

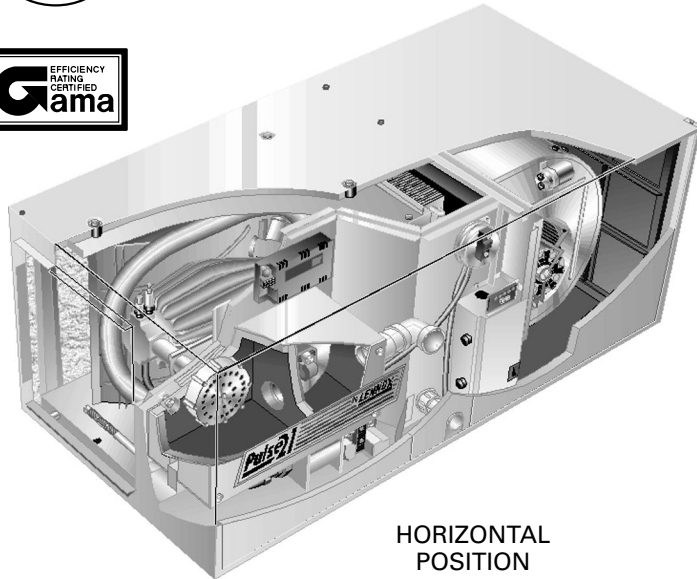
**GSR21Q "PULSE21"™ SERIES
HORIZONTAL/DOWN-FLOW GAS FURNACES
HORIZONTAL UNIT HEATERS
AND DOWN-FLOW MOBILE HOME UNITS**

Bulletin #210113
July 1996
Supersedes
#480177 (U.S.)
#485072 (Canada)
March 1992

***91.7% to 95.3% A.F.U.E.**

**50,000 to 100,000 Btuh (14.7 to 29.3 kW) Input
Nominal Add-On Cooling — 1-1/2 thru 5 Tons (5.3 thru 17.6 kW)**

*Isolated Combustion System Rating for Non-Weatherized Furnaces

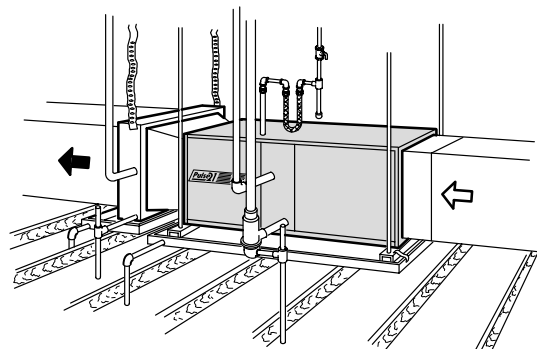


HORIZONTAL POSITION

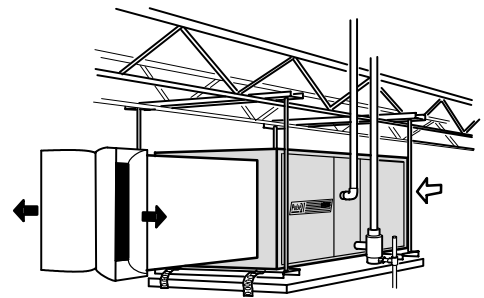


DOWN-FLOW POSITION

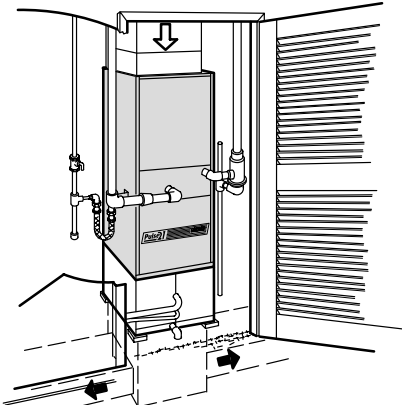
Typical Applications



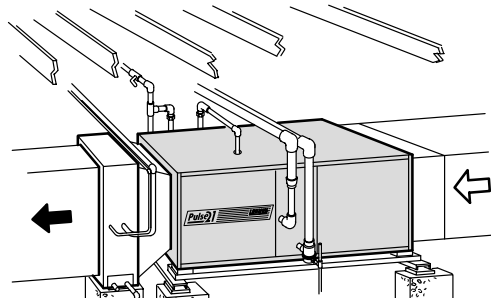
Horizontal Attic Installation



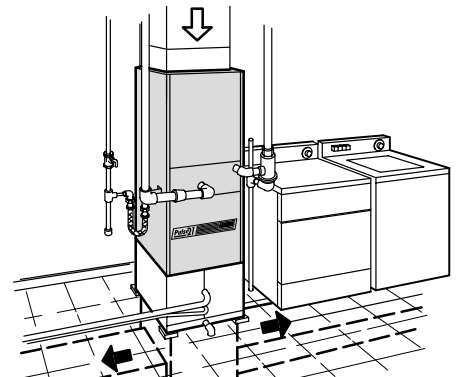
Suspended Horizontal Unit Heater Installation



Down-Flow Mobile Home Closet Installation



Horizontal Crawlspace Installation

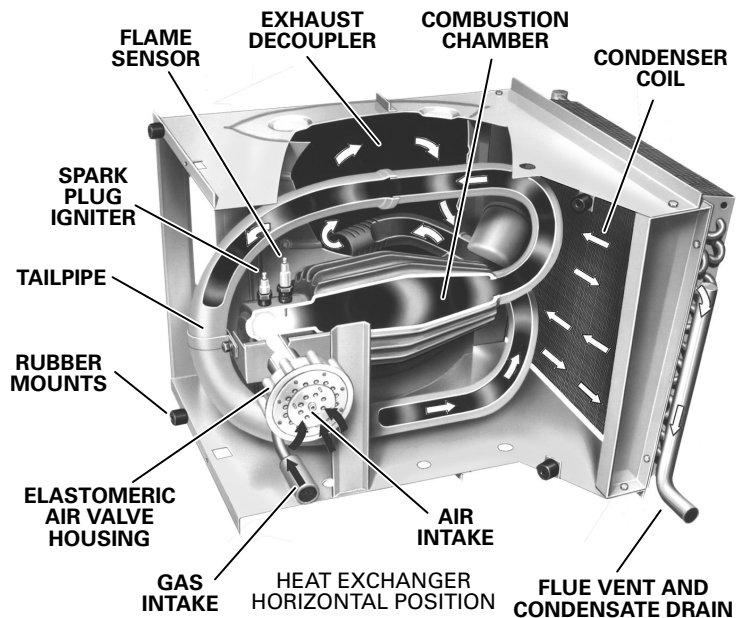


Down-Flow Utility Room Installation

♣ The maple leaf symbol in this bulletin denotes Canadian only usage where applicable
NOTE — Due to Lennox' ongoing commitment to quality, Specifications, Ratings and Dimensions subject to change without notice and without incurring liability.

PROCESS OF COMBUSTION

The process of combustion begins as gas and air are introduced into the sealed combustion chamber with the spark plug igniter. Spark from the plug ignites the gas/air mixture, which in turn causes a positive pressure buildup that closes the gas and air inlets. This pressure relieves itself by forcing the products of combustion out of the combustion chamber through the tailpipe into the heat exchanger exhaust decoupler and on into the heat exchanger coil. As the combustion chamber empties, its pressure becomes negative, drawing in air and gas for the next pulse of combustion. At the same instant, part of the pressure pulse is reflected back from the tailpipe at the top of the combustion chamber. The flame remnants of the previous pulse of combustion ignite the new gas/air mixture in the chamber, continuing the cycle. Once combustion is started, it feeds upon itself allowing the purge blower and spark plug igniter to be turned off. Each pulse of gas/air mixture is ignited at a rate of 60 to 70 times per second. Almost complete combustion occurs with each pulse. The force of these series of ignitions creates great turbulence which forces the products of combustion through the entire heat exchanger assembly resulting in maximum heat transfer.



