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VENTED versus Vent-Free Gas Fireplace Products

General: Gas Log sets are a very convenient replacement for all the hassles of burning wood: Procuring, chopping, stacking, hauling, spiders, bugs, sparks, ashes, creosote, chimney fires, cleaning and waiting for the embers to die down before going to bed, to name a few. Gas logs sets, whether vented or vent-free types, provide instant on and off, no sparks, ready fuel supply and look good for the greater proportion of time when a fire is not burning. While a fireplace should not to be viewed as a primary heat source, it can be a fine supplemental heater, providing warmth to a particular room. Additionally, whether vented or vent-free, it is a great source of emergency heat in the event of a power outage, as gas log sets derive their power from the pilot light and/or batteries.

Vented gas logs, which we first made in 1958, are much healthier than burning wood, as there are no wood particulates that can cause irritation. They are designed with a burner that produces a yellow, smoky, wood-like flame, so they must be used in a fireplace with a working chimney, one which exhausts all of the products of combustion. The products of combustion only enter the living space if the chimney does not work properly, thus the occupants are unaffected by the by-products of the gas log during normal use. Unfortunately, most fireplace designs, while being efficient in exhausting the combustion products, are very inefficient as heaters, as much of the heat goes up the chimney rather than into the room. That led to the development of vent-free set.

In 1994, Rasmussen became the sixth US manufacturer to make a vent-free gas log set. Since then, we have created a variety of vent-free fireplace products, including our Chillbuster line with many styles of logs and burner arrangements; CoalFire coal basket fires for use in smaller Victorian and coal fireplaces; and the Alterna VF line of contemporary gas fires, which include the FireBalls, FireShapes, FireStones and Fire Glitter. Rasmussen has served on technical and sub-committees that write and revise the national standard, ANSI Z1.11.2, to which all vent-free heaters are certified, and an active member of the Vent-free Gas Products Alliance, our industry group that is committed to developing and maintaining markets for vent-free heaters.

Please consider the following additional factors when deciding between vented pan burner pan burner and heat-effect gas log sets:

CHILLBUSTER and ALTERNA VF: These sets are designed, certified and manufactured by Rasmussen to two nationally recognized consensus standards: ANSI Z21.11.2 Unvented Heaters and Z21.60 Decorative Gas Appliances. This permits our Chillbuster Heat-Effect Gas Log Sets and ALTERNA VF Vent-Free Contemporary Gas Fires to be sold and used in any jurisdiction, regardless of their position on vent-free use or the position of the chimney damper.

Safety: Rasmussen only sells safe products and has been doing so for over 100 years. You enhance and ensure the safety of the product by properly installing and operating it in accordance with the instruction manual and applicable codes and ordinances. All heat-effect gas heaters are equipped with oxygen depletions sensors (ODS) and safety control valves to shut down the unit in case of unhealthful oxygen levels or in the event of an interruption in gas supply or flameout. Vented pan burner sets may be ordered with safety control valves to shut down the unit in the event of an interruption in gas supply or flameout.

Efficiency: Heat-effect sets are the best products if you desire a supplemental and/or emergency heat source for the room in which the fireplace is located. Since the damper may be closed, there is no heat loss up the chimney. Please note that heat-effect heaters, like all gas burning appliances, require fresh air for proper combustion and customer satisfaction. With heat-effect heaters used in the vent-free mode, the products of combustion vent into the living space; with vented pan burner gas logs, the products of combustion vent up the chimney. Some people are more sensitive to the natural odor associated with the burning of gas, which can be exacerbated with a lack of adequate fresh air in heat-effect applications.

IMPORTANT INFORMATION about "Partially Vented" or "Reduced Vent" Gas Log Sets:

A few manufacturers of gas log sets have introduced gas log sets that purport to allow the consumer to close the damper to a minimum opening while enjoying rich, yellow flames and more heat in the room. The basis for

their claim is a chart in the National Fuel Gas Code that specifies minimum venting area based on BTUs consumed. The manufacturers reduced the BTU use from their standard fully vented gas log sets to a point where the chart allows for a smaller damper opening, which would keep more of the heat in the room. **The PROBLEM** with these sets is that they **all produce soot** and the soot is either going to go up the chimney or out into the room. The market experience is that the specified "reduced vent" openings are not sufficient to always exhaust all of the products of combustion up the chimney, therefore putting soot into the living space (which can be harmful to health and furnishings). **The only TRUE SOLUTION** for someone who wants to close the damper to a setting less than full open is to use a HEAT EFFECT gas log set (such as a CHILLBUSTER) that has been certified to ANSI Z21.11.2 Unvented Heater Standard, since these sets are **not permitted to produce any soot**.

