Burning controversy

UNVENTED GAS FIREPLACES CAN GO ALMOST ANYWHERE. BUT ARE THEY SAFE?

Homeowners who want the warmth of a hearth without the bother of burning wood are increasingly turning to gas fireplaces. With gas flames that curl around woodlike ceramic logs, these appliances offer a faux fireplace at the click of a switch.

One type of gas fireplace even burns without the need of a chimney or other vent, and so can be installed virtually anywhere. But as it provides warmth and coziness, an unvented fireplace also emits such pollutants as nitrogen dioxide, carbon monoxide, and fine particulates. That's prompted a debate among manufacturers, regulators, and safety experts over the possible health effects of these heaters.

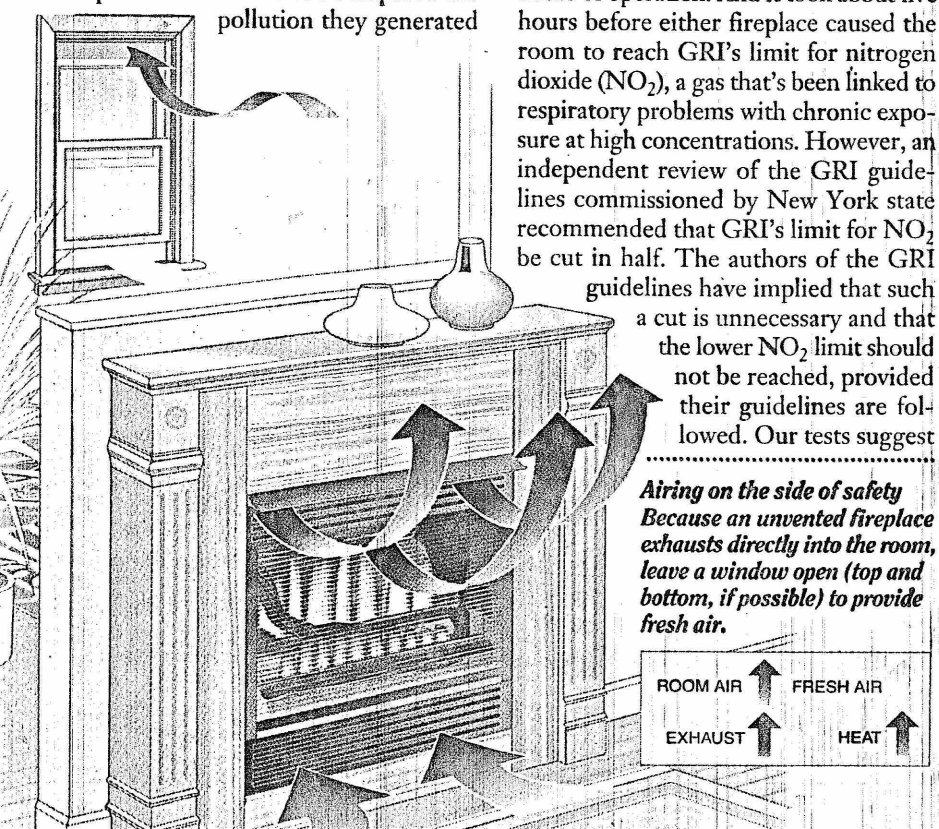
Firing up the debate

To shed light on this discussion, we installed and ran two typical unvented fireplaces in our labs. We compared the pollution they generated with the standards for indoor-air quality.

No national standard compels contractors to consider air quality when they install an unvented fireplace; the National Fuel Gas Code and many local codes call only for the fireplace to be sized so that sufficient air is available for combustion. Contractors can, however, use alternative sizing guidelines that consider emissions, drawn up by the Gas Research Institute, an industry group.

We used the GRI guidelines to design our tests of the *Martin ZCB* fireplace, $444, with its accompanying *VFG24F* logset, $546, and the *Superior CF-6000CF6-CMN-R* fireplace, $2,099. The tests simulated use at an average heat output in the living space of a large home.

Neither fireplace exceeded GRI guidelines for acceptable levels of carbon monoxide or carbon dioxide, even after many hours of operation. And it took about five hours before either fireplace caused the room to reach GRI's limit for nitrogen dioxide (NO_2), a gas that's been linked to respiratory problems with chronic exposure at high concentrations. However, an independent review of the GRI guidelines commissioned by New York state recommended that GRI's limit for NO_2 be cut in half. The authors of the GRI guidelines have implied that such a cut is unnecessary and that the lower NO_2 limit should not be reached, provided their guidelines are followed. Our tests suggest otherwise; we conclude both fireplaces could exceed the lower guideline in a typical home within a couple of hours of operation.



Airing on the side of safety ***Because an unvented fireplace exhausts directly into the room, leave a window open (top and bottom, if possible) to provide fresh air.***

Illustration by Ian Worpole

Recommendations

An unvented gas fireplace that's safely sized needn't pose any acute health hazard. But our tests confirm that these heaters contribute significantly to indoor air pollution. If you're planning to buy a gas fireplace, a vented model should be your first choice. That's especially wise if any household member has asthma or another respiratory ailment that may be exacerbated by particulate matter, or if your home is very airtight—and so will disperse the fireplace's emissions less readily.

A vented gas fireplace needn't cost more to buy and install than an unvented model, since some units require only a fairly small vent pipe that runs horizontally to any outside wall.

If you do decide to buy an unvented gas fireplace, here's how to ensure it operates as safely as possible:

- **Observe GRI guidelines.** Insist that the contractor not exceed them when sizing your fireplace.
- **Limit its use.** Though occasional extended use of an unvented fireplace should pose little long-term health risk, we suggest limiting operation to no more than two hours at a stretch, as a rule.
- **Provide extra ventilation.** Leave at least one window open in the space where the fireplace operates.
- **Buy only a certified package.** Some fireplaces are sold as two separate components: a "firebox" and a "logset"—the component that contains the burners and logs. Ask the contractor to confirm, through the owners' manual or an American Gas Association label on the logset, that the two components are compatible. A dealer sold us the *Martin* fireplace with another brand's logset he claimed was suitable. He was wrong; the unit emitted higher levels of carbon monoxide than is desirable until we obtained a logset that was approved for that *Martin* firebox.
- **Use a battery-powered CO alarm.** That dealer error aside, the fireplaces we tested showed no propensity to generate any carbon monoxide (CO). Also, some models, including the *Superior* we tested, are claimed to shut off should carbon monoxide levels ever rise. However, we recommend use of a CO alarm with any combustion appliance, including an unvented fireplace. Good battery-powered CO alarms we've tested recently include the *Nighthawk 900-0089*, $45, and *Aim Safety SAS 6-96D*, $80. CR