph**
Compressor	Rated Load Amps	13.1	6.6
	Locked Rotor Amps	93	60
Outdoor Fan Motor	Full Load Amps	1.8	1
Indoor Blower Motor	Horsepower	1.0	1.0
	Type	ECM	ECM
	Full Load Amps	7.6	4
[2] Maximum Overcurrent Protection (MOCP)	Unit Only	35	15
[3] Minimum Circuit Ampacity (MCA)	Unit Only	27.3	13.7

NOTE - All units have a minimum Short Circuit Current Rating (SCCR) of 5000 amps.

[1] Extremes of operating range are plus and minus 10% of line voltage.

[2] HACR type breaker or fuse.

[3] Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

WEIGHT DATA — UNIT

Model Number	Net		Shipping	
	lbs.	kg	lbs.	kg
QGA036	506	230	516	234
QGA048	550	249	560	254
QGA060	568	258	578	262

WEIGHT DATA — OPTIONS / ACCESSORIES

	Shipping	
	lbs.	kg
CABINET		
Tool-Less Filter Access Kit	20	9
ECONOMIZER / OUTDOOR AIR		
Economizer		
Economizer, Includes Barometric Relief Dampers and Exhaust Hood	95	43
Outdoor Air Dampers		
Motorized	35	16
Manual	28	13
GAS HEAT EXCHANGER (Net Weight)		
Medium Heat (adder over standard heat)	3	1
High Heat (adder over standard heat)	6	3
ROOF CURBS		
Clip Curbs		
8 in. height	63	29
14 in. height	77	35
18 in. height	99	45
24 in. height	132	60
Adjustable Pitch Roof Curb (Knock-Down Style), Downflow		
14 in. height	95	43
Adjustable Pitch Roof Curb (Welded), Downflow		
14 in. height	68	31

INSTALLATION CLEARANCES

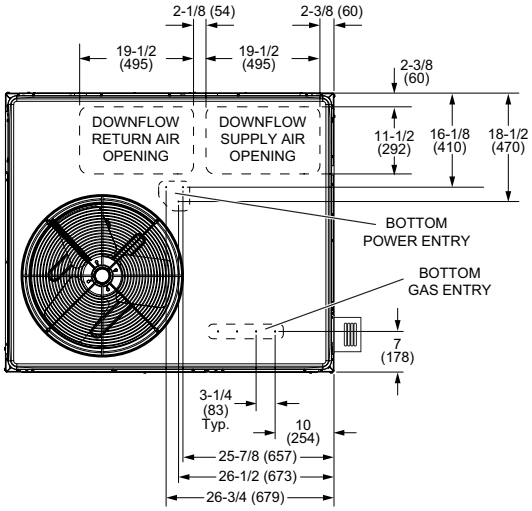
	in.	mm
Front (heat exchanger access)	24	610
Right Side (blower and evaporator coil access)	24	610
Left Side (compressor access)	24	610
Back	0	0
Top	48	1219

MINIMUM CLEARANCE TO COMBUSTIBLE MATERIAL

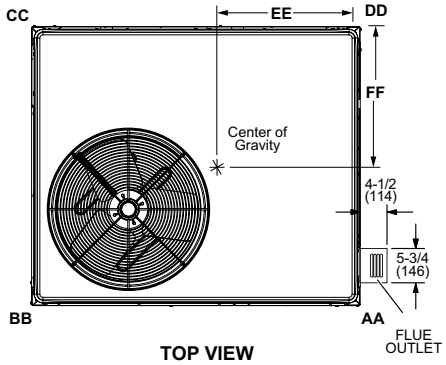
	in.	mm
Front	0	0
Back	0	0
Right Side (vent cover)	12	305
Left Side	0	0
Top	0	0
Below Unit	0	0