Aesthetics: "Beauty is in the eyes of the beholder." Rasmussen manufactures what we consider to be the best looking vented pan burner and heat-effect gas log sets available. The national standard for vent-free heaters is very restrictive in ways that limit the flame appearance (40,000 BTU/hour maximum input; lowest level of carbon monoxide allowed of any gas burning appliance, no carbon (soot) formation). The flame characteristics of a vented pan burner set are fuller (more BTUs) and more wood-like in appearance. Since the yellow, smoky flame produces carbon (soot), and the standards to which these sets are certified allow more carbon monoxide than heat-effect sets, the damper must be open when operating a vented pan burner set. Since most fireplaces are very inefficient with the damper open, much of the heat is lost up the chimney. However, the ceramic logs radiate some heat into the room, as do the burning embers. Additionally, one gets a warm feeling from the presence of the flame itself.

Soot: Heat-effect gas log sets are not permitted to soot by the vent-free standard to which they are certified. This makes them well suited for "smoking" fireplaces (those that do not draw or vent properly). Vented pan burner gas logs sets are designed to burn with a yellow smoky flame that produces soot. Vented pan burner sets require that the chimney flue exhaust all of the products of combustion up the chimney, otherwise the soot will enter into the living space. This is the trade-off for the rich, luminous flame.

Product Size Selection: Heat-effect gas log sets are available in 18-, 24- and 30-inch sizes with various log appearances and burner styles. Vented pan burner log sets are available in sizes ranging from 12- to 96-inches, with custom sets available for large and unusual fireplaces. We currently offer 14 styles of vented pan burner log sets as well as many contemporary styles, such as FireBalls, FireShapes, FireStones and FireGlitter.

Summary: Heat-effect gas log heaters (like CHILLBUSTER) give you the best heat value from your gas dollar spent. They also give you flexibility of venting, as you can safely use them with no or little damper opening, as desired and permitted by local jurisdiction. The vented pan burner set better approximates the aesthetics of a wood fire. There are many more size, burner style and control options for vented sets, as well as the ability to have custom solutions for large and unusual fireplaces. The choice is yours based on your needs and desires.

Additional Information about Vent-Free Sets

ANSI Z21.11.2 (the national Unvented Heater standard to which all vent-free products are certified) is the most restrictive of all gas appliance standards, which allows the least amount of Carbon Monoxide (CO) (200 ppm air free) of any gas burning appliance. By contrast, the standard for a kitchen range, which is also an unvented appliance, allows up to 800 ppm air free. In addition to the vent-free standard, all Rasmussen vent-free sets are certified to the vented decorative standard (ANSI Z21.60), which allows you to use the damper closed, open or anywhere in between, depending on your preference and local restrictions.

The ANSI Z21.11.2 standard also requires that all vent-free heaters be equipped with an Oxygen Depletion Sensor (ODS). An ODS is a system that includes a quick-acting thermocouple and a calibrated pilot. The pilot becomes unstable at lowered levels of oxygen, causing the thermocouple to close down the flow of gas through the valve to the burner. Normal room air contains 20.9% oxygen. Death or serious injury occurs at oxygen levels of about 15%. An ODS is required by the standard to shut down the system by 18.0% oxygen. By the ANSI standard, vent-free gas log sets must be designed so that they do not produce soot.

Rasmussen vent-free sets use a state-of-the-art opposed-louver lanced-port burner. This type of burner is very forgiving when operated under adverse conditions, such as improper log placement or drafts. Such conditions result in the flame impinging on the logs, which cause soot from our competitors' punched-port burners, but operate clean with the Rasmussen burners.

Initial certification testing is extremely rigorous. We are subject to periodic unannounced inspections by our

certification agency. Rasmussen, unlike most of our competitors, gas tests every vent-free burner to ensure gas tightness of all fittings and proper operation.

Vent-free gas log sets, like all gas burning appliances (including vented gas log sets), require fresh air for proper combustion and customer satisfaction. When used without adequate fresh air, such as in tightly constructed homes or in homes in which all avenues of air infiltration are sealed off, certain odors can become a nuisance. The sources of these odors are impurities in the air in the living space (such as cigarette smoke, pet hairs, off-gassing from paint, carpets, laminates, glues textiles, etc.) or from the natural odor associated with the burning of gas.

Water vapor is a natural product of combustion. Without adequate fresh air, it can build up to the point of being noticeable and unpleasant. It can mix with impurities from other sources to cause a brown film on walls and windows.

As you can see, fresh air is important for a satisfactory experience with a vent-free heater. If you have any doubt, you should use either a vented set with the damper fully open, or a vent-free set with the damper cracked open to permit some of the products of combustion to exhaust. One big advantage of the vent-free sets is that you can change the damper position to help strike the best balance between heat and indoor air quality issues.

The 40,000 BTU/hour maximum gas input for vent-free heaters restricts the largest width of a set to 30-inches.

In the vent-free, the log stacks are set in their log placement to provide the best combustion. You do not have the flame playing off of the logs like that of vented sets, where the logs are loose and can be arranged as desired.

Life is full of trade-offs. The limitations set by ANSI Z21.11.2 allow you to operate the set with the damper closed, thus virtually eliminating the heat loss up the chimney. But, they just don't look as good as the vented sets. But if you choose the fuller flame and more random and full log stacks of the vented sets, you lose much of the heat from the requirement that the damper be wide open when burning.