

TECHNICAL SPECIFICATIONS FOR MODEL EEDU

**INDOOR COMMERCIAL/INDUSTRIAL ENERGY-EFFICIENT
POWER-VENTED GAS-FIRED DUCT FURNACE**

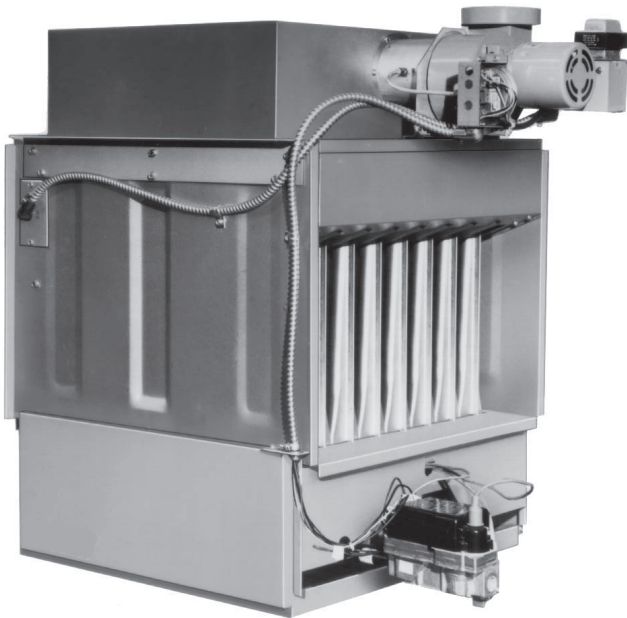


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In keeping with our policy of continuous product improvement, we reserve the right to alter, at any time, the design, construction, dimensions, weights, etc., of equipment information shown here.

TECHNICAL SPECIFICATIONS—CONTINUED

Unit Sizes

These duct furnaces are available in eleven unit sizes based on input heating capacity of 75,000–400,000 BTUh.

Features

- Voltage/phase/Hz options: 115/1/60, 208/1/60, and 230/1/60
- Natural gas or propane
- 80% thermal efficient; energy-efficient (up to 25% annual fuel use improvement compared to gravity-vented duct furnaces)
- Intermittent spark pilot
- Corrosion-resistant Galvalume® cabinet
- Power venter limits burner flue losses and reduces required vent pipe size
- Sealed vent product collection chamber reduces loss of dilution air from room in both ON and OFF cycles
- Aluminized-steel burner with SST insert
- Thermocore® aluminized-steel heat exchanger with venturi tubes (SST heat exchanger recommended for air inlet temperature or temperature rise <40°F)
- When furnace is installed downstream of A/C coil, SST burner and heat exchanger and condensate drain are recommended
- Limit control and combustion air proving pressure switch
- 24V control transformer (designed for field-connection to 24V thermostat for automatic operation)

Factory-Installed Options

Option	Description
AA1	Natural gas
AA2	Propane
AB1	Installation elevation of 0–2000 feet
AB2	Installation elevation of 2001–3000 feet
AB3	Installation elevation of 3001–4000 feet
AB4	Installation elevation of 4001–5000 feet
AB5	Installation elevation of 5001–6000 feet
AB6	Installation elevation of 6001–7000 feet
AC1	Aluminized-steel heat exchanger
AC2	409 SST heat exchanger
AD1	Aluminized-steel burner
AD2	409 SST burner
AE1	No burner air shutters
AE2	Burner air shutters (required on propane units)
AF1	Aluminized-steel drip pan/bottom panel
AF2	409 SST drip pan/bottom panel
AGA	US installation
AG1	Single-stage combination gas valve
AG2	Two-stage combination gas valve (not available on size 75 propane units)
AG3	Two-stage combination gas valve with unit-mounted ductstat (not available on size 75 propane units)
AG8	Electronic modulation with 2:1 turndown ratio (requires option CQ1 fan control)
AG15	Two-stage combination gas valve with electronic ductstat and remote temperature selector (not available on size 75 propane units)
AG21	Electronic modulation with 2:1 turndown ratio and with Maxitrol signal conditioner and gas regulator
AH2	Intermittent spark pilot (not available on propane units)
AH3	Intermittent spark pilot with timed lockout (for natural gas and propane units)
AK1	Voltage/phase/Hz 115/1/60
AK2	Voltage/phase/Hz 208/1/60
AK3	Voltage/phase/Hz 230/1/60
AZ9	Heat exchanger side panels
CGA	Canadian installation

