

REZNOR

WARNING: Gas-fired appliances are not designed for use in hazardous atmospheres containing flammable vapors or combustible dust, or atmospheres containing chlorinated or halogenated hydrocarbons.

Installations in public garages or airplane hangars are permitted when in accordance with ANSI Z223.1 and NFPA 54 codes or CAN1-B149 and enforcing authorities.

WARNING: Failure to provide proper venting could result in death, serious injury, and/or property damage. Unit must be connected to flue having sufficient draft to ensure safe and proper operation. Unit must be properly vented to the outside of the building. Safe operation of any gravity vented heating equipment requires a properly operating vent system, correct provision for combustion air and regular maintenance and inspection.

WARNING: Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury, or death. Read the installation operation and maintenance instructions thoroughly before installing or servicing any heating equipment.

FOR YOUR SAFETY

If you smell gas:

1. Open windows.
2. Don't touch electrical switches.
3. Extinguish any open flame.
4. Immediately call your gas supplier.

FOR YOUR SAFETY

WARNING: The use and storage of gasoline or other flammable vapors and liquids in the vicinity of this appliance is hazardous.

DANGER: The gas burner in all Reznor gas-fired equipment is designed and equipped to provide safe and economically controlled complete combustion. However, if the installation does not permit the burner to receive the proper supply of combustion air, complete combustion may not occur. The result is incomplete combustion which produces carbon monoxide, a poisonous gas that can cause death. Safe operation of indirect-fired gas burning equipment requires a properly operating vent system which vents all flue products to the outside atmosphere. Failure to provide proper venting will result in a health hazard which could cause serious personal injury or death.

Always comply with the combustion air requirements in the installation codes and instructions. Combustion air at the burner should be regulated only by manufacturer-provided equipment. NEVER RESTRICT OR OTHERWISE ALTER THE SUPPLY OF COMBUSTION AIR TO ANY HEATER. Indoor units installed in a confined space must be supplied with air for combustion as required by code and in the installation manual. INSTALL AND MAINTAIN THE VENT SYSTEM TO CONTINUALLY VENT ALL FLUE PRODUCTS SAFELY TO THE OUTSIDE ATMOSPHERE.

CODE REQUIREMENTS

The unit shall be installed by a qualified agency in accordance with the standards of the National Fire Protection Association and the national Fuel Gas Code for gas-fired duct furnaces. These standards should be followed carefully. Authorities having jurisdiction should be consulted prior to installation to verify local codes. The unit shall be installed in accordance with the National Fuel Gas Code ANSI Z223.1 (latest edition).

In Canada, the installation of these appliances is to be in accordance with CAN/C.G.A.-B149.1 and B149.2, Installation Code for Gas Burning Appliances and Equipment, and local codes.

Installation in aircraft hangars should be made in accordance with ANSI/NFPA No. 409 (latest edition), standard for aircraft hangars, and in public garages in accordance with NFPA No. 88A (latest edition), standard for parking structures, and NFPA No. 88B for repair garages. In Canada, installation in aircraft hangars should be in accordance with the requirements of the enforcing authorities and in public garages in accordance with CAN1-B149 codes.

ANSI/NFPA-409 specifies a clearance of 10 feet to the bottom of the heater from the highest surface of the top of the wings or engine enclosures, or whatever aircraft would be highest to be housed in the hangar, and a minimum clearance of 8 feet from the floor in other sections of aircraft hangars, such as offices and shops which communicate with areas used for servicing or storage. The heaters must be located so as to be protected from damage by aircraft or other objects such as cranes and movable scaffolding.

NFPA-88 specifies overhead heaters must be installed at least 8 feet above the floor. Clearances to combustible construction or material in storage from the heater and vent 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 the continued operation of the heater.

CONDENSATION

When air inlet temperatures are below 40°F or temperature rise is less than 40°F, condensation on the heat exchanger is possible. The resulting steel corrosion will shorten the heat exchanger life expectancy. Use E-3 (409) or 321 stainless steel for heat exchanger material to inhibit corrosion.