FEATURES

Application — GSR21 series pulse furnaces are designed to be installed in either horizontal or down-flow positions. Horizontal air flow is left hand air flow only. Units provide heating efficiencies (AFUE) of up to 95.3%. Five models (natural gas or LPG/propane) are available with input capacities at 50,000, 80,000 and 100,000 Btuh (14.7, 23.4, and 29.3 kW). Units operate on the pulse combustion principle and do not require a pilot burner, main burners, conventional flue or chimney. Units can be installed in a utility room, alcove, closet, crawlspace or attic. Also, units are applicable as horizontal unit heaters in non-ducted systems and 50,000 and 80,000 Btuh (14.7 and 23.7 kW) input down-flow models in mobile home applications. GSR21Q3-80, GSR21Q4/5-80 and GSR21Q4/5-100 models are applicable to the GSR21 Commercial Heat-Vent-Cool-Modular Indoor System. See bulletin in this tab section for specifications. Lennox add-on evaporator coils, electronic air cleaners and power humidifiers can easily be added for a total comfort all-season system.

High efficiency of the GSR21 series is achieved with a unique heat exchanger design which features: finned cast iron combustion chamber, temperature resistant steel tailpipe, aluminized steel exhaust decoupler section and a finned stainless steel tube condenser coil. Moisture, during the process of combustion, is condensed in the coil, extracting almost all usable heat out of the gas. Most of the combustion heat is utilized in the heat transfer from the coil, producing flue vent temperatures as low as 100°F to 130°F (38°C to 54°C) which allows the use of PVC (polyvinyl chloride) pipe for venting. Furnace can be vented through a side wall, roof or to the top of an existing chimney with up to 35 ft. (9.0m) of PVC pipe and up to four 90 degree elbows. Condensate created in the coil (PH ranges from 4.0 to 6.0) is not harmful to standard household plumbing and can be drained into city sewers and septic tanks without damage.

The GSR21 furnace has no pilot light or burners. An automotive type spark plug is used for ignition on the initial cycle only, saving gas and electrical energy. In the pulse combustion process, the use of atmospheric burners is eliminated, with combustion confined to heat exchanger combustion chamber. Sealed combustion system virtually eliminates the loss of conditioned air due to combustion and stack dilution. Combustion air is piped to the furnace with same type PVC pipe as used for exhaust gases.

Furnace is equipped with a standard type redundant gas valve in series with a gas expansion tank and gas intake flapper valve. Also factory installed are an air intake flapper valve, purge blower, spark plug igniter, flame sensor with solid-state control, solid-state blower control, dual limit controls, high and low voltage terminal strip, 30VA transformer

and cleanable air filter. Furnished for field installation are a flexible gas line connector, (4) isolation mounting pads, base insulation pad and condensate drip leg.

Optional equipment available are: flue vent/air intake line roof or wall termination installation kits, LPG/propane conversion kits, down-flow additive base, horizontal support frame kit, mufflers/attenuators heat cable kit and thermostat.

GSR21 units are shipped completely factory assembled with all controls installed and wired. Units are test fired at the factory to insure proper operation. See Specifications table for complete listing.

Approvals — GSR21Q series furnaces are certified by A.G.A./C.G.A. Laboratories as central furnaces and horizontal unit heaters. 50,000 and 80,000 Btuh (14.7 and 23.4 kW) input down-flow models have mobile home approval. Ratings are certified by GAMA. Units meet California Nitrogen Oxides (NO_x) standards and California Seasonal Efficiency requirements. In addition, units have been rated and tested in the Lennox Research Laboratory according to Department of Energy (DOE) test procedures and Federal Trade Commission (FTC) labeling regulations. Blower data is from unit tests conducted in the Lennox Laboratory air test chamber.

Equipment Warranty — GSR21 "Pulse" heat exchangers have a limited lifetime warranty in residential applications and a limited twenty year warranty in non-residential applications. All other covered components have a limited warranty for five years. Refer to Lennox Limited Equipment Warranty certificate included with the equipment for details.

Sequence of Operation — Room thermostat, on a demand for heat, will initiate purge blower operation for a pre-purge cycle (30 seconds) followed by energizing and opening of the gas valve. As ignition occurs, the flame sensor reacts to proof of ignition and de-energizes the spark plug igniter and purge blower after 8 seconds. Furnace blower operation is initiated 30 to 60 seconds (adjustable) after combustion ignition. When thermostat is satisfied, gas valve is closed and purge blower is re-energized for a post-purge cycle (34 seconds). Furnace blower will remain in operation until the "fan off" factory setting of 180 seconds (adjustable from 120 to 240 seconds) is reached. Should loss of flame occur before thermostat is satisfied, flame sensor controls will initiate 5 attempts at re-ignition before locking out unit operation. Additionally, loss of either combustion intake air or flue exhaust will automatically terminate system operation. If unit becomes locked out, Watchguard circuit on ignition control will automatically reset ignition controls after one hour of continuous thermostat demand.

Heat Exchanger Assembly — Lennox developed heat exchanger assembly consists of combustion chamber, tailpipe, exhaust decoupler section and condenser coil. Combustion chamber contains the spark plug igniter, flame sensor and combustion air and gas intake manifolds. Cast iron construction provides excellent radiation of heat over entire surface area. Finned "teardrop" shape design permits total air coverage of all surfaces with low resistance. Tailpipe connects the combustion chamber to the exhaust decoupler section. Precisely sized and shaped tailpipe is constructed of combination stainless and aluminized steel for superior resistance to high temperatures. Aluminized steel resonator on tailpipe minimizes combustion sound. Heavy gauge aluminized steel exhaust decoupler section has large surface area for maximum heat transfer. Air foil shape design results in complete air coverage with minimum air resistance. Condenser coil intake header connects to bottom of exhaust decoupler section. Large face area and circuiting of coil provides high heat transfer, minimum air resistance and proper moisture drainage. Coil is constructed of exactly spaced ripple-edged aluminum fins fitted to stainless steel tubes. Flared collars on fins grip tubes for maximum contact area. Flared tubing connections and high temperature soldering provide tight, leakproof joints. Combined flue vent and condensate drain outlet is located on the coil. Coil is factory tested for leaks. All components are mounted in a heavy gauge steel frame and installed in the furnace cabinet on resilient rubber mounts assuring quiet, vibration free operation. Heat exchanger has been laboratory life cycle tested.

Cabinet — Constructed of heavy gauge cold rolled steel. Cabinet is subject to a five station metal wash process resulting in a perfect bonding surface for a paint finish of baked-on enamel. The paint solution and metal are given opposite electrical charges resulting in positive adhesion and even coverage of the paint to the metal surfaces. Heat exchanger section is completely lined with thick 1-1/2 lb./ft.³ (24 kg/m³) density foil faced fiberglass insulation. Blower compartment is completely lined with thick 1-1/2 lb./ft.³ (24 kg/m³) density black mat faced fiberglass insulation. This results in quiet and efficient operation due to the excellent acoustical and insulating properties of fiberglass. Complete service access is accomplished by removing heating section and blower access panels. Removable panel is provided in vestibule panel for access to the spark plug and flame sensor. Safety interlock switch automatically shuts power off to unit when blower access panel is removed. Electrical inlets, gas line inlets, air intake and exhaust air outlets are provided in the cabinet.