Field-Installed Options

Option	Description
AG7	Electronic modulation with room thermostat
AG9	Electronic modulation with 2:1 turndown ratio and remote temperature selector
CC1	Vent cap
CE1	Manual gas shutoff valve, natural gas
CE2	Manual gas shutoff valve, propane
CL1	Single-stage thermostat
CL9	Electronic modulating room override
CL22	Two-stage thermostat
CL33	Two-stage digital thermostat
CL52	Single-stage digital thermostat
CM1	Locking thermostat cover
CM1B	Large locking thermostat cover
CK3	Hanger kit for suspension from 1-inch threaded pipe
CR1	Coupling kit for two furnaces
CR2	Coupling kit for three furnaces
CR3	Coupling kit for four furnaces
CR4	Coupling kit for five furnaces
CQ1	Adjustable fan control
CS1	Condensate drain flange kit
—	Base-mounting kit (PN 1034022)

Technical Data

Parameter	Unit of Measure	Unit Size (MBTUh)										
		75	100	125	140	170	200	225	250	300	350	400
Input heating capacity	BTU/h	75,000	100,000	125,000	140,000	170,000	200,000	225,000	250,000	300,000	350,000	400,000
	kW	22.0	29.3	36.6	41.0	49.8	58.6	65.9	73.3	87.9	102.6	117.2
Output heating capacity (80%)	BTU/h	60,000	80,000	100,000	112,000	136,000	160,000	180,000	200,000	240,000	280,000	320,000
	kW	17.6	23.4	29.3	32.8	39.9	46.9	52.8	58.6	70.3	82.1	93.8
Air volume with finger-baffles	CFM	615–1105	820–1480	1025–1850	1150–2065	1390–2505	1635–2945	1840–3315	2045–3685	2455–4420	2865–5160	3275–5895
	meter ³ /hr	1045–1877	1393–2514	1741–3143	1954–3508	2362–4256	2778–5003	3126–5632	3474–6261	4171–7509	4867–8767	5564–10,015
Air volume without finger-baffles*	CFM	850–2765	1135–3685	1420–4605	1585–5160	1790–6265	2105–7370	2370–8295	2630–9215	3160–11,060	3685–12,900	4210–14,745
	meter ³ /hr	1444–4698	1928–6261	2413–7824	2693–8767	3041–10,644	3576–12,521	4027–14,093	4468–15,656	5369–18,790	6261–21,916	7153–25,051

*High CFM conversion requires removal of the finger baffles. This conversion shall be done by a qualified service agency in accordance with the manufacturer's instructions and all applicable codes and requirements of the authority having jurisdiction.

Parameter	Unit of Measure	Unit Size (MBTUh)			
		75, 100, 125, 140, 170, 200	225, 250	300	350, 400
Gas connection	inch	1/2		3/4	
Venter outlet diameter		4	5	6	
Temperature rise with finger-baffles	°F	50–90			
Temperature rise without finger-baffles		20–70			
Full load amps (115V)	amp	2.0			
Unit control amos (24V)		0.7			

TECHNICAL SPECIFICATIONS—CONTINUED

Certification

The unit is design-certified by the Canadian Standards Association for commercial/industrial use in both the United States and Canada. The unit is approved for use with either natural gas or propane. The type of gas for which the furnace is equipped, the correct firing rate, and electrical characteristics are shown on the unit rating plate.

Installation Codes

- These units must be installed in accordance with local building codes. In the absence of local codes, in the United States, the unit must be installed in accordance with the *National Fuel Gas Code* (ANSI Z223.1, latest edition). A Canadian installation must be in accordance with the *Natural Gas and Propane Installation Code* (CSA B149, latest edition). This code is available from CSA Information Services, 1-800-463-6727. Local authorities having jurisdiction should be consulted before installation is made to verify local codes and installation procedure requirements.
- Clearances from the heater and vent to construction or material in storage must conform with the *National Fuel Gas Code* (ANSI Z223.1, latest edition) pertaining to gas-burning devices and such material must not attain a temperature over 160°F by continued operation of the heater.
- Installations in aircraft hangars should be in accordance with the *Standard for Aircraft Hangars* (ANSI/NFPA 409, latest edition). Installations in public garages should be in accordance with the *Standard for Parking Structures* (ANSI/NFPA 88A, latest edition). Installations in repair garages should be in accordance with the *Standard for Repair Garages* (NFPA 88B), which has been incorporated into the *Code for Motor Fuel Dispensing Facilities and Repair Garages* (NFPA 30A, latest edition). In Canada, installations in aircraft hangars and public garages should be in accordance with CSA B149.
- If the heater is being installed in the Commonwealth of Massachusetts, installation must be performed by a licensed plumber or licensed gas fitter.