DIMENSIONS — UNIT

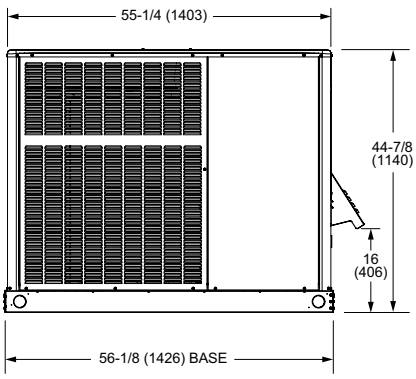
Model Number	CORNER WEIGHTS								CENTER OF GRAVITY			
	AA		BB		CC		DD		EE		FF	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	in.	mm	in.	mm
QGA036	122	55	123	56	131	59	131	59	27.50	699	21.75	552
QGA048	133	60	133	60	143	65	142	64	27.50	699	21.75	552
QGA060	137	62	138	63	147	67	147	67	27.50	699	21.75	552



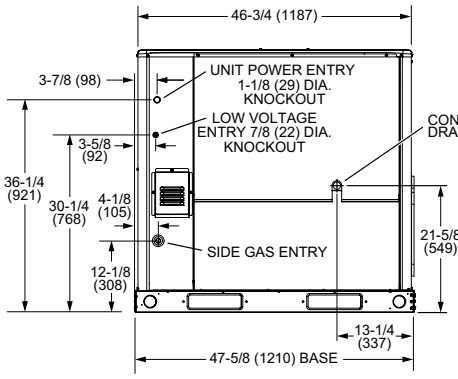
TOP VIEW (Base)



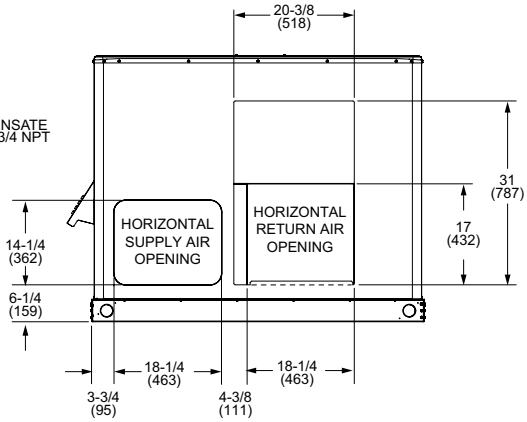
TOP VIEW (Corner Weight and Center of Gravity)