Blowers — Units are equipped with quiet multi-speed direct drive blowers. Each blower assembly is statically and dynamically balanced. Slide-out blower assembly is equipped with jack-plug connection for easy removal for servicing. Multiple-speed leadless motor is resiliently mounted. A choice of blower speeds is available on each blower. See blower performance tables. Change in blower speed is easily accomplished by simple wiring change.

Combustion Air Intake Box — Contains the purge blower and air intake flapper valve. Box is located on vestibule panel. Purge blower is equipped with a permanently lubricated motor. Blower operates only during pre-purge and post-purge cycles. Air is drawn through the blower during the combustion cycle by negative pressure in the combustion chamber. Pressure switches terminate unit operation in case of air intake or flue exhaust blockage. Flapper valve air housing is constructed of an elastomeric non-metallic polymer which reduces operating sound levels. Flapper valve section of the box is completely lined with 1 inch (25mm) thick 6 lb./ft.³ (96 kg/m³) density duct liner board, black neoprene coated fiberglass. Valve opening and closing is actuated by back pressure and negative pressure in combustion chamber during the heating cycle. Differential pressure switch, mounted on the vestibule panel, terminates unit operation in case of air intake or flue exhaust blockage.

Cleanable Air Filters (U.S.) — Washable or vacuum cleanable frame type filter is furnished as standard. Polyurethane media is coated with oil for maximum efficiency. Filter is readily accessible in unit for quick and easy removal for servicing.

✦ **Air Filters** — Air filters are not furnished with the unit. Optional field installed external filter rack kit is available and must be ordered extra. See optional accessories section.

Ignition Control — Solid-state control provides power for spark plug igniter. Also controls pre-purge and post-purge cycles and re-ignition sequence if loss of flame occurs. Also features built-in WatchGuard circuit. Solid-state control provides automatic reset of ignition controls after 1 hour of continuous thermostat demand after unit lockout. Ignition control is factory installed on the vestibule panel.

Automatic Gas Valve, Expansion Tank and Gas Intake Flapper Valve — 24 volt redundant dual gas control valve combines gas pressure regulation and manual main shutoff valve into one compact combination control. Dual valve design provides double assurance of 100% close off of gas on each heating cycle. Expansion tank is located downstream from the gas valve and absorbs any pressure pulsations. Gas intake flapper valve is installed in the combustion chamber intake manifold between the orifice and expansion tank. Valve is opened by entering gas pressure and closed by back pressure from combustion pulse during the heating cycle.

Wiring Junction Box — Power supply and thermostat connections are made at the wiring junction box located on the vestibule panel. Box contains 30 VA transformer, high and low voltage terminal strips and blower cooling relay. Terminal strip permits easy connections for optional power humidifiers and electronic air cleaners. Blower cooling relay activates blower operation for add-on air conditioning cooling.

Solid-State Blower Control — Circuit board located in wiring junction box contains all necessary controls to automatically operate the blower. Contains blower timed-on control (30 to 60 seconds adjustable). Factory setting is 45 seconds. Blower timed-off control (120 to 240 seconds adjustable). Factory setting is 180 seconds.

Dual Limit Controls — Factory installed and accurately located upstream and downstream of the heat exchanger. Primary and secondary limit controls provide protection from abnormal operating conditions. Primary limit is automatic reset, secondary is manual reset but automatic if optional external filter rack is used.

Installation Recommendations — Lennox recommends the following installation procedures to minimize any vibration transmitted from furnace during operation. Place (4) neoprene rubber isolation mounting pads (furnished) and/or base insulation pad (furnished), 1 inch (25mm) thick 1-1/2 lb./ft.³ (24 kg/m³) density fiberglass, under the unit. Install flexible duct connectors in the supply air plenum and return air plenum or duct connection. Insulate 1 inch (25mm) thick, 1-1/2 to 3 lb./ft.³ (24 to 48 kg/m³) density, mat faced fiberglass supply and return air plenums through take-off or duct elbow. Use flexible gas connector (furnished) in gas supply piping where allowed by local codes. Insulate (refrigerant piping insulation or equivalent) all straps and hangers used in suspending ducts, electrical conduit, gas piping, combustion air intake piping and flue exhaust piping. In addition, use plastic pipe or tubing for drain line from the heat coil condensate drain leg (furnished) to the drain, do not use copper tubing.

OPTIONAL ACCESSORIES (Must Be Ordered Extra)

Horizontal Support Frame Kit (Optional) — Kit provides support of the unit in horizontal applications. Kit consists of (2) 1 in. x 1-1/2 in. x 32-5/8 in. (25mm x 38mm x 829mm) and (2) 1 in. x 3 in. x 53 7/8 in. (25 mm x 76mm x 1368mm) painted, heavy gauge cold rolled steel support channels with assembly and suspending holes. Bolts and nuts are furnished for field assembly of channels. Suspending rods must be furnished by installer. Kit is not furnished and must be ordered extra. See specifications table.

Condensate Drain Heat Cable Kits (Optional) — Self-limiting wattage heat cable prevents condensate drain from freezing in unconditioned areas. Kit LB-88643C (**26K70**) has 50 ft. (15.2 m) of heat cable. Kit LB-88643B (**26K69**) contains 24 ft. (7.3 m) of heat cable. Kit LB-88643A (**26K68**) contains 6 ft. (1.8 m) of heat cable. Also available:

- Heat Cable Tape 66 ft. (20 m) length, 1/2 in. (13 mm) wide fiberglass (**39G04**) or 60 ft. (18 m) length, 2 in. (51 mm) wide aluminum foil (**39G03**).

Down-flow Additive Base (Optional) — Additive base LB-80639BB (**68387**) is required for heating only models installed on combustible floors. Base is not furnished and must be ordered extra for field installation. See specifications table. Not required in add-on cooling coil applications.

In-Line Mufflers (Optional) — Two mufflers LB-52057CA (**67F81**) are optional and must be ordered extra. Mufflers field install, vertical or horizontal, one in the intake line and one in the exhaust line. See dimension drawings. Two mufflers are required on -80 & -100 units.

✦ **In-Line Attenuators (Optional)** — Attenuators field install, vertical or horizontal, one in the intake line and one in the exhaust line. Two attenuators are furnished per order no. GPA-3030 (**12H76**) contains two 30 in. (762mm) long attenuators. GPA-3019 (**12H77**) contains one 30 in. (762mm) attenuator and one 19 in. (483mm) attenuator for reduced clearances. See dimension drawings.

LPG/Propane Conversion Kits (Optional) — 100,000 Btuh (29.3 kW) input model requires a LPG/propane conversion kit LB-83176CM (**73H60**) for field changeover from natural gas. Kit is not furnished and must be ordered extra. 50,000 and 80,000 Btuh (14.7 and 23.4 kW) input models are shipped with the LPG/propane orifice furnished as standard for field conversion. See specifications table.

Thermostat (Optional) — Heating thermostat is not furnished and must be ordered extra. See Thermostats section in Lennox Price Book. For all-season applications, heating-cooling thermostat is available with the condensing unit.

Continuous Low Speed Blower Kit (Optional) — Field installed kit LB-83611B (**89H88**) is available to provide continuous low speed blower operation. Kit includes switch and all necessary wiring. Kit is not furnished and must be ordered extra.