Unit Location

⚠ CAUTION ⚠

Do not locate the unit where it may be exposed to liquid spray, rain, or dripping water.

- A duct furnace is designed for connection to an inlet and an outlet duct and depends on an external air handler. Location must be in accordance with **Clearances** section.
- There are a variety of factors such as system application, building structure, dimensions, and weight that contribute to selecting the location. Read the installation information in the installation, operation, and maintenance manual provided with the unit and select a location that complies with the requirements.
- The furnace may be suspended or base-mounted. When the furnace is base-mounted on combustible material, a minimum clearance of 12 inches (305 mm) is required. The base or legs used for base-mounting must be made of non-combustible material.
- Service and combustion air clearances (refer to **Clearances** section) apply to both suspended and mounted furnaces.

Combustion Air Requirements

⚠ WARNING ⚠

The unit is designed to take combustion air from the space in which it is installed and is not designed for connection to an outside combustion air intake duct. Connecting this furnace to an outside combustion air intake duct voids the warranty and could cause hazardous operation.

- Requirements for combustion air and ventilation air depend upon whether the unit is located in a confined or unconfined space. A **confined** space is defined as a space whose volume is <50 cubic feet per 1,000 BTU/h of the installed appliance input rating. An **unconfined** space is defined as a space whose volume is ≥50 cubic feet per 1,000 BTU/h of the installed appliance input rating.
- Sufficient air must enter the equipment location to replace the air exhausted through the vent system. Refer to the installation, operation, and maintenance manual provided with the unit for further information on confined spaces and combustion air requirements.

Halogenated Hydrocarbons

Halogenated hydrocarbons are a family of chemical compounds characterized by the presence of halogen elements (fluorine, chlorine, bromine, etc.). These compounds are used in refrigerants, cleaning agents, and solvents and are heavier than air, a fact that should be kept in mind when determining the installation location of heaters and building exhaust systems.

⚠ CAUTION ⚠

CORROSION HAZARD: Halogenated hydrocarbons, when exposed to flame, precipitate with any condensation present in the heater to form hydrochloric acid, which readily attacks all metals, including 300 grade stainless steel. Care should be taken to separate these vapors from the combustion process. An outside air supply **MUST BE** provided to the burner whenever the presence of these compounds is suspected.

Venting Requirements

- Safe operation of any gas-fired equipment requires a properly operating vent system, correct provision for combustion air, and regular maintenance and inspection.
- Venting must be in accordance with the *National Fuel Gas Code* (ANSI/Z223.1, latest edition) or the *Natural Gas and Propane Installation Code* (CSA B149.1, latest edition) and all local codes. Local requirements supersede national requirements.
- These power-vented units are designed to operate safely and efficiently with either a horizontal or vertical vent. For maximum fuel savings, a horizontal vent run is recommended.
- Refer to the installation manual for further information on venting requirements.

Vent Pipe Diameter (Inches)	Unit Size (MBTUh)	Feet (Meters)		
		Maximum Vent Length*	Reduced Length for Each Elbow Used**	
			90-Degree Elbow	45-Degree Elbow
Standard Vent Pipe Diameters				
4	75	40 (12.2)	6 (1.8)	3 (0.9)
	100–200	50 (15.2)	7 (2.1)	3.5 (1.1)
5	225, 250	50 (15.2)	9 (2.7)	4.5 (1.4)
6	300–400	50 (15.2)	11 (3.4)	5.5 (1.7)
Optional (Increased) Vent Pipe Diameters				
5	170	60 (18.3)	9 (2.7)	4.5 (1.4)
	200	70 (21.3)	9 (2.7)	4.5 (1.4)
6	225	70 (21.3)	11 (3.4)	5.5 (1.7)
	250	70 (21.3)	12 (3.7)	6 (1.8)
7	300	70 (21.3)	13 (4.0)	6.5 (2.0)
	350	80 (24.3)	13 (4.0)	6.5 (2.0)
	400	90 (27.4)	14 (4.3)	7 (2.1)
*If the system contains all vertical pipe or a combination of vertical and horizontal vent pipe, the length may be increased 1 foot for each foot of vertical pipe—up to a maximum increase of 10 feet for unit sizes 75–125 or 20 feet for unit sizes 140–400.				
**Reduce the maximum vent length by the amount indicated for each elbow used.				