FRONT VIEW

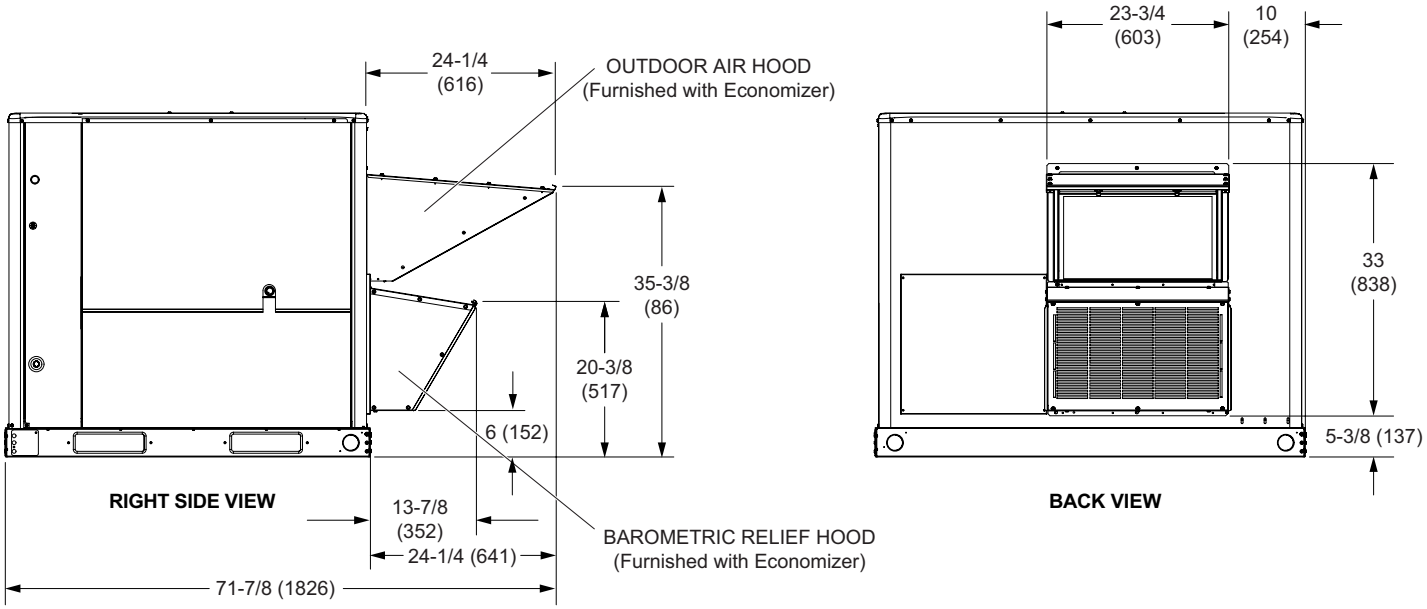


RIGHT SIDE VIEW

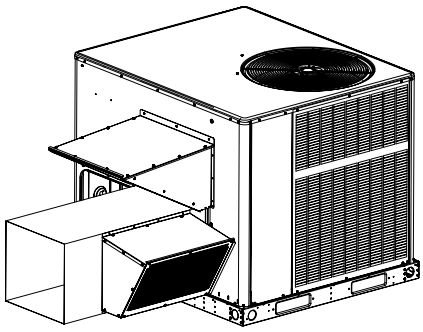


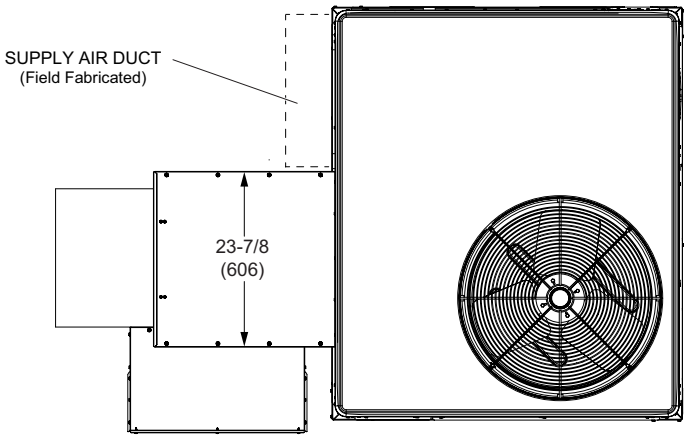
BACK VIEW

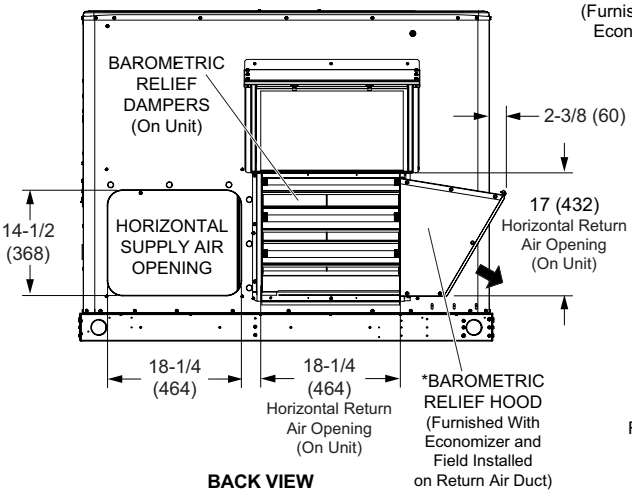
OUTDOOR AIR HOOD DETAIL FOR OPTIONAL ECONOMIZER WITH BAROMETRIC RELIEF DAMPERS
(Downflow Applications)

