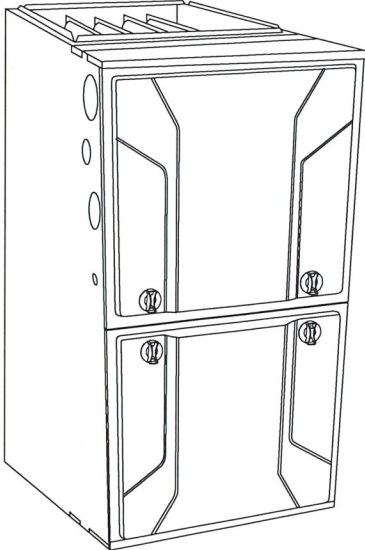


**987MA
EVOLUTION® MODULATING
4-WAY MULTIPOISE, VARIABLE SPEED
CONDENSING GAS FURNACE, SERIES B**



Product Data



A11264

The 987MA Multipoise Variable-Speed Condensing Gas Furnace features the modulating Evolution® System. The Perfect Heat® Technology modulating gas system is at the heart of the comfort provided by this furnace, along with the Perfect ECM™ full-featured variable-speed communicating blower motor, and variable-speed inducer motor. With an Annual Fuel Utilization Efficiency (AFUE) of up to 98.3%, the Evolution modulating gas furnace provides exceptional savings as well. This Evolution Gas Furnace also features 4-way multipoise installation flexibility, and is available in six model sizes. The 987MA can be vented for direct vent/two-pipe, ventilated combustion air. A Bryant Evolution Control and Evolution Air Conditioner or Heat Pump, can be used to form a complete Evolution System. All units meet California Air Quality Management District emission requirements. All sizes are design certified in Canada.

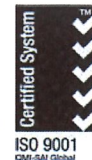
STANDARD FEATURES

- Evolution System; compatible with **single- and multi-zone** Evolution systems.
- Evolution Features—match with the Evolution Control for Evolution System benefits.
- All sizes meet ENERGY STAR® Version 4.1 criteria for gas furnaces: 95+AFUE
- Quiet operation. Compare for yourself at HVACpartners.com.
- Ideal height 35" (889 mm) cabinet: short enough for taller coils, but still allows enough room for service.
- Silicon Nitride Perfect Light™ Hot Surface Igniter.
- SmartEvap™ technology helps control humidity levels in the home when used with a compatible humidity control system.
- FanOn Plus™ technology allows control of continuous fan speed from a compatible thermostat.
- External Media Filter Cabinet included.
- 4-way multipoise design for upflow, downflow or horizontal installation with unique vent elbow and optional through-the-cabinet downflow venting capability.
- Full-featured variable-speed communicating blower motor, variable-speed inducer motor, and modulating gas valve.
- Aluminized-steel primary heat exchanger.
- Stainless-steel condensing secondary heat exchanger.
- Propane convertible (see Accessory list).
- Factory-configured ready for upflow applications.
- Fully-insulated casing including blower section.
- Convenient Air Purifier and Humidifier connections.
- Direct-vent/sealed combustion or ventilated combustion air.
- Installation flexibility: sidewall or vertical vent.
- Residential installations may be eligible for consumer financing through the Retail Credit Program.
- Variable-Speed blower motor, variable-speed inducer motor, and modulating gas valve.
- Self-diagnostics and extended diagnostic data through the Advanced Product Monitor (APM) accessory or Evolution User Interface.
- Adjustable blower speed for cooling, continuous fan, and dehumidification.
- Cabinet air leakage less than 2.0% at 1.0 in. W.C. and cabinet air leakage less than 1.4% at 0.5 in. W.C. when tested in accordance with ASHRAE standard 193.

**EVOLUTION™
SYSTEM**



Use of the AHRI Certified™ Mark indicates a manufacturer's participation in the program. For verification of certification for individual products, go to www.ahridirectory.org.