If there is a possibility of condensation of flue products, E-3 (409) stainless steel should be used for burner material.

CHLORINES

The presence of chlorine vapors in the combustion air of gas-fired heating equipment presents a potential corrosive hazard. Chlorine will, when exposed to flame, precipitate from the compound, usually freon or degreaser vapors, and into solution with any condensation that is present in the heat exchanger or associated parts. The result is hydrochloric acid which readily attacks all metals including 300 grade stainless steel. Care should be taken to separate these vapors from the combustion process. This may be done by wise location of units with regard to exhausters or prevailing wind directions. Remember, chlorine is heavier than air. This fact should be kept in mind when determining installation locations of heaters and building exhaust systems.

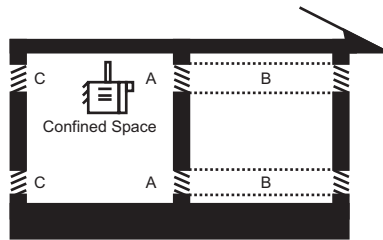
CLEARANCE AND COMBUSTION AIR

Units must be installed so that clearances are provided for combustion air space, service and inspection, and for proper spacing from combustible construction.

All fuel-burning equipment must be supplied with the air that enters into the combustion process and is then vented to the outdoors. Sufficient air must enter the equipment location to replace that exhausted through the vent system. Modern construction methods involve the greater use of insulation, improved vapor barriers and weather-stripping, with the result that buildings generally are much tighter structurally than they have been in the past. Combustion air supply for gas-fired equipment can be affected by these construction conditions because infiltration that would have existed in the past may not be adequate. Extensive use of exhaust fans aggravates the situation. In the past, the infiltration of outside air assumed in heat loss calculations (one air change per hour) was assumed to be sufficient. However, current construction methods using more insulation and vapor barriers, tighter fitting and gasketed doors and windows or weather-stripping, and mechanical exhaust fans may now require the introduction of outside air through wall openings or ducts.

HEATERS LOCATED IN CONFINED SPACES

Confined Space
A space whose volume is less than 50 cubic feet per 1000 BTUH (1.5 cubic meters per kW) of the installed appliance input rating.



Do not install unit in confined space without providing wall openings leading to and from this space. Provide adequate openings near floor and ceiling for ventilation and air for combustion, as shown above, depending on combustion air source as noted below.

Add total BTUH of all appliances in the confined space and divide by figures below for square inch free area size of each (top and bottom) opening.

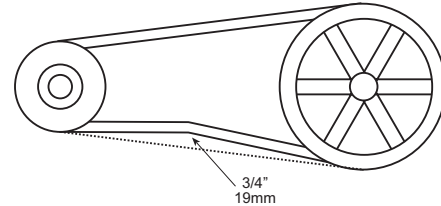
1. **Air from inside building** - openings 1 square inch free area per 1,000 BTUH. Never less than 100 square inches free area for each opening. See "A" in illustration.
2. **Air from outside through duct** - openings 1 square inch free area per 2,000 BTUH. See "B" in illustration.
3. **Air direct from outside** - openings 1 square inch free area per 4,000 BTUH. See "C" in illustration.

NOTE: For further details on supplying combustion air to confined space see: National Fuel Gas Code ANSI Z223.1 - (latest edition) 5.3.3.

WARNING: All components of gas supply system must be leak tested prior to placing equipment in service. NEVER TEST FOR LEAKS WITH AN OPEN FLAME.

BELTS AND DRIVES

Belt driven motors are equipped with adjustable pitch pulleys which permit adjustment of blower speed. Proper belt tension is important to the long life of the belt and motor. A loose belt will cause wear and slippage. Too much tension will cause excessive motor and blower bearing wear. Adjust belt tension by means of the adjusting screw on the motor base until belt can be depressed 1/2" to 3/4".