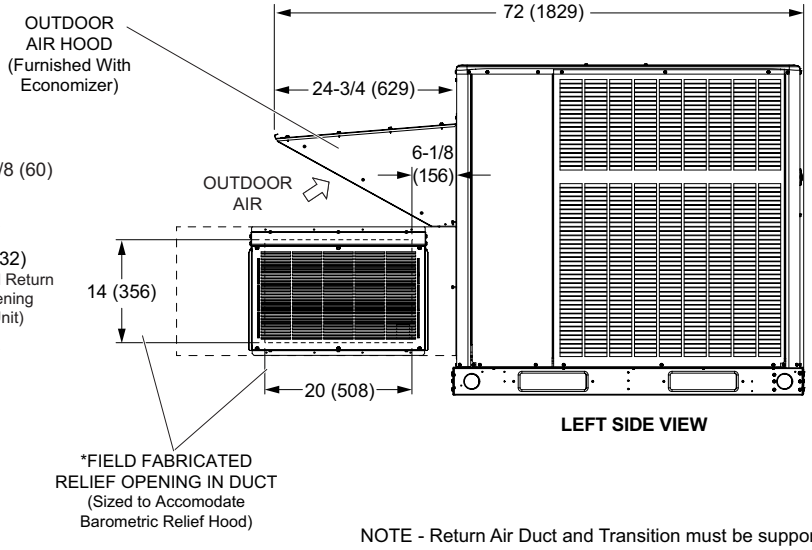


OUTDOOR AIR HOOD DETAIL FOR OPTIONAL ECONOMIZER WITH BAROMETRIC RELIEF DAMPERS
(Horizontal Applications)





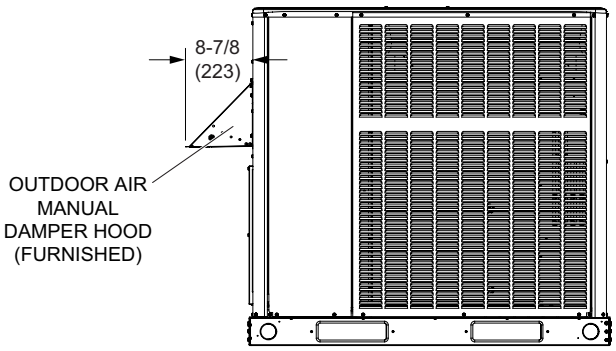




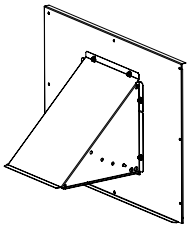
NOTE - Return Air Duct and Transition must be supported.