**Always Ask For
FACTORY
AUTHORIZED
PARTS**

987MA

SAP ORDERING NO.	CASING DIMENSIONS (IN.)			RATED HEATING OUTPUT† (BTUH)		AFUE		ENERGY STAR®	HEATING AIRFLOW			COOLING CFM @ 0.5 ESP	MOTOR HP (VARIABLE SPEED)	MEDIA CABINET SUPPLIED (IN.)
	H	D	W	Maximum	Minimum	Upflow/Horizontal	Downflow		CFM‡	CFM	Rated Heating ESP			
									(Minimum Heating)	(Maximum Heating)	@ Maximum			
987MA42060V17	35	29.5	17.5	59,000	24,000	97.0%	95.0%	YES	415	1075	0.12	510 - 1335	1/2	16
987MA60060V21	35	29.5	21.0	60,000	24,000	98.3%	96.7%	YES	555	1085	0.12	510 - 1905	1	20
987MA42080V17	35	29.5	17.5	78,000	31,000	97.0%	95.0%	YES	620	1500	0.15	490 - 1375	1/2	16
987MA60080V21	35	29.5	21.0	78,000	31,000	97.0%	95.0%	YES	620	1345	0.15	750 - 1945	1	20
987MA66100V21	35	29.5	21.0	98,000	39,000	97.0%	95.0%	YES	725	1575	0.20	715 - 2160	1	20
987MA66120V24	35	29.5	24.5	117,000	47,000	97.0%	95.0%	YES	900	1820	0.20	885 - 2185	1	24

†Capacity in accordance with DOE test procedures. Ratings are position dependent. See rating plate.

‡Minimum heat CFM when low-heat rise adjustment switch (SW1-3) and comfort/efficiency adjustment switch (SW1-4) on control center are OFF.

ESP — External Static Pressure

FEATURES AND BENEFITS

Fully Modulating Gas Valve — When paired with the Evolution® control, this furnace improves comfort by adjusting heating output in 1% increments from 40% to 100% capacity to meet the heating needs of the home. Precision begins with a stepper motor to adjust manifold pressures. Stepper motors are used in electronic devices, such as computer disc drives, which require precise mechanical positioning. The precision of the stepper motor, combined with our unique two-point calibration, allows the modulating furnace to accurately control and directly deliver the right amount of gas to the burners every time.

Perfect Humidity® Technology — The Perfect Humidity system actively controls both temperature and humidity in the home to provide the best comfort all year long. Other systems depend on heating or cooling demand to manage the moisture in the air. But, Perfect Humidity gives the homeowner the right amount of humidity day and night, even in mild weather. No other manufacturer can do this! Perfect Humidity saves energy, too. By keeping humidity under control, the homeowner can set their thermostat lower to stay comfortable and save energy.

SmartEvap™ Technology — When paired with a compatible thermostat, this dehumidification feature overrides the cooling blower off-delay when there is a call for dehumidification. By deactivating the blower off-delay, SmartEvap technology prevents condensate that remains on the coil after a dehumidification cycle from re-humidifying throughout the home. This results in reduced humidity and a more comfortable indoor environment for the homeowner.

Unlike competitive systems, SmartEvap technology only overrides the cooling when humidity control is needed. Once humidity is back in control, SmartEvap re-enables the energy-saving cooling blower off-delay.

Fan On Plus™ Technology — Sometimes the constant fan setting on a standard furnace system can actually reduce homeowner comfort by providing too much or too little air! Fan On Plus technology improves comfort all year long by allowing the homeowner to select the continuous fan speed of their choice using a compatible thermostat.

Power Heat™ Igniter — Bryant's unique SiN igniter is not only physically robust but it is also electrically robust. It is capable of running at line voltage and does not require complex voltage regulators as do other brands. This unique feature further enhances the gas furnace reliability and continues Bryant's tradition of technology leadership and innovation in providing a reliable and durable product.

Full-Featured, Communicating, Variable Speed Motors — Our Perfect ECM™ (Electronically Commutated Motor) provides variable-speed operation to optimize comfort levels in the home year round; features such as passive/active dehumidification, ramping profiles, constant air flow and quiet operation. They can provide cooling match enhancements to increase the effective SEER of select Bryant air conditioner or heat pump system, and feature the highest efficiency of all indoor fan motors.

Reliable Heat Exchanger Design — The aluminized steel, clam shell primary heat exchanger was re-engineered to achieve greater efficiency out of a smaller size. The first two passes of the heat exchanger are based on the current 80% product, a design with more than ten years of field-proven performance and success. These innovations, paired with the continuation of a crimped, no-weld seam create an efficient, robust design for this essential component.

The condensing heat exchanger, a stainless steel fin and tube design, is positioned in the furnace to extract additional heat. Stainless steel coupling box componentry between heat exchangers has exceptional corrosion resistance in both natural gas and propane applications.

Media Filter Cabinet — Enhanced indoor air quality in the home is made easier with our media filter cabinet—a standard accessory on all deluxe furnaces. When installed as a part of the system, this cabinet allows for easy and convenient addition of a Bryant high efficiency air filter.