Ductwork Requirements

⚠ CAUTION ⚠

Joints where ducts attach to furnace must be sealed securely to prevent air leakage into burner rack area. Leakage can cause poor combustion, poor performance, and pilot problems and can shorten heat exchanger life.

NOTE: Make adjustments to ductwork as necessary to obtain a temperature rise and static pressure within the ranges specified on the heater rating plate.

Refer to the installation, operation, and maintenance manual provided with the unit for further information on ductwork requirements.

TECHNICAL SPECIFICATIONS—CONTINUED

Clearances

The unit must be installed so that clearances are provided for combustion air space, for service and inspection, and for proper spacing from combustible construction. Clearance to combustibles is defined as the necessary minimum distance from the heater to a surface or object that ensures that a surface temperature does not exceed 90°F (50°C) above the surrounding ambient temperature. Units must be installed so that clearances are as follows:

Unit Surface	Minimum Clearance (Inches (mm))
Front, top, and flue connector	6 (152)
Sides and bottom	12 (305)
Rear	29 (737)

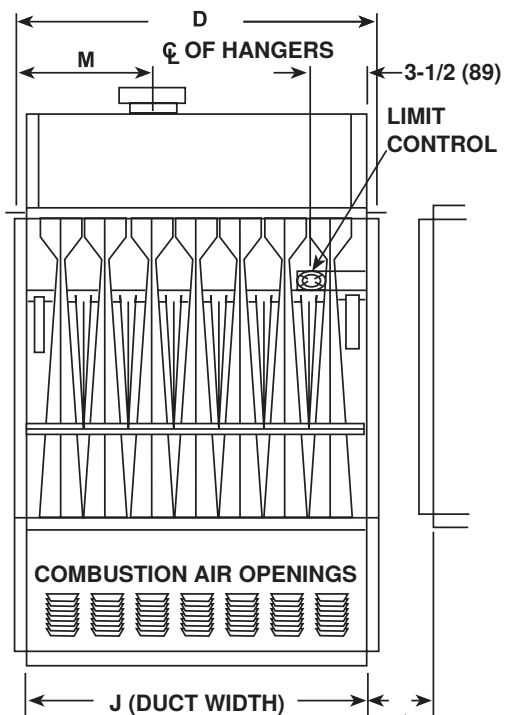
NOTE: The service clearance is shown in the unit dimensions graphic below.

Weights

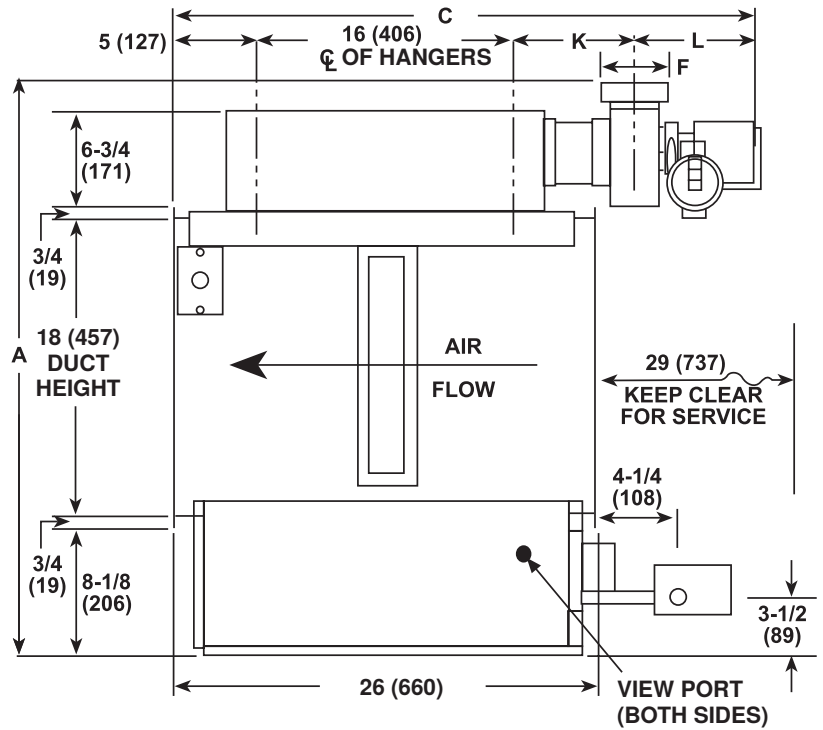
Type	Unit Size (MBTUh)									
	75, 100	125	140	170	200	225	250	300	350	400
	Pounds (kg)									
Unit	104 (47)	126 (57)	128 (58)	150 (68)	172 (78)	194 (88)	216 (98)	262 (119)	306 (139)	328 (149)
Shipping	128 (58)	142 (64)	144 (65)	168 (76)	192 (87)	216 (98)	240 (109)	292 (132)	338 (153)	362 (164)

