

# RESIDENTIAL PROPANE APPLICATIONS: FIREPLACES

## FACT SHEET

*Homeowners today are cozying up to propane fireplaces. They offer both comfort and ambiance, along with high efficiency heating for the home.*

Propane fireplaces offer homeowners true versatility. They can be installed indoors or out, are more energy efficient, environmentally friendly, convenient to use, and easier to install than wood-burning models. Plus, an attractive real flame brings warmth and ambiance to a living space, increasing its value with buyers. And many models can operate during electrical power outages, providing a critical source of heating to the home.

### PERFORMANCE

High efficiency propane fireplaces are suitable for all climates and can achieve Fireplace Efficiency [FE] ratings of over 90 percent.<sup>1</sup> Let's examine the key features that allow propane units to reach such a high efficiency level.

Propane fireplaces utilize a direct vent design, so the air used for combustion comes directly from outdoors. This means the fireplace isn't sucking warm air out of the house for combustion, the way traditional wood-burning units do. And since the direct vent inserts can be used to convert old, inefficient masonry fireplaces or added to new or existing rooms, propane fireplaces are an ideal solution for retrofit or replacement projects.

Direct vent propane fireplaces have outdoor air ducted into the unit for combustion,

which adds efficiency and keeps warm air inside the home. An insulated outer casing limits heat loss through the unit's walls when it is located on an exterior wall in the home. This allows the fireplace to add to the home's efficiency even when it isn't operating.

An automatic ignition allows the propane unit to efficiently and safely start the fireplace without a standing pilot light. During operation, the ceramic glass front helps radiate heat into the room, while a quiet and efficient circulating fan continuously moves air around the fireplace in order to absorb the heat and then deliver it into the living space. There's also a secondary heat exchanger that captures additional heat from the combustion gasses and then transfers it to the living space.

Advanced or "turndown" controls let homeowners modulate a unit's fire/heat output to provide consistent ambiance, but without overheating. Advanced control options also include handheld remote control units, which can integrate a thermostat so the fireplace can "dial in" the exact heat output to keep the room at a set temperature.

Beyond these performance features, propane fireplaces also offer 5 to 6 times the heating capacity of electric fireplaces and efficiency levels well beyond traditional



### APPLICATIONS FOR USE

- New Construction
- Replacement/Retrofits

### AT A GLANCE

- Offers Fireplace Efficiency [FE] ratings of over 90 percent. By comparison, wood-burning fireplaces are about 15 percent FE.
- Delivers 5 to 6 times the heating capacity of electric fireplaces.
- Remote control feature helps to maintain a constant room temperature.
- Average cost to operate is roughly \$50-\$150/year.
- Propane carries a smaller environmental footprint and produces fewer particulate emissions and less carbon monoxide than wood-burning units.

1. Natural Resources Canada – Fireplace Products Directory: [oee.nrcan.gc.ca/pml-lmp/index.cfm?action=app.search-recherche&appliance=FIREPLACE\\_G](http://oee.nrcan.gc.ca/pml-lmp/index.cfm?action=app.search-recherche&appliance=FIREPLACE_G). Last accessed August 2015.

wood-burning fireplaces. Remote controls allow efficient control of the unit, including the ability to automatically modulate the fireplace to maintain a constant temperature in the living space.

With the efficiency levels and controls offered by propane fireplaces, they are an excellent option to provide zone heating in a portion of a home. Zone heating can optimize comfort in those parts of the home most often occupied, and also save energy costs by allowing the home's central thermostat to be adjusted downward.

Propane fireplace installation is made simple with flexible corrugated stainless steel tubing (CSST) gas lines, which are easily routed to the fireplace location in new or existing homes.

## ENERGY EFFICIENCY

With fireplace efficiency ratings over 90 percent, propane fireplaces can offer very efficient space heating to parts of a home. By comparison, traditional wood-burning fireplaces are about 15 percent efficient, largely because they lose thermal energy from combustion up the chimney as well as drawing heated air out of the home.<sup>3</sup> The heating capacity of propane fireplaces varies widely, from smaller units (~ 20,000 Btu/h input to much larger units (> 50,000 Btu/h input).<sup>1</sup>

This range of products allows the fireplace to be sized based on the area of the room and how it will be used.

## ENERGY CONSUMPTION & COSTS

Propane fireplaces will have widely varying levels of fuel use depending on how the residents use the fireplace and how many fireplaces are in the home. A rough estimate of propane fireplace consumption levels is provided in the table. When the fireplace[s] is used to help provide space heating, the usage numbers will increase. However, in these situations it's important to note that space heat provided by the fireplace offsets space heating energy in some other form (like the furnace or boiler in the home).

Propane fireplace operating costs vary as well, and for occasional use may range from \$50-\$150/year.

TABLE 1 ESTIMATED PROPANE USAGE

OPERATION	PROPANE (GAL/YEAR)
Occasional Use	25 -75*
Fireplace Used for Space Heating	150-200

\* Higher end of range more likely in colder climates

If the fireplace is operating to provide space heating, the *net* energy cost will be even lower because the fireplace is off setting energy use from the home's main heating system, as well as providing more targeted zoned heating.

## ENVIRONMENTAL

Propane fireplaces carry a much lighter environmental footprint than traditional wood fireplaces.<sup>2</sup> They produce fewer particulate emissions and less carbon monoxide compared with wood-burning fireplaces. In fact, jurisdictions in some parts of the country restrict the use of traditional wood-burning fireplaces during certain times of the year due to their detrimental air quality impact.

Propane fireplaces are also more environmentally friendly than electric fireplace units. The electricity used in electric fireplace units is often generated by coal-fired power plants which generate significant CO<sub>2</sub> emissions along with other pollutants.

1. Natural Resources Canada – Fireplace Products Directory: [oee.nrcan.gc.ca/pml-lmp/index.cfm?action=app.search-recherche&appliance=FIREPLACE\\_G](http://oee.nrcan.gc.ca/pml-lmp/index.cfm?action=app.search-recherche&appliance=FIREPLACE_G). Last accessed August 2015.

2. U.S. EPA Burn Wise Program, Consumer Frequent Questions. [epa.gov](http://epa.gov). Last accessed August 2015.

3. Energy Efficient Fireplace Options, HouseLogic. [houselogic.com/home-advice/fireplaces-chimneys/energy-efficient-fireplaces-wood-burning-gas-burning](http://houselogic.com/home-advice/fireplaces-chimneys/energy-efficient-fireplaces-wood-burning-gas-burning). Last accessed August 2015.

## FOR MORE INFORMATION

To learn more about fireplaces and the Propane Education & Research Council, visit [buildwithpropane.com](http://buildwithpropane.com).

Propane Education & Research Council / 1140 Connecticut Ave. NW, Suite 1075 / Washington, DC 20036  
P 202-452-8975 / F 202-452-9054 / [propanecouncil.org](http://propanecouncil.org)

*The Propane Education & Research Council was authorized by the U.S. Congress with the passage of Public Law 104-284, the Propane Education and Research Act (PERA), signed into law on October 11, 1996. The mission of the Propane Education & Research Council is to promote the safe, efficient use of odorized propane gas as a preferred energy source.*