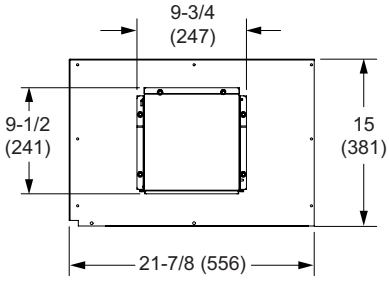
OUTDOOR AIR HOOD DETAIL FOR OPTIONAL OUTDOOR AIR DAMPERS

MANUAL OUTDOOR AIR DAMPERS

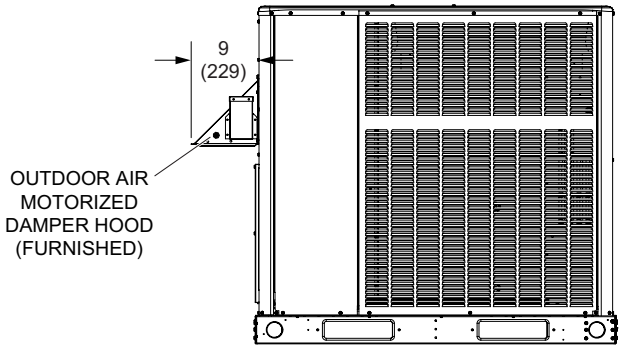


LEFT SIDE VIEW

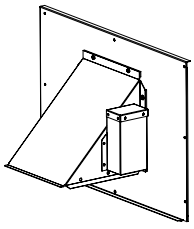


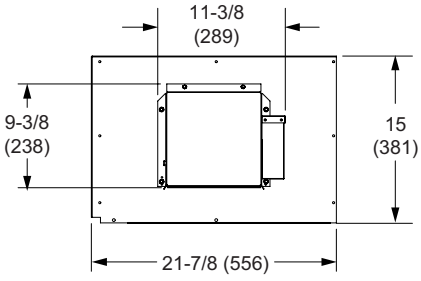


MOTORIZED OUTDOOR AIR DAMPERS