Dimensions

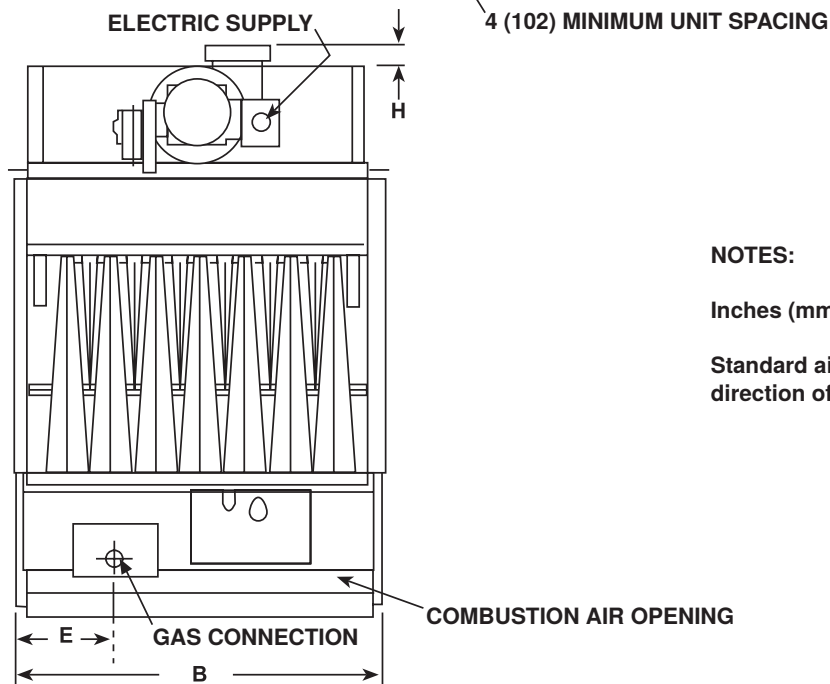
Dimension (See Graphic Below)	Unit Size (MBTUh)								
	75, 100	125, 140	170	200	225	250	300	350	400
	Inches (mm)								
A	35 (889)				35-3/4 (908)		36 (914)		
B	14-1/4 (362)	17 (432)	19-3/4 (502)	22-1/2 (572)	25-1/4 (641)	28 (711)	33-1/2 (851)	39 (991)	44-1/2 (1130)
C	35-11/16 (906)						38-1/8 (968)		
D	14-5/8 (371)	17-3/8 (441)	20-1/8 (511)	22-7/8 (581)	25-5/8 (651)	28-3/8 (721)	33-7/8 (860)	39-3/8 (1000)	44-7/8 (1140)
E	4-3/8 (111)					7-1/8 (181)	9-7/8 (251)	12-5/8 (321)	15-3/8 (391)
F	4 (102)				5 (127)		6 (152)		
H	5/8 (16)				1-3/8 (35)		1-5/8 (41)		
J	12-1/2 (318)	15-1/4 (387)	18 (457)	20-3/4 (527)	23-1/2 (597)	26-1/4 (667)	31-3/4 (806)	37-1/4 (946)	42-3/4 (1086)
K	7-1/4 (184)						9-9/16 (243)		
L	7-7/16 (189)						7-5/8 (194)		
M	4-5/8 (117)	6 (152)	7-3/8 (187)	8-3/4 (222)	10-1/8 (257)	11-1/2 (292)	13-7/8 (352)	16-5/8 (422)	19-3/8 (492)



FRONT VIEW



SIDE VIEW



REAR VIEW

NOTES:

Inches (mm)

Standard airflow may be reversed by changing direction of heat exchanger air baffles.