GSR21-50 Low Ambient Thermostat Kit (Optional) — Kit LB-58659CA (**70G49**) prevents GSR21-50 unit from short cycling (run times of less than 4 or 5 minutes) when system thermostat is set at 55°F (13°C) or less. Kit contains low temperature thermostat and relay with mounting bracket, mounting screws and necessary wires. Thermostat field installs in return air stream on blower housing. Must be ordered extra.

Furnace Twinning Kit (Optional) — Field Installed kits are available to operate two furnaces simultaneously. Two kits are available — Twinning Kit For Continuous Low Speed Blower LB-63093C (**35J93**) or Twinning Kit For Non-Continuous Low Speed Blower LB-63093B (**64H88**). Kit consists of heavy gauge steel control box and two auxiliary limit controls. Control box has electrical inlet knockouts and contains low voltage and high voltage terminal strips, blower control relay, heat relays, door interlock relay and 24 volt control transformer. All controls are factory installed and wired. Limit controls are field installed in each furnace. Holes for mounting control box are provided. Box may be field installed in any convenient location adjacent to or on one of the furnaces.

External Filter Rack Kit (Optional) — Filter Rack Kit LB-83252CA (**67H04**) field installs external to the unit in the return air duct. Kit contains assembled filter rack, frame type filter with cleanable foam media and automatic reset secondary limit. See specifications table and dimension drawing.

Concentric Vent/Intake Air Roof/Wall Termination Kit (Optional) — Facilitates installation of combustion air intake pipe and flue exhaust pipe. Kit LB-49107CE (**60G77**) contains concentric termination assembly, mounting clamp, roof flashing, reducer bushing and 45 degree elbow. Kit requires single hole penetration of roof or wall for installation. Kit is A.G.A./C.G.A. certified and must be ordered extra for field installation. See Specifications table and dimension drawings. Not available for -100 or -125 size models.

Vent/Intake Air Roof Termination Kit (Optional) — Facilitates installation of combustion air intake pipe and flue exhaust pipe. Kit contains two neoprene rubber roof flashings. 2 inch (51 mm) kit also contains two 18 inch (457mm) insulation sleeves for sealing and isolating intake and exhaust piping penetration in roof. See Specifications table and dimension drawings. Refer to venting tables in this bulletin to determine pipe size needed and proper termination kit required.

For 2 inch (51 mm) Venting:—

LB-49107CC (**15F75**)

For 3 inch (76 mm) Venting —

LB-65678A (**44J41**)

Vent/Intake Air Wall Termination Kits (Optional) — Facilitates installation of combustion air intake pipe and flue exhaust pipe. Kit must be ordered extra. Refer to venting tables in this bulletin to determine pipe size needed and proper termination kit required.

— **Close Couple Kits (22G44)** 2 inch (51 mm) or (**44J40**) 3 inch (76 mm) consists of close-couple side-by-side PVC piping with galvanized steel wall cover plate for sealing and isolating piping penetration of the wall. Piping spacing and length is sized for proper wall installations. A.G.A./C.G.A. certified. See dimension drawings.

— **Ring Kit (15F74)** 2 inch (51 mm) contains 2 stainless steel outside seal caps, 2 galvanized steel inside seal caps, 4 seal rings for the caps and 18 inch (457 mm) insulation sleeve for sealing and isolating intake and exhaust piping penetration of wall. Maintain a maximum of 6 inches (152 mm) between the inlet and outlet openings in the installation of the pipes. See dimension drawings.

— **Close Couple Kits (30G28)** 2 inch (51 mm) or (**81J20**) **WTK** 3 inch (76 mm) contains one insulated faceplate, one insulated exhaust pipe, elbow and fittings. See dimension drawings.

— **Close Couple Kit With Extension Riser (WTKX) (30G79)** 2 inch (51 mm) is used where extended grade line clearance is required. Kit includes 3 ft. (1.0m) extension riser containing both vent lines (exhaust vent insulated) and wall securing bracket. See dimension drawings.

SPECIFICATIONS

Model No.		GSR21Q3-50	GSR21Q4-50	GSR21Q3-80	GSR21Q4/5-80	GSR21Q4/5-100
Input — Btuh (kW)		50,000 (14.7)	50,000 (14.7)	80,000 (23.4)	80,000 (23.4)	100,000 (29.3)
Output — Btuh (kW)		48,000 (14.1)	48,000 (14.1)	74,000 (21.7)	76,000 (22.3)	92,000 (26.7)
*A.F.U.E.		94.8%	95.3%	91.7%	94.1%	92.0%
California Seasonal Efficiency		89.7%	90.1%	87.6%	88.6%	87.3%
Temperature rise range	°F	30 — 60	25 — 55	40 — 70	30 — 60	45 — 75
	°C	17 — 33	14 — 31	22 — 39	17 — 33	25 — 41
High static certified by AGA/C.G.A. — in wg. (Pa)		.50 (124)	.50 (124)	.50 (124)	.50 (124)	.50 (124)
Gas pipe Size I.P.S. — in. (mm) Natural or ●LPG/Propane		1/2 (13)	1/2 (13)	1/2 (13)	1/2 (13)	1/2 (13)
Vent/Intake air pipe size connection — in. (mm)		2 (51)	2 (51)	2 (51)	2 (51)	2 (51)
Condensate drain connection — in. (mm) SDR11		1/2 (13)	1/2 (13)	1/2 (13)	1/2 (13)	1/2 (13)
Blower wheel nominal diameter x width	in.	10 x 8	10 x 10	10 x 10	12 x 12	12 x 12
	mm	254 x 203	254 x 254	254 x 254	305 x 305	305 x 305
Blower motor hp (W)		1/3 (249)	1/2 (373)	1/3 (249)	3/4 (560)	3/4 (560)
Nominal cooling that can be added	Tons	1-1/2 — 3	3-1/2 — 4	2 — 3	3-1/2 — 5	3-1/2 — 5
	kW	5.3 — 10.6	12.3 — 14.1	7.0 — 10.6	12.3 — 17.6	12.3 — 17.6
Shipping weight — lbs. (kg) 1 package		311 (141)	316 (143)	317 (144)	329 (149)	335 (152)
Electrical characteristics		120 volts — 60 hertz — 1 phase (less than 12 amps) All models				
◆Optional Accessories (Must Be Ordered Extra)◆						
◆LPG/Propane kit		◆Furnished				73H60
GSR21-50 Low Ambient Thermostat		70G49 2 lbs. (1 kg)	----	----	----	----
In-line Mufflers (◆ Attenuators)		67F81 or ◆GPA-3030 (12H76) and ◆GPA3019 (12H77) (qty. 2) — 19 lbs. (9 kg)				
Concentric Vent/Intake Air Roof Termination Kit		60G77 — 12 lbs. (5 kg)				
Vent/Intake Air Roof Termination Kit	2 inch (51 mm)	15F75 — 3 lbs. (1 kg)				
	3 inch (76mm)	44J41 — 3 lbs. (1 kg)				
Vent/Intake Air Wall Termination Kits	2 inch (51 mm)	Ring Kit (15F74), Close-Couple Kit (22G44), WTKX Close-Couple w/ 3 ft. (1 m) Extension Riser (30G79), WTK Close-Couple Kit (30G28)				
	3 inch (76 mm)	Close-Couple Kit (44J40) WTK Close-Couple Kit (81J20)				
Down-flow Combustible Floor Base		68387 — 6 lbs. (3 kg)				
External Filter Kit — No. and size of filter		67H04 —(1) 20 x 25 x 1 in. (508 x 635 x 25 mm)				
Horizontal Support Frame Kit		56J18 — 18 lbs. (8 kg)				
Twinning Kit	Non-continuous low speed	64H88 — 11 lbs. (5 kg) all models				
	Continuous	35J93 — 11 lbs. (5 kg) all models				
Continuous Low Speed Blower Switch		89H88 (all models) Not used with Twinning Kits				
Condensate Drain Heat Cable		26K68 6 ft. (1.8 m) — 26K69 24 ft. (7.3 m) — 26K70 50 ft. (15.2 m)				
Heat Cable Tape		39G04 — 1/2 in. (38 mm) fiberglass or 39G09 — 2 in. (25 mm) aluminum foil (1 roll)				

●LPG/Propane kit must be ordered extra for field changeover.

