

Understanding Natural Gas in Residential Settings

Natural gas is a versatile and widely used energy source in residential settings. It's primarily composed of methane and is a popular choice for heating, cooking, and powering various appliances.

While natural gas offers numerous benefits, it also carries inherent risks. This resource aims to provide an overview of natural gas, its common uses in residential settings, and essential safety tips for housing organizations and property managers to ensure the safe use of this energy source.



What is natural gas?

Natural gas is a [fossil fuel formed deep beneath the Earth's surface](#) through the decomposition of organic matter over millions of years. It's extracted from underground reservoirs and then processed to remove impurities, leaving behind mostly methane.

Natural gas is colorless and odorless. However, an odorant is added before distribution to make it easily detectable, as methane is highly flammable. Natural gas is an efficient energy source, releasing substantial heat when burned.



Common residential uses

Natural gas is vital in many residential applications, making it an essential energy source for millions of households. Here are its common uses:

Heating

Natural gas furnaces and boilers are widely used for space heating, providing a reliable and efficient way to maintain comfortable indoor temperatures during cold weather. Some homes have natural gas fireplaces, which provide a convenient source of warmth and ambiance. Gas water heaters are prevalent due to their quick recovery time and cost-effectiveness, ensuring a continuous hot water supply.

Cooking

Natural gas stoves and ovens offer precise temperature control, making them a preferred choice for cooking enthusiasts.

Laundry

Gas dryers are commonly used for faster drying times and energy efficiency.



What to do if a leak is detected

Gas is generally considered a safe energy source but is explosive when contained at a high enough concentration.

If a leak is detected, it must be addressed immediately, according to Josh White, manager of gas emergency preparedness with Eversource Energy, an energy provider serving customers in Connecticut, Massachusetts, and New Hampshire.

Ensure staff and residents are familiar with the distinctive odor of natural gas, often described as a “rotten egg” smell. If this smell is reported, evacuate the premises immediately and call 911. “I would advise occupants to move at least 300 feet from the building,” White said.

It’s critical that occupants leave the building immediately without touching anything, including light switches, telephones, cell phones, doorbells, and other electronic devices. “The static electricity from a light switch or cell phone is enough to ignite gas,” White said.

Methane—the primary ingredient in natural gas—is lighter than air, meaning it travels upwards. White said property owners, managers, and maintenance staff should avoid the urge to investigate the source of a leak by opening a door to the basement or lower level where gas infrastructure is usually located. This can release trapped methane to the upper levels of a building, exposing it to potential ignition sources and altering the oxygen-to-methane ratio enough to create a potentially explosive scenario.

Jeffrey Rheume, a senior gas emergency preparedness specialist with Eversource Energy, said property managers and maintenance staff may have the urge to investigate and fix the cause of a building-wide gas leak.

“There needs to be a mindset shift for these folks to call 911 and their local gas company for any suspected gas issue,” Rheume said.

White noted that the odor added to gas can be stripped out by various factors, meaning you can’t always rely on your nose to detect a leak. If maintenance staff hear or see a potential gas leak on a line [connected to an appliance](#), they should shut the gas supply off to the appliance and building.

“When in doubt, get everyone out and call 911,” White said.



Know the type of gas serving your properties

Methane-based natural gas isn’t the only gas used in residential settings, Rheume noted. Other gases, such as propane, are common.

It’s crucial to understand the different properties of these gases. For example, propane is heavier than air, meaning it sinks, unlike methane, which is lighter than air and rises. Rheume said it’s important to know that if enough gas is trapped at a high enough concentration, it can cause asphyxiation due to lack of oxygen.



Know what's below when digging

Advise maintenance staff always to call 811—the national call-before-you-dig phone number—at least two business days before breaking ground on any project, no matter the scope.

“Calling 811 will prompt a utility locator to come out to the area and mark the location for underground utility wires, cables, and pipes so you can proceed without causing a dangerous situation,” White said.

In most situations, a broken gas line in the open air isn't life-threatening, as the methane will escape into the atmosphere. There are potential complications, [especially in the winter months](#) when frost, snow, and ice cover the ground, Rheume noted.

“These conditions prevent the gas from escaping vertically, and it can find its way into a building through a crack in the foundation,” he said.



Gas concerns related to flooding