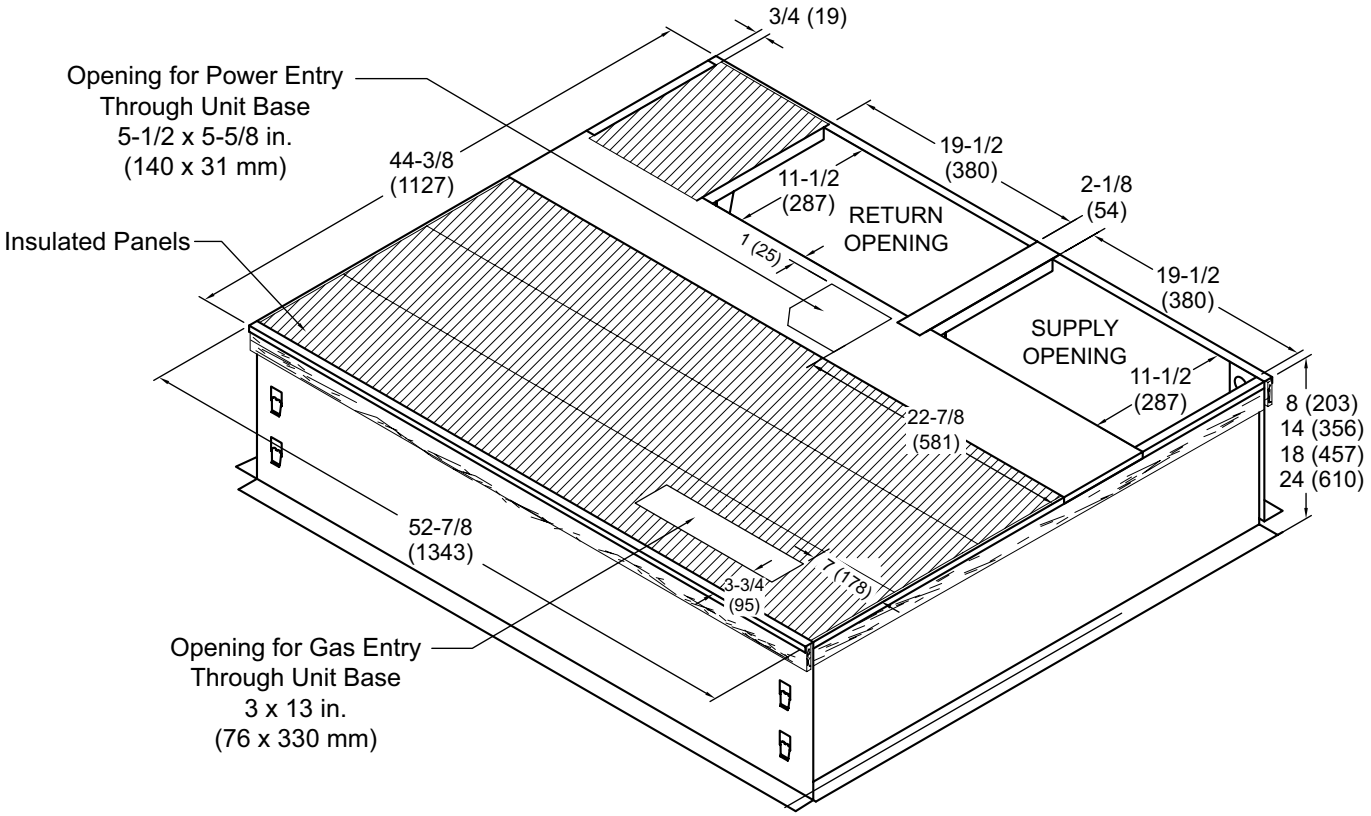
LEFT SIDE VIEW





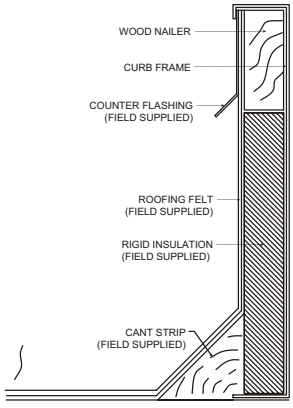
NOTE - Outdoor Air Hood and Panel replaces existing panel on unit.

CLIP CURB

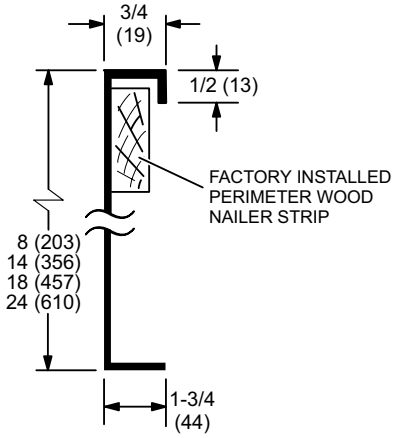


NOTE - Roof deck may be omitted within confines of curb.