ELECTRICAL SUPPLY AND CONNECTIONS

All electrical wiring and connections including electrical grounding should be made in accordance with the National Electric Code ANSI/NFPA No. 70-(latest edition) or, in Canada, the Canadian Electrical Code, Part I-C.S.A. Standard C22.1 Check any local ordinance or gas company requirements that apply.

A separate line voltage supply should be run directly from the main panel to a fused disconnect switch, at the unit, and then making connection to leads in the unit junction box. All external wiring must be made within approved conduit and have a minimum temperature of 63°F

The unit must be electrically grounded in accordance with the National Electrical Code, ANSI/NFPA No. 70-(latest edition) or C.S.A. Standard C22.1 when installed, if an external electrical source is use.

GAS PIPING AND PRESSURES

To provide adequate gas pressure at the furnace, refer to pipe sizing tables. The unit is equipped for a maximum gas supply pressure of 1/2 pound or 8 ounces. An additional service regulator external to the unit is required to reduce higher supply pressures to the 1/2 pound maximum.

WARNING: Never expose gas control on unit to greater than 1/2 pound pressure! Pressure testing of the gas supply piping system must be carried out before connecting the furnace. A pipe cap or field-supplied high pressure gas cock must be used during proof testing of the system.

For Natural Gas

Manifold pressure is regulated by the combination valve to 3.5" water column. Line pressure upstream of the controls must be a minimum of 5" water column or as noted on unit rating plate.

For Propane Gas

Manifold pressure is regulated by the combination valve to 10" water column. Line pressure upstream of controls must be 11" water column minimum and 14" maximum.

NOTE: Gas supply pressures higher than 14" w.c. or 1/2 pound require an additional service regulator to be added to the unit or supply system.

All piping must be in accordance with requirements outlined in the National Fuel Gas Code ANSI Z223.1-(latest edition) published by the American Gas Association or CAN/C.G.A.-B149 (.1 or .2) published by the Canadian Gas Association.

When regulations require and for ease of servicing, install a ground joint union and manual shut-off valve upstream of unit control system.

CAPACITY OF PIPING - NATURAL GAS															
Cubic Feet/Meters per Hour Based on 0.3" W.C. Pressure Drop															
Specific Gravity for Natural Gas - 0.6 (1,000 BTU/CU Foot)															
Length of Pipe		Diameter of Pipe													
		1/2"		3/4"		1"		1-1/4"		1-1/2"		2"		2-1/2"	
Ft	M	Ft ³ /Hr	M ³ /Hr	Ft ³ /Hr	M ³ /Hr	Ft ³ /Hr	M ³ /Hr	Ft ³ /Hr	M ³ /Hr	Ft ³ /Hr	M ³ /Hr	Ft ³ /Hr	M ³ /Hr	Ft ³ /Hr	M ³ /Hr
20	6.1	92	2.6	190	5.4	350	9.9	730	20.7	1100	31.1	2100	59.5	3300	93.4
30	9.1	73	2.1	152	4.3	285	8.1	590	16.7	890	25.2	1650	46.7	2700	76.5
40	12.2	63	1.8	130	3.7	245	6.9	500	14.2	760	21.5	1450	41.1	2300	65.1
50	15.2	56	1.6	115	3.3	215	6.1	440	12.5	670	19.0	1270	36.0	2000	56.6
60	18.3	50	1.4	105	3.0	195	5.5	400	11.3	610	17.3	1105	31.3	1850	52.4
70	21.3	46	1.3	96	2.7	180	5.1	370	10.5	560	15.9	1050	29.7	1700	48.1
80	24.4	43	1.2	90	2.5	170	4.8	350	9.9	530	15.0	990	28.0	1600	45.3
90	27.4	40	1.1	84	2.4	160	4.5	320	9.1	490	13.9	930	26.3	1500	42.5
100	30.5	38	1.1	79	2.2	150	4.2	305	8.6	460	13.0	870	24.6	1400	39.6
125	38.1	34	1.0	72	2.0	130	3.7	275	7.8	410	11.6	780	22.1	1250	35.4
150	45.7	31	0.9	64	1.8	120	3.4	250	7.1	380	10.8	710	20.1	1130	32.0
175	53.3	28	0.8	59	1.7	110	3.1	225	6.4	350	9.9	650	18.4	1050	29.7
200	61.0	26	0.7	55	1.6	100	2.8	210	5.9	320	9.1	610	17.3	980	27.7