4-Way Multipoise Design — One model for all applications — there is no need to stock special downflow or horizontal models when one unit will do it all. The new heat exchanger design allows these units to achieve the certified AFUE in all positions.

Direct Venting or Optional Ventilated Combustion Air — This furnace can be installed as a 2-pipe (Direct Vent) furnace or as an optional ventilated combustion air application. This provides added flexibility to meet diverse installation needs.

Sealed Combustion System — This furnace brings in combustion air from outside the furnace, which results in especially quiet operation. By sealing the entire combustion vestibule, the entire furnace can be made quieter, not just the burners.

Insulated Casing — Foil-faced insulation in heat exchanger section of the casing minimizes heat loss. The acoustical insulation in the blower compartment reduces air and motor noise for quiet operation.

Monoport Burners — The burners are specially designed and finely tuned for smooth, quiet combustion and economical operation.

Bottom Closure — Factory-installed for side return; easily removable for bottom return. The multi-use bottom closure can also serve for roll-out protection in horizontal applications, and act as the bottom closure for the optional return air base accessory.

Blower Access Panel Switch — Automatically shuts off 115-v power to furnace whenever blower access panel is opened.

Quality Registration — Our furnaces are engineered and manufactured under an ISO 9001 registered quality system.

Certifications — This furnace is CSA (AGA and CGA) design certified for use with natural and propane gases. The furnace is factory-shipped for use with natural gas. A CSA listed gas conversion kit is required to convert furnace for use with propane gas. The efficiency is AHRI efficiency rating certified. This furnace meets California Air Quality Management District emission requirements.

SPECIFICATIONS

The furnace should be sized to provide 100 percent of the design heating load requirement plus any margin that occurs because of furnace model size capacity increments. None of the furnace model sizes can be used if the heating load is 20,000 BTU or lower. Use Air Conditioning Contractors of America (Manual J and S); American Society of Heating, Refrigerating, and Air-Conditioning Engineers; or other approved engineering

method to calculate heating load estimates and select the furnace. Excessive oversizing of the furnace may cause the furnace and/or vent to fail prematurely, customer discomfort and/or vent freezing. Failure to follow these guidelines is considered faulty installation and/or misapplication of the furnace; and resulting failure, damage, or repairs may impact warranty coverage.

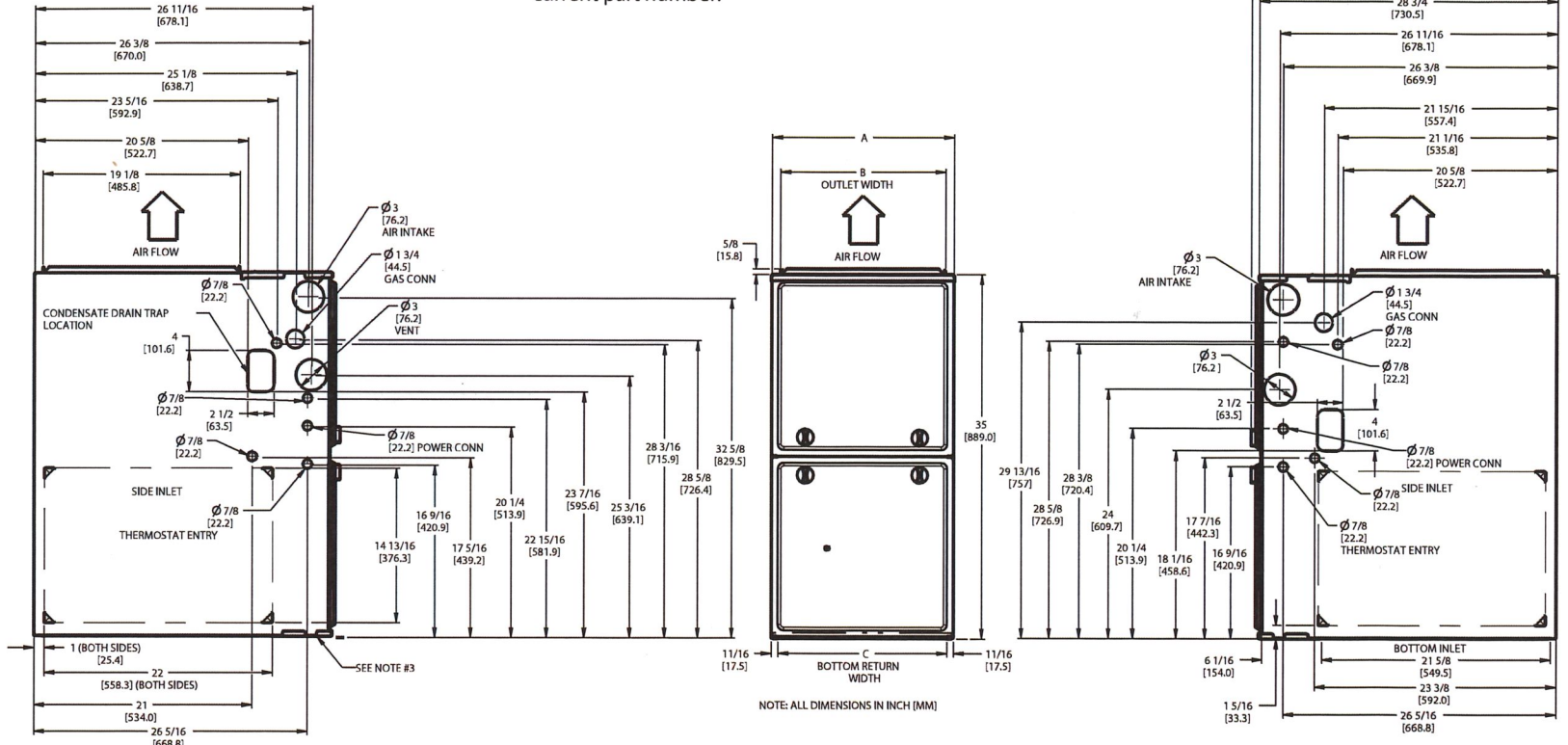
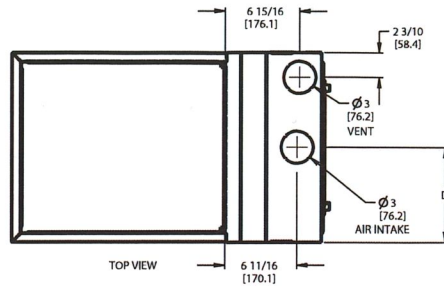