*Annual Fuel Utilization Efficiency based on D.O.E. test procedure and F.T.C. labeling regulation. Isolated combustion system rating for non-weatherized furnaces.

**LPG/Propane orifice furnished standard with unit for field changeover. Convertible gas valve requires adjustment without adding any parts. See installation instructions.

GSR21Q3-50 BLOWER PERFORMANCE

External Static Pressure		Air Volume at Various Blower Speeds							
		High		Medium-High		Medium-Low		Low	
in. w.g.	Pa	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
0	0	1640	775	1405	665	1070	505	875	415
.05	12	1620	765	1390	655	1065	505	870	410
.10	25	1595	755	1375	650	1060	500	865	410
.15	37	1570	740	1360	640	1055	500	860	405
.20	50	1545	730	1345	635	1045	495	855	405
.25	62	1520	715	1325	625	1035	490	850	400
.30	75	1490	705	1305	615	1025	485	840	395
.40	100	1430	675	1260	595	995	470	810	380
.50	125	1365	645	1200	565	960	455	775	365
.60	150	1285	605	1135	535	910	430	735	345
.70	175	1195	565	1055	500	840	395	-----	-----
.80	200	1085	510	955	450	755	355	-----	-----

NOTE — All air data is measured external to the unit with the air filter in place.

GSR21Q3-80 BLOWER PERFORMANCE

External Static Pressure		Air Volume at Various Blower Speeds					
		High		Medium		Low	
in. w.g.	Pa	cfm	L/s	cfm	L/s	cfm	L/s
0	0	1735	820	1455	685	1095	515
0.05	13	1720	810	1445	680	1090	515
0.10	25	1700	800	1435	675	1085	510
0.15	37	1675	790	1420	670	1080	510
0.20	50	1640	775	1405	665	1070	505
0.25	62	1615	760	1385	655	1060	500
0.30	75	1585	750	1355	640	1045	495
0.40	100	1520	715	1290	610	995	470
0.50	125	1440	680	1210	570	930	440
0.60	150	1330	630	1120	530	870	410
0.70	175	1190	560	1015	480	-----	-----
0.80	200	1035	490	900	425	-----	-----

NOTE — All air data is measured external to the unit with the air filter in place.

GSR21Q4-50 BLOWER PERFORMANCE

External Static Pressure		Air Volume at Various Blower Speeds							
		High		Medium-High		Medium-Low		Low	
in. w.g.	Pa	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
0	0	1935	915	1725	815	1530	720	1225	580
.05	12	1900	895	1695	800	1515	715	1220	575
.10	25	1865	880	1665	785	1490	705	1210	570
.15	37	1825	860	1630	770	1465	690	1195	565
.20	50	1790	845	1595	755	1435	675	1175	555
.25	62	1745	825	1560	735	1400	660	1140	540
.30	75	1700	805	1520	715	1365	645	1105	520
.40	100	1585	750	1420	670	1285	605	1030	485
.50	125	1470	695	1320	625	1200	565	975	460
.60	150	1360	640	1215	575	1115	525	920	435
.70	175	1235	585	1115	525	1030	485	-----	-----
.80	200	1105	520	1000	470	930	440	-----	-----

NOTE — All air data is measured external to the unit with the air filter in place.

BLOWER DATA

GSR21Q4/5-80 BLOWER PERFORMANCE

External Static Pressure		Air Volume at Various Blower Speeds									
		High		Medium-High		Medium		Medium-Low		Low	
in. w.g.	Pa	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
0	0	2355	1110	2205	1040	1965	925	1740	820	1520	715
.05	12	2325	1095	2175	1025	1940	915	1715	810	1495	705
.10	25	2290	1080	2150	1015	1920	905	1695	800	1475	695
.15	37	2255	1065	2115	1000	1890	890	1670	790	1450	685
.20	50	2220	1050	2085	985	1860	880	1645	775	1425	670
.25	62	2185	1030	2050	970	1830	865	1620	765	1400	660
.30	75	2150	1015	2020	955	1800	850	1595	755	1375	650
.40	100	2080	980	1950	920	1745	825	1540	725	1320	625
.50	125	2000	945	1880	885	1680	795	1475	695	1260	595
.60	150	1915	905	1805	850	1615	760	1410	665	1195	565
.70	175	1825	860	1720	810	1540	725	1330	630	-----	
.80	200	1730	815	1635	770	1460	690	1240	585	-----	

NOTE — All air data is measured external to the unit with the air filter in place.

GSR21Q4/5-100 BLOWER PERFORMANCE

External Static Pressure		Air Volume at Various Blower Speeds									
		High		Medium-High		Medium		Medium-Low		Low	
in. w.g.	Pa	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
0	0	2275	1075	2140	1010	1940	915	1725	815	1520	715
.05	12	2245	1060	2110	995	1915	905	1700	800	1490	705
.10	25	2215	1045	2075	980	1885	890	1675	790	1465	690
.15	37	2185	1030	2040	965	1860	880	1645	775	1435	675
.20	50	2150	1015	2005	945	1830	865	1620	765	1410	665
.25	62	2115	1000	1970	930	1805	850	1590	750	1380	650
.30	75	2075	980	1935	915	1775	840	1560	735	1350	635
.40	100	1990	940	1870	880	1710	805	1500	710	1290	610
.50	125	1925	910	1800	850	1645	775	1435	675	1235	585
.60	150	1835	865	1730	815	1570	740	1370	645	1175	555
.70	175	1760	830	1650	780	1490	705	1300	615	-----	
.80	200	1675	790	1570	740	1400	660	1225	580	-----	

NOTE — All air data is measured external to the unit with the air filter in place.

INSTALLATION CLEARANCES

DOWN-FLOW POSITION

Sides	1 inch (25mm)
Rear	1 inch (25mm)
Top	1 inch (25mm)
Front	6 inches (152mm)
*Floor	*Combustible
Flue Pipe	0 inches (0mm)

* Clearance for installation on combustible floor if optional additive base is installed between furnace and combustible floor. Not required in add-on cooling coil applications if installed in accordance with local codes or National Fuel Gas Code ANSI-Z223.1.