TECHNICAL SPECIFICATIONS—CONTINUED

Duct Furnace Airflow

- The duct furnace must be installed on the positive pressure side of the field-supplied blower.
- The air distribution must be even over the entire heat exchanger. Turning vanes should be employed in elbows or turns in the air inlet to ensure proper air distribution.
- The air throughput must be within the CFM range stated on the heater rating plate.
- If it is determined that the blower CFM is greater than allowed or desirable, refer to the installation, operation, and maintenance manual provided with the unit for determining the correct size of bypass duct required or for instructions on converting the furnace for a higher CFM application.
- To determine temperature rise, the inlet and outlet air temperatures should be measured at points not affected by heat radiating from the heat exchanger. The following table lists the approved temperature rise range with the required CFM and the internal pressure drop for each size of unit.

Temp- erature Rise	Unit Size (MBTUh)										
	75	100	125	140	170	200	225	250	300	350	400
	CFM/Pressure Drop (IN WC)										
80% Thermal Efficient											
50°F	1105/0.24	1475/0.43	1840/0.49	2065/0.65	2505/0.67	2945/0.67	3315/0.69	3685/0.67	4420/0.70	5160/0.75	5895/0.77
60°F	920/0.16	1225/0.30	1535/0.33	1720/0.43	2085/0.46	2455/0.46	2765/0.47	3070/0.45	3685/0.47	4300/0.52	4915/0.52
70°F	790/0.10	1050/0.21	1315/0.25	1475/0.32	1790/0.33	2105/0.35	2370/0.36	2630/0.34	3160/0.35	3685/0.38	4210/0.38
80°F	695/0.07	920/0.16	1150/0.20	1290/0.24	1565/0.25	1840/0.26	2070/0.27	2300/0.26	2765/0.27	3225/0.28	3685/0.28
90°F	615/0.05	815/0.12	1020/0.17	1145/0.20	1390/0.19	1635/0.20	1840/0.21	2045/0.20	2455/0.22	2865/0.23	3275/0.22
With Finger Baffles Removed											
20°F	2765/0.60	3685/1.09	4605/1.14	5160/1.50	6265/1.64	7370/1.64	8295/1.69	9215/1.67	11,060/1.64	12,900/1.64	14,745/1.64
30°F	1840/0.28	2455/0.50	3070/0.52	3440/0.66	4175/0.73	4915/0.73	5530/0.75	6140/0.72	7370/0.73	8600/0.73	9830/0.73
40°F	1380/0.16	1840/0.28	2300/0.27	2580/0.36	3130/0.38	3685/0.39	4145/0.40	4605/0.40	5530/0.39	6450/0.40	7370/0.38
50°F	1105/0.12	1475/0.18	1840/0.18	2065/0.22	2505/0.24	2945/0.24	3315/0.26	3685/0.24	4420/0.24	5160/0.25	5895/0.24
60°F	920/0.10	1225/0.13	1535/0.14	1720/0.17	2085/0.17	2455/0.17	2765/0.18	3070/0.17	3685/0.17	4300/0.18	4915/0.17
65°F	850/0.08	1130/0.11	1415/0.12	1585/0.15	1925/0.14	2265/0.14	2552/0.15	2835/0.14	3400/0.14	3970/0.15	4535/0.15
70°F	—	—	—	—	1790/0.12	2105/0.12	2370/0.13	2630/0.11	3160/0.12	3685/0.13	4210/0.13

NOTES

⚠ DANGER ⚠

FIRE OR EXPLOSION HAZARD

- Failure to follow safety warnings exactly could result in serious injury, death, or property damage.
- Improper installation, adjustment, alteration, service, or maintenance can cause serious injury, death, or property damage.
- Installation and service must be performed by a qualified installer, service agency, or the gas supplier.
- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

WHAT TO DO IF YOU SMELL GAS

- Do not try to light any appliance.
- Do not touch any electrical switch; do not use any phone in your building.
- Leave the building immediately.
- Immediately call your gas supplier from a phone remote from the building. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

For more information on Reznor HVAC products:

- **Contact your local Reznor representative at 1-800-695-1901**
- **Refer to the manuals and additional consumer materials found at www.reznorhvac.com**