NOTE: When sizing supply lines, consider possibilities of future expansion and increased heating requirements. Refer to National Fuel Gas Code for additional information on sizing supply line.

CAPACITY OF PIPING - PROPANE															
Cubic Feet/Meters per Hour Based on 0.3" W.C. Pressure Drop															
Specific Gravity for Propane Gas - 1.6 (2,550 BTU/CU Foot)															
Length of Pipe		Diameter of Pipe													
		1/2"		3/4"		1"		1-1/4"		1-1/2"		2"		2-1/2"	
Ft	M	Ft ³ /Hr	M ³ /Hr	Ft ³ /Hr	M ³ /Hr	Ft ³ /Hr	M ³ /Hr	Ft ³ /Hr	M ³ /Hr	Ft ³ /Hr	M ³ /Hr	Ft ³ /Hr	M ³ /Hr	Ft ³ /Hr	M ³ /Hr
20	6.1	56	1.6	116	3.3	214	6.1	445	12.6	671	19.0	1281	36.3	2013	57.0
30	9.1	45	1.3	93	2.6	174	4.9	360	10.2	543	15.4	1007	28.5	1647	46.6
40	12.2	38	1.1	79	2.2	149	4.2	305	8.6	464	13.1	885	25.1	1403	39.7
50	15.2	34	1.0	70	2.0	131	3.7	268	7.6	409	11.6	775	21.9	1220	34.5
60	18.3	31	0.9	64	1.8	119	3.4	244	6.9	372	10.5	674	19.1	1129	32.0
70	21.3	28	0.8	59	1.7	110	3.1	226	6.4	342	9.7	641	18.2	1037	29.4
80	24.4	26	0.7	55	1.6	104	2.9	214	6.1	323	9.1	604	17.1	976	27.6
90	27.4	24	0.7	51	1.4	98	2.8	195	5.5	299	8.5	567	16.1	915	25.9
100	30.5	23	0.7	48	1.4	92	2.6	186	5.3	281	8.0	531	15.0	854	24.2
125	38.1	21	0.6	44	1.2	79	2.2	168	4.8	250	7.1	476	13.5	763	21.6
150	45.7	19	0.5	39	1.1	73	2.1	153	4.3	232	6.6	433	12.3	689	19.5
175	53.3	17	0.5	36	1.0	67	1.9	137	3.9	214	6.1	397	11.2	641	18.2
200	61.0	16	0.5	34	1.0	61	1.7	128	3.6	195	5.5	372	10.5	598	16.9

NOTE: When sizing supply lines, consider possibilities of future expansion and increased heating requirements. Refer to National Fuel Gas Code for additional information on sizing supply line.

Reznor Separated Combustion Systems

Applies to Models SCE, SSCBL as pictured below, also applies to Model CAUA

The manufacturer of Reznor heating equipment, for years, has pioneered in separated combustion system technology, eliminating "open flame" combustion problems. This has resulted in a complete line of Reznor products using the separated combustion principle-

- air for combustion is mechanically induced from outside the building, preventing dirt, lint, dust or other contaminants in the indoor atmosphere from entering the burner, pilot or combustion zone of the furnace,
- the air flow is metered to provide optimum and efficient combustion that is unaffected by negative building pressure or wind,
- after combustion, the air is exhausted back to the outdoor atmosphere.

Reznor separated combustion products provide all of the benefits while requiring only one building penetration. See the venting illustration on the following pages.

Flow of combustion air through furnace in Models SCE and SSCBL