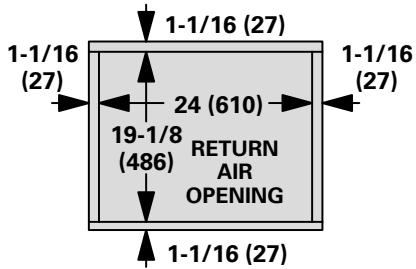
HORIZONTAL POSITION

Ends	3 inches (76mm)
Rear	3 inches (76mm)
*Top	*3 inches (76mm)
Front	6 inches (152mm)
Floor	Combustible
Flue Pipe	0 inches (0mm)

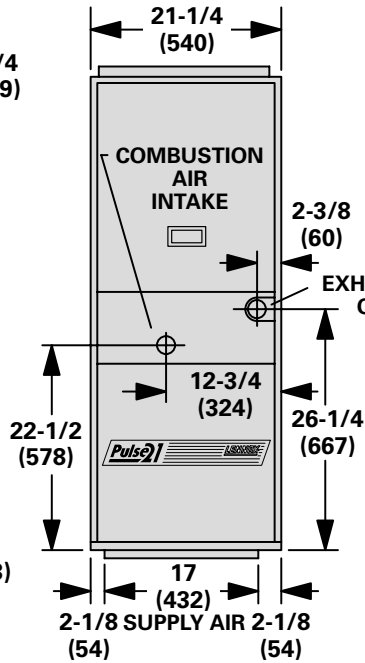
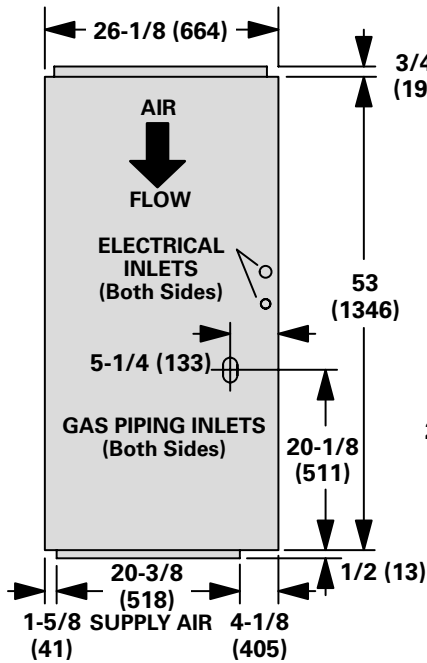
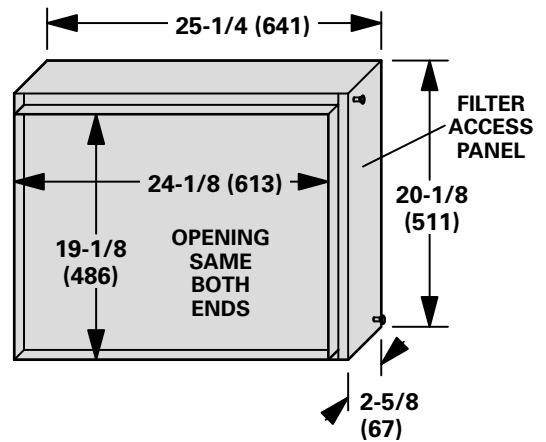
* Line contact installation permissible between jacket top or sides and building joists.

DIMENSIONS – inches (mm)

DOWN-FLOW POSITION

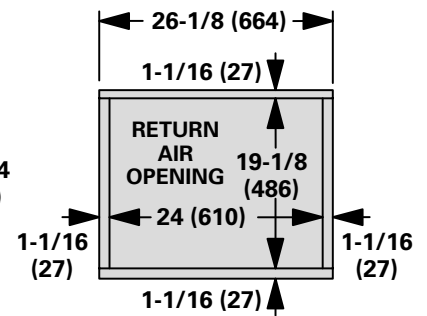
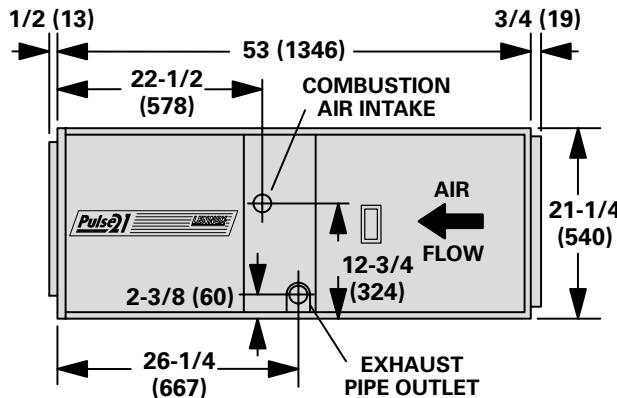
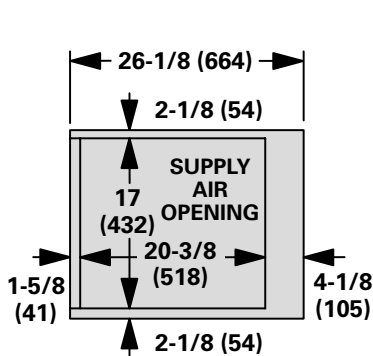
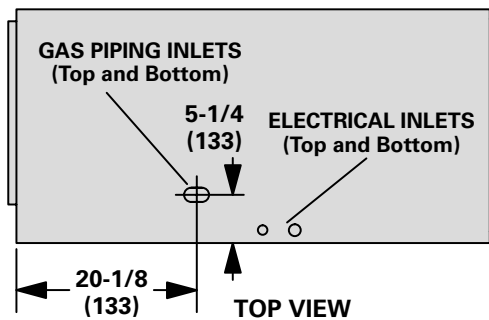


EXTERNAL FILTER RACK KIT (67H04)



NOTE – When heating only unit is installed on a combustible floor, an additive base is required. This is optional equipment and must be ordered extra. When using additive base, make opening in floor 2-5/8 inches (67mm) larger (front to rear and side to side) than furnace supply air opening.

HORIZONTAL POSITION



DISCHARGE END

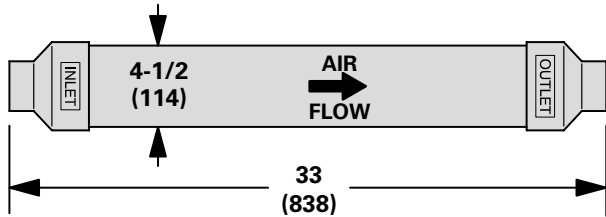
FRONT VIEW

INLET END

OPTIONAL ACCESSORY DIMENSIONS – inches (mm)

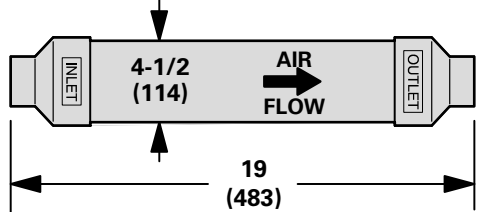
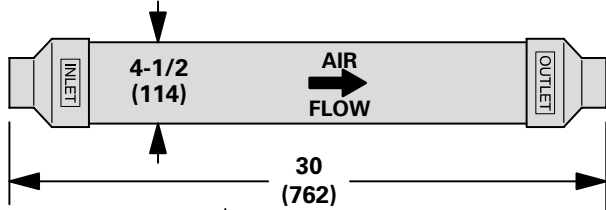
**IN-LINE MUFFLERS
(67F81)**

NOTE – Two mufflers are furnished per order.