Heating Capacity and Efficiency			42060	60060	42080	60080	66100	66120
Input	Maximum Heat	(BTUH)	60,000	60,600	80,000	80,000	100,000	120,000
	Intermediate Heat	(BTUH)	39,000	39,000	52,000	52,000	65,000	78,000
	Minimum Heat	(BTUH)	24,000	24,000	32,000	32,000	40,000	48,000
Output	Maximum Heat	(BTUH)	59,000	60,000	78,000	78,000	98,000	117,000
	Intermediate Heat	(BTUH)	38,000	39,000	51,000	51,000	64,000	76,000
	Minimum Heat	(BTUH)	24,000	24,000	31,000	31,000	39,000	47,000
Certified Temperature Rise Range °F (°C)	Maximum Heat		35 - 65 (19 - 36)	35 - 65 (19 - 36)	40 - 70 (22 - 39)	40 - 70 (22 - 39)	45 - 75 (25 - 42)	45 - 75 (25 - 42)
	Intermediate Heat		50 - 80 (28 - 44)	40 - 70 (22 - 39)	50 - 80 (28 - 44)	50 - 80 (28 - 44)	50 - 80 (28 - 44)	50 - 80 (28 - 44)
	Minimum Heat		35 - 65 (19 - 36)	25 - 55 (14-31)	35 - 65 (19 - 36)	35 - 65 (19 - 36)	35 - 65 (19 - 36)	35 - 65 (19 - 36)
Airflow Capacity and Blower Data			42060	60060	42080	60080	66100	66120
Rated External Static Pressure (in. w.c.)	Heating		0.12	0.12	0.15	0.15	0.20	0.20
	Cooling		0.5	0.5	0.5	0.5	0.5	0.5
Airflow Delivery	Maximum Heat		1075	1080	1500	1345	1575	1820
	Intermediate Heat		530	690	750	795	955	1100
	Minimum Heat		415	555	620	595	745	900
	Cooling		1335	1905	1375	1945	2160	2185
Cooling Capacity (tons) @ 400, 350 CFM/ton	400 CFM/ton		3	4.5	3.5	4.5	5.5	5.5
	350 CFM/ton		3.5	5.5	4	5.5	6	6
Direct-Drive Motor Type	Electronically Commutated Motor (ECM)							
Direct-Drive Motor HP		1/2	1	1/2	1	1	1	
Motor Full Load Amps		7.7	12.8	7.7	12.8	12.8	12.8	
RPM Range	300 - 1300							
Speed Selections	Variable (Communicating)							
Blower Wheel Dia x Width	in.	11 x 8	11 x 10	11 x 8	11 x 10	11 x 10	11 x 11	
Air Filtration System	Factory Supplied Media Cabinet Field Supplied Filter							
Filter Used for Certified Watt Data*	KGAWF**06UFR							
Electrical Data			42060	60060	42080	60080	66100	66120
Input Voltage	Volts-Hertz-Phase	115-60-1						
Operating Voltage Range	Min-Max	104 -127						
Maximum Input Amps	Amps	9.7	14.8	9.7	14.8	14.8	14.8	
Unit Ampacity	Amps	12.7	19.1	12.7	19.1	19.1	19.1	
Minimum Wire Size	AWG	14	12	14	12	12	12	
Maximum Wire Length @ Minimum Wire Size	Feet	29	30	29	30	30	30	
	(M)	(8.8)	(9.1)	(8.8)	(9.1)	(9.1)	(9.1)	
Maximum Fuse/Ckt Bkr (Time-Delay Type Recommended)	Amps	15	20	15	20	20	20	
Transformer Capacity (24vac output)	40VA							
External Control Power Available	Heating	27.9 VA						
	Cooling	34.6 VA						
Controls			42060	60060	42080	60080	66100	66120
Gas Connection Size	1/2" - NPT							
Burners (Monoport)		3	3	4	4	5	6	
Gas Valve (Redundant)	Manufacturer	White Rogers						
	Minimum Inlet Gas pressure (in. wc)	4.5						
	Maximum Inlet Gas pressure (in. wc)	13.6						