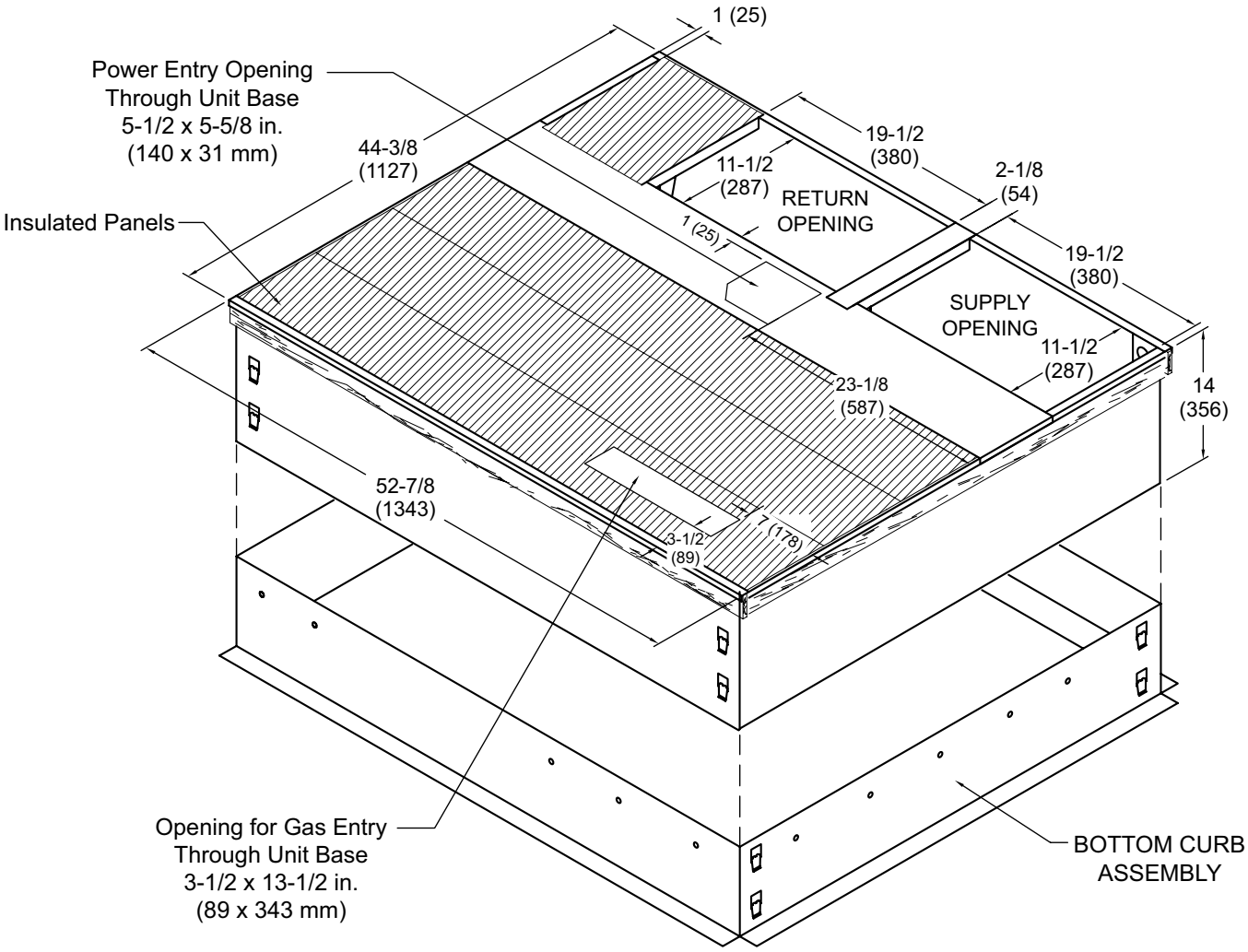
TYPICAL FLASHING DETAIL FOR ROOF CURB



DETAIL ROOF CURB

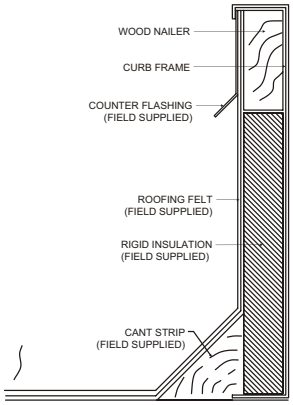


ADJUSTABLE PITCH ROOF CURB (KNOCK-DOWN STYLE)

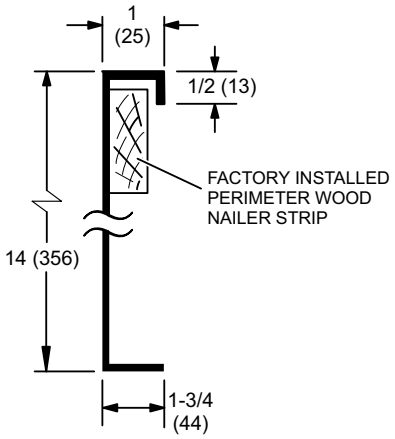


NOTE - Roof deck may be omitted within confines of curb.