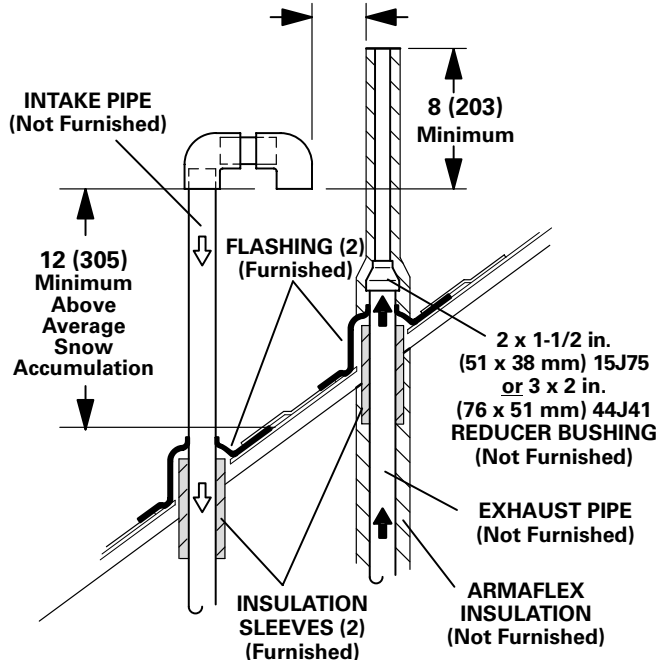
**IN-LINE ATTENUATORS
(GPA-3030 & GPA-3019)**

NOTE – GPA-3030 (12H76) contains two 30 in. (762mm) Attenuators. GPA-3019 (12H77) contains one 30 in. (762mm) Attenuator and one 19 in. (483mm) Attenuator.

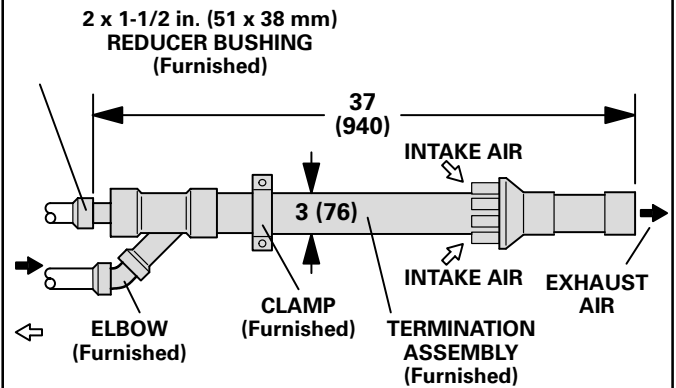


**ROOF TERMINATION KITS
15F75 for 2 inch (51 mm) Venting
44J41 for 3 inch (76 mm) Venting**

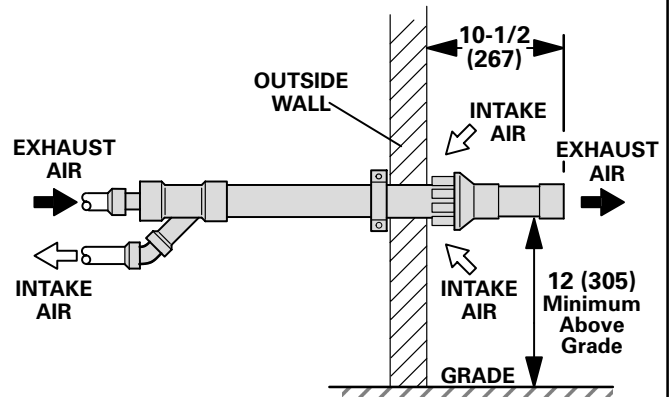
3 in. MAX.
(76 mm)