987MA

987MA FURNACE SIZE	A CABINET WIDTH	B OUTLET WIDTH	C BOTTOM INLET WIDTH	D AIR INTAKE	SHIP WT. LB (KG)
42060	17-1/2 (445)	15-7/8 (403)	16 (406)	8-3/4 (222)	154.0 (69.3)
42080					164.0 (73.8)
60060	21 (533)	19-3/8 (492)	19-1/2 (495)	10-1/2 (267)	158.5 (72.0)
60080					168.5 (76.6)
66100		22-7/8 (581)	23 (584)	12-1/4 (311)	178.5 (80.3)
66120	24-1/2 (622)				202.5 (91.1)

A12267



NOTES:

1. Doors may vary by model.
2. Minimum return-air openings at furnace, based on metal duct. If flex duct is used, see flex duct manufacturer's recommendations for equivalent diameters.
 - a. For 800 CFM-16-in. (406 mm) round or 14 1/2 x 12-in. (368 x 305 mm) rectangle.
 - b. For 1200 CFM-20-in. (508 mm) round or 14 1/2 x 19 1/2-in. (368 x 495 mm) rectangle.
 - c. For 1600 CFM-22-in. (559 mm) round or 14 1/2 x 22 1/16-in. (368 x 560mm) rectangle.
 - d. Return air above 1800 CFM at 0.5 in. w.c. ESP on 24.5" casing, requires one of the following configurations: 2 sides, 1 side and a bottom or bottom only. See Air Delivery table in this document for specific use to allow for sufficient airflow to the furnace.
3. Vent and Combustion air pipes through blower compartment must use accessory "Vent Kit - Through the Cabinet". See accessory list for current part number.

PART NUMBER	SD5024-4	QNT	REV
NOTE DESC		1	E

Fig. 1 - Dimensional Drawing

Table 3 – Minimum Free Area Required for Each Combustion Air Opening or Duct to Outdoors

FURNACE INPUT (BTUH)	TWO HORIZONTAL DUCTS (1 SQ. IN./2,000 BTUH) (1,100 SQ. MM/KW)		SINGLE DUCT OR OPENING (1 SQ. IN./3,000 BTUH) (734 SQ. MM/KW)		TWO OPENINGS OR VERTICAL DUCTS (1 SQ. IN./4,000 BTUH) (550 SQ. MM/KW)	
	Free Area of Opening and Duct Sq. In (Sq. mm)	Round Duct In. (mm) Dia	Free Area of Opening and Duct Sq. In (Sq. mm)	Round Duct In. (mm) Dia	Free Area of Opening and Duct Sq. In (mm)	Round Duct In. (mm) Dia.
40,000*	20 (12904)	5 (127)	14 (8696)	5 (127)	10 (6452)	4 (102)
60,000	30 (19355)	6 (152)	20 (13043)	5 (127)	15 (9678)	5 (127)
80,000	40 (25807)	7 (178)	27 (17391)	6 (152)	20 (12904)	5 (127)
100,000	50 (32258)	8 (203)	34 (21739)	7 (178)	25 (16130)	6 (152)
120,000	60 (38709)	9 (229)	40 (26087)	7 (178)	30 (19355)	6 (152)
140,000*	70 (45161)	10 (254)	47 (30435)	8 (203)	35 (22581)	7 (178)

*Not all families have these models.