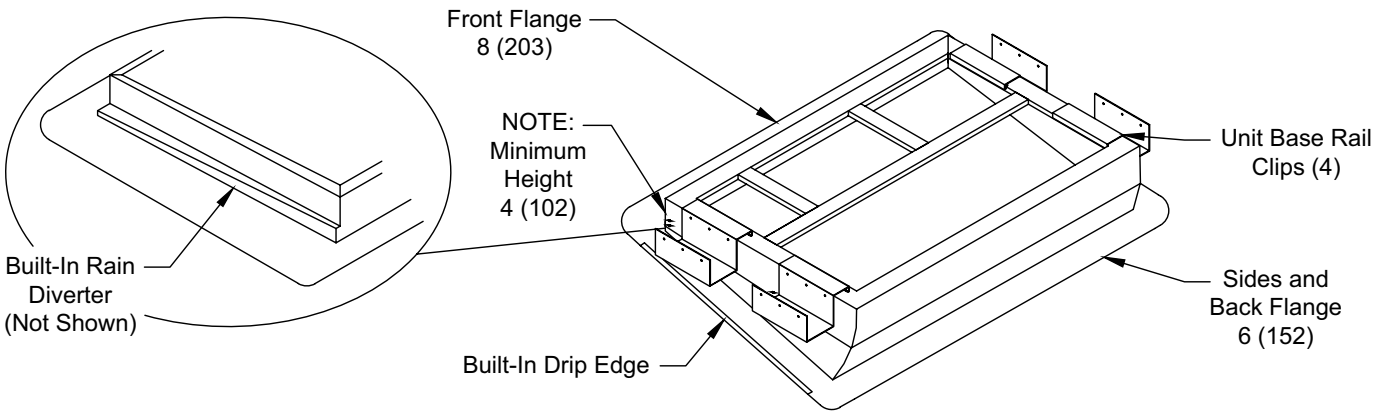
TYPICAL FLASHING DETAIL FOR ROOF CURB

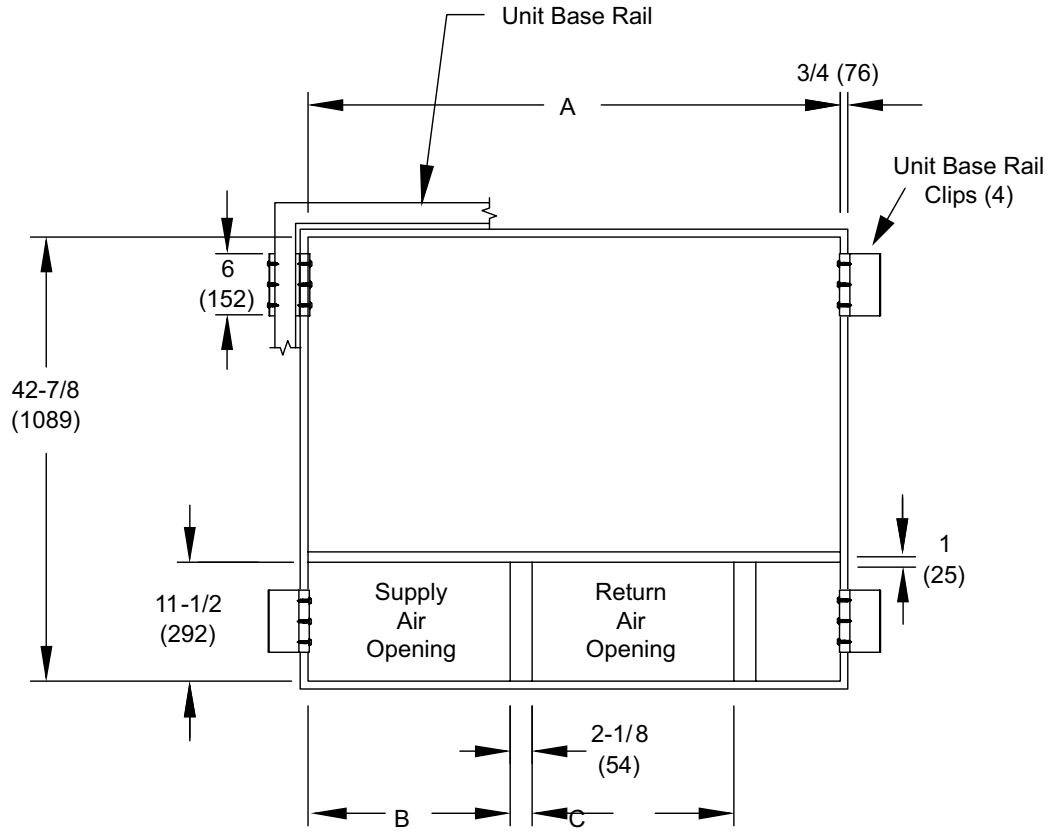


DETAIL ROOF CURB



ADJUSTABLE PITCH ROOF CURB (WELDED STYLE)





USAGE	A		B		C	
	in.	mm	in.	mm	in.	mm
36,48,60	51-3/8	1305	19-1/2	495	19-1/2	495

ALLIED™ Commercial

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NOTE - Due to Allied Commercial ongoing commitment to quality, Specifications, Ratings and Dimensions subject to change without notice and without incurring liability.
Improper installation, adjustment, alteration, service or maintenance can cause property damage or personal injury.
Installation and service must be performed by a qualified installer and servicing agency.