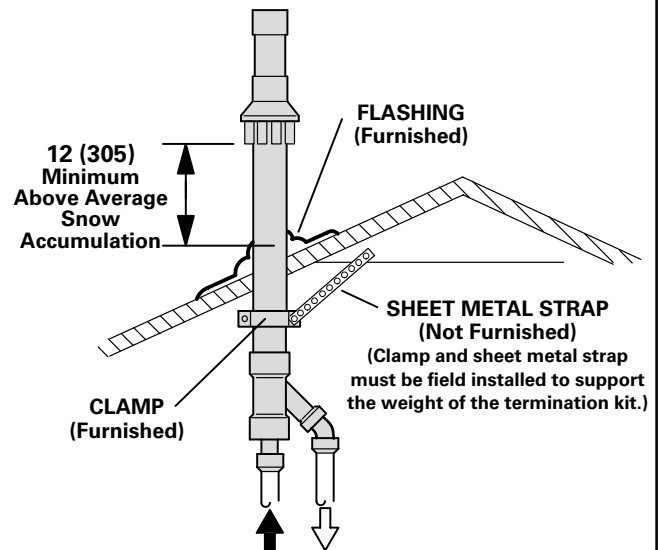
**CONCENTRIC ROOF/WALL
TERMINATION KIT (60G77)**



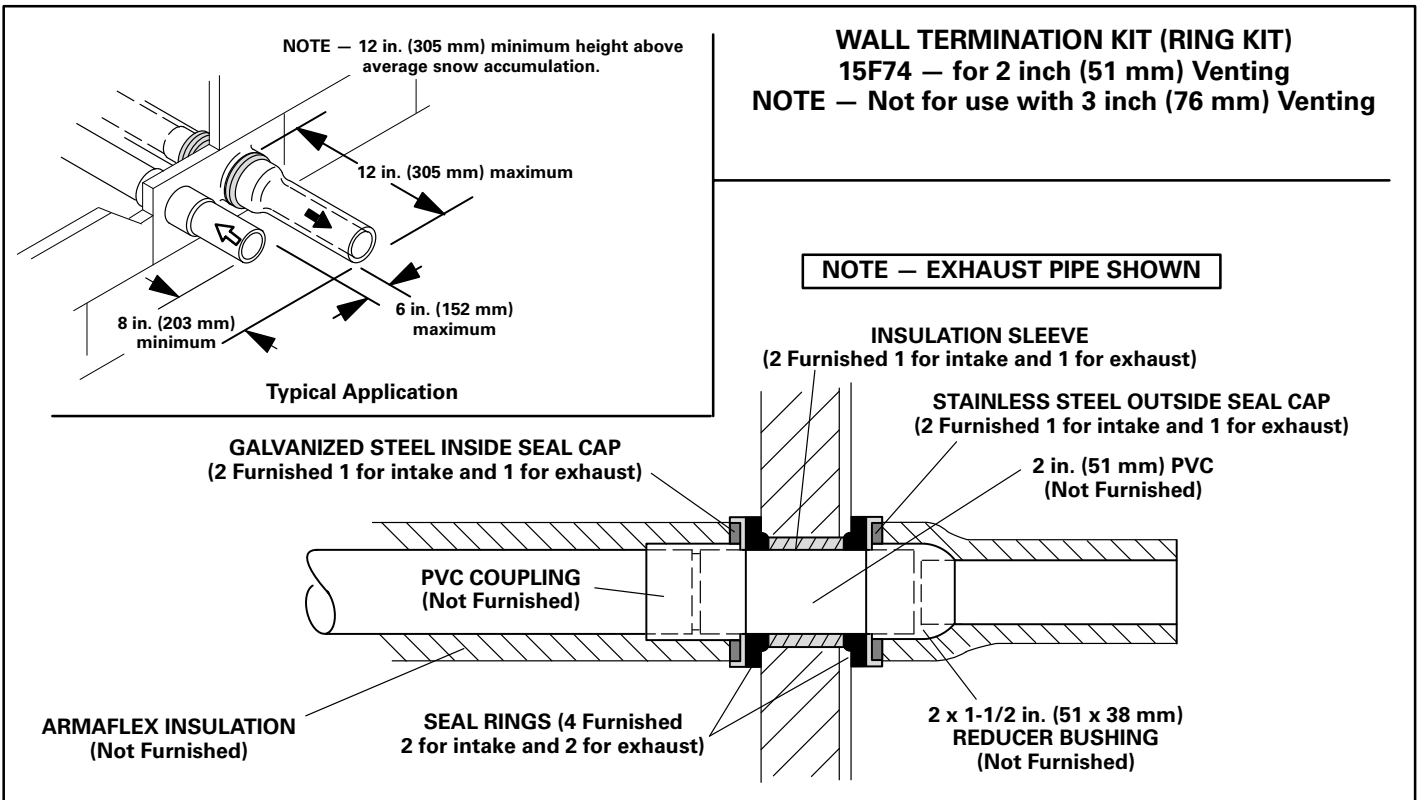
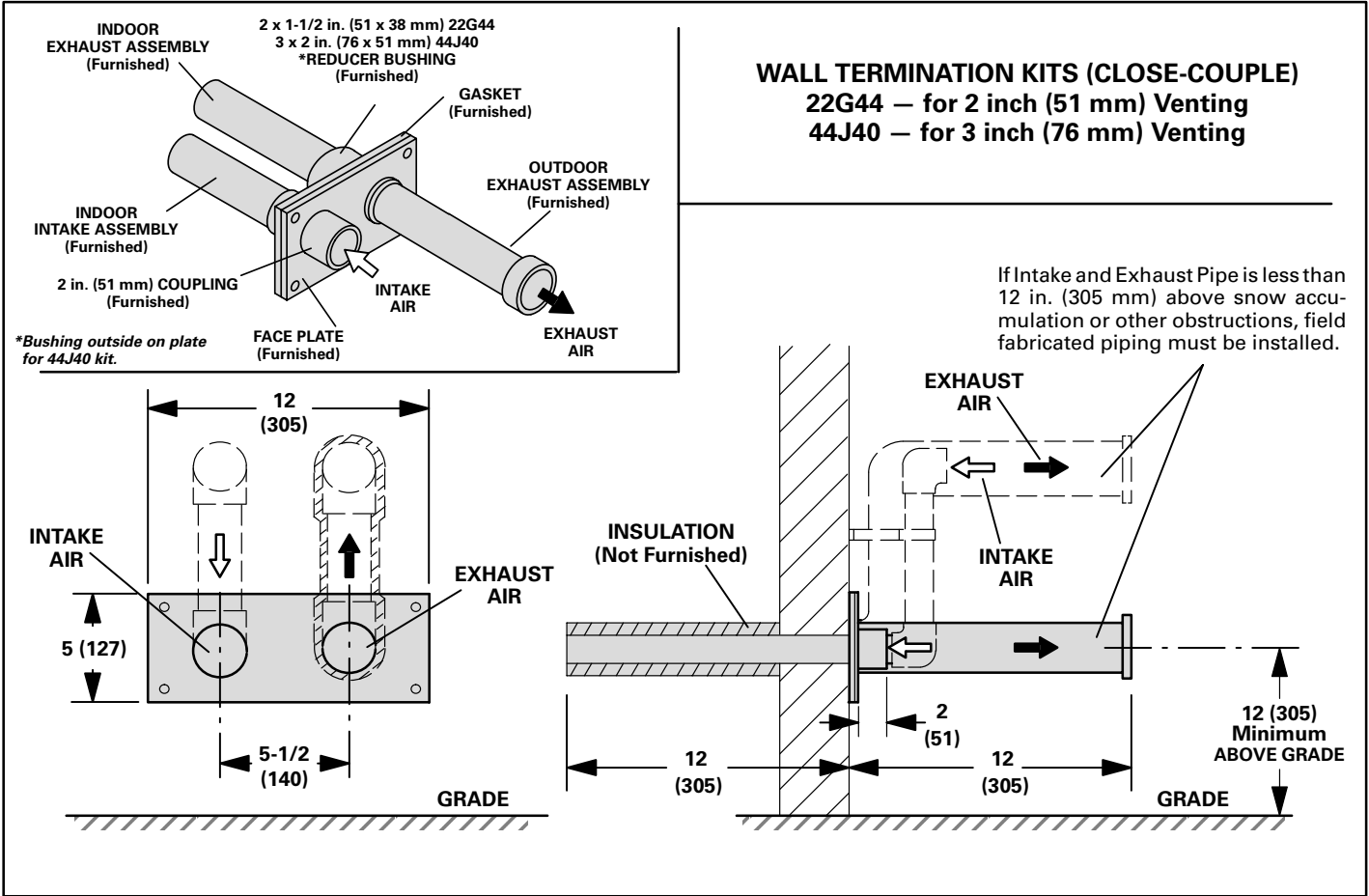
**CONCENTRIC WALL
TERMINATION APPLICATIONS**



**CONCENTRIC ROOF
TERMINATION APPLICATIONS**

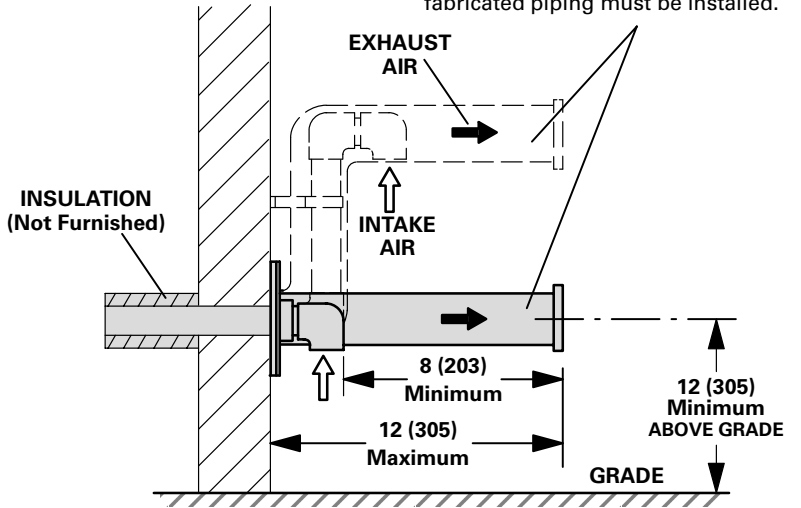
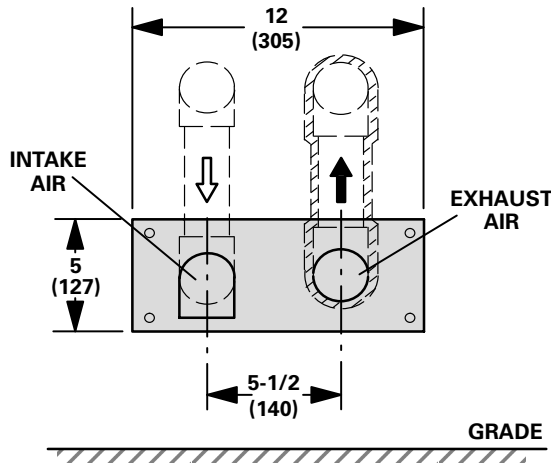


OPTIONAL ACCESSORY DIMENSIONS – inches (mm)



**WTK WALL TERMINATION KIT
WITH FIELD FABRICATION ABOVE
GRADE EXTENDED CLEARANCE**
30G28 – For 2 inch (51 mm) Venting
81J20 – For 3 inch (76 mm) Venting

If Intake and Exhaust Pipe is less than 12 in. (305 mm) above snow accumulation or other obstructions, field fabricated piping must be installed.



WTKX EXTENSION RISER TERMINATION KIT
30G79 – For 2 inch (51 mm) Venting
NOTE – Not for 3 inch (76 mm) Venting