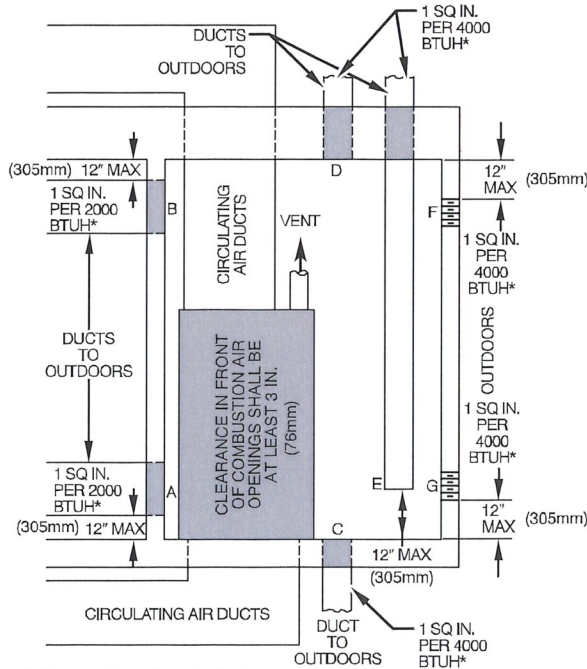
EXAMPLES: Determining Free Area

FURNACE	+	WATER HEATER	=	TOTAL INPUT	=	Free Area
100,000	+	30,000	=	(130,000 divided by 4,000)	=	32.5 Sq. In. for each two Vertical Ducts or Openings
60,000	+	40,000	=	(100,000 divided by 3,000)	=	33.3 Sq. In. for each Single Duct or Opening
80,000	+	30,000	=	(110,000 divided by 2,000)	=	55.0 Sq. In. for each two Horizontal Ducts

Table 4 – Minimum Space Volumes for 100% Combustion, Ventilation and Dilution Air from Outdoors

ACH	OTHER THAN FAN-ASSISTED TOTAL (1,000'S BTUH GAS INPUT RATE)			FAN-ASSISTED TOTAL (1,000'S BTUH GAS INPUT RATE)					
	30	40	50	40	60	80	100	120	140
	Space Volume Ft ³ (M ³)								
0.60	1,050 (29.7)	1,400 (39.6)	1,750 (49.5)	1,400 (39.6)	1,500 (42.5)	2,000 (56.6)	2,500 (70.8)	3,000 (84.9)	3,500 (99.1)
0.50	1,260 (35.6)	1,680 (47.5)	2,100 (59.4)	1,680 (47.5)	1,800 (51.0)	2,400 (67.9)	3,000 (84.9)	3,600 (101.9)	4,200 (118.9)
0.40	1,575 (44.5)	2,100 (59.4)	2,625 (74.3)	2,100 (59.4)	2,250 (63.7)	3,000 (84.9)	3,750 (106.1)	4,500 (127.3)	5,250 (148.6)
0.30	2,100 (59.4)	2,800 (79.2)	3,500 (99.1)	2,800 (79.2)	3,000 (84.9)	4,000 (113.2)	5,000 (141.5)	6,000 (169.8)	7,000 (198.1)
0.20	3,150 (89.1)	4,200 (118.9)	5,250 (148.6)	4,200 (118.9)	4,500 (127.3)	6,000 (169.8)	7,500 (212.2)	9,000 (254.6)	10,500 (297.1)
0.10	6,300 (178.0)	8,400 (237.8)	10,500 (297.3)	8,400 (237.8)	9,000 (254.6)	12,000 (339.5)	15,000 (424.4)	18,000 (509.2)	21,000 (594.1)
0.00	NP	NP	NP	NP	NP	NP	NP	NP	NP

NP = Not Permitted



*Minimum dimensions of 3-in. (76mm)
 NOTE: Use any of the following combinations of openings:
 A & B, C & D, D & E, F & G

Fig. 6 – Air for Combustion, Ventilation, and Dilution for Outdoors

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