Fireplace Safety and Proper Usage

FACT SHEET

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Introduction

As home heating costs continue to rise, many homeowners find themselves wanting to use their fireplace for supplemental home heating. The temptation is understandable; if you can raise your home's temperature by a couple of degrees and keep the furnace off for a few more minutes, why not?

There are three good reasons why this might not be a good idea:

1. Your fireplace usage may actually take more heat out of your home
2. Fireplaces that are not properly maintained pose a safety risk, including carbon monoxide poisoning and house fires
3. Chances are good that your fireplace may not be designed for appreciable heat production

Before you put another log on the fire, take a moment to learn about these important considerations.

Are You Actually *Losing* Heat?

There are three primary fireplace types – wood pellet, gas and wood burning systems. Each type has unique pros and cons. This fact sheet will focus on wood burning fireplaces. Wood burning fireplaces are popular because they are inexpensive to use, but because they represent the greatest danger and lowest efficiency, you should be aware of some simple science.

Open hearth wood burning fireplaces may seem like they're generating heat, but in fact, most of the heat produced is going up in smoke – literally. Heat from the fireplace and from your furnace escapes out through the chimney. The heated air is replaced by colder air from outside, resulting in a net energy loss in your home.

Here's why: wood fires need oxygen – lots of it. Large amounts of heated household air flows

Many people enjoy the cozy warmth of a wood burning fireplace without realizing the dangers they pose.

through the fireplace and up the chimney when a fire is blazing. A conventional wood fireplace will use up to ten times the amount of air required by a typical oil or gas furnace. Only a small amount of the air drawn into a fireplace is actually used for combustion; the rest, known as excess or "tramp" air, is also drawn up the chimney.

This flow of "tramp" air has two consequences. First, it draws heat that is generated by the fire itself up the chimney, rather than transferring it to the house. Second, it results in a high rate of air exchange in the house, which causes the furnace or other primary heat source to work overtime to heat more air. A roaring fireplace can result in all the air in a house being exhausted up the chimney as much as 1.4 times for each hour the fireplace is in use.

So, the colder the outside temperature, the more likely it is that your fireplace is taking out more heat than it is producing.

A Burning Danger

Some people, aware of the fireplace's inefficiency, will close the damper slightly to send more heat into the home and less up the chimney. But this only creates another problem – a potentially deadly one.

Smoke from burning wood contains, among other things, carbon monoxide – a deadly gas that you can't see, taste or smell. A fireplace that backdrafts poses the risk of carbon monoxide poisoning. This is especially dangerous as the fire dies down and there is less heat available to draw the smoke up the chimney.

Using a direct-vent fireplace can add as much charm to a room as a wood burning system, and your family will have the peace of mind that it is safer and more energy efficient.

Oddly, the more you use a wood-burning fireplace, the greater is the risk of the fire in your home. Fires can occur in two primary ways: igniting creosote in the chimney, and excessive heat transferring to objects near your fireplace.

Creosote is the dense, black ashy substance that builds up in the chimney wall when smoke and particles are released from burning wood. The creosote can ignite, causing a chimney fire. It is for this reason that you should enlist a professional chimney sweep at least once a year (twice annually in very cold weather climates) to safely remove the creosote build-up from the chimney walls.

Heat transference occurs when flammable objects are placed too close to a hot fireplace. The excessive heat can cause these objects to ignite.

If You Burn Wood, Follow These Important Safety Guidelines:

- Have your chimney cleaned by a professional chimney sweep at least once a year.
- Install carbon monoxide detectors, test them regularly and change batteries often.
- Keep all objects at least three feet away from the hearth to minimize heat transference.
- Weatherize and insulate your home for greater comfort and efficiency.
- Never leave your fireplace unattended.
- Make sure a wood fire is completely out before closing your flue.
- Never use your fireplace to burn paper or garbage.
- Burn only clean, dried wood. Hardwoods burn the cleanest, but all wood should be dried for a minimum of six months.
- Use a screen on the top of your chimney to prevent birds or other small animals from nesting in your chimney. The screen will also help keep in sparks that could ignite your roof.
- Never use gasoline, kerosene or lighter fluid to start or maintain a fire.
- When building a wood fire, place the logs at the back of the fireplace box on a grate.
- Always keep a fire extinguisher in an accessible place.

According to a study by the U.S. Department of Energy, a wood-burning fireplace can take up to 24,000 cubic feet of air out of the home in just an hour.

Sealed combustion, direct-vent fireplaces operate without the help of household air, and so no heat loss occurs. Consider replacing your open hearth unit with a sealed combustion chamber, and enjoy up to 90 percent efficiency from your wood-burning fireplace.

Learn More

For more information about energy efficiency, visit:

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For additional information about safe fireplace usage, visit these helpful Web sites:

Hearth, Patio and Barbecue Association
hpba.org/consumer/safety.shtml

Chimney Safety Institute of America
csia.org

Homebuying Fireplace Safety
homebuying.about.com/od/fireplacesafety

Fireplace Terms and Definitions
hearth.com/what/glossary.html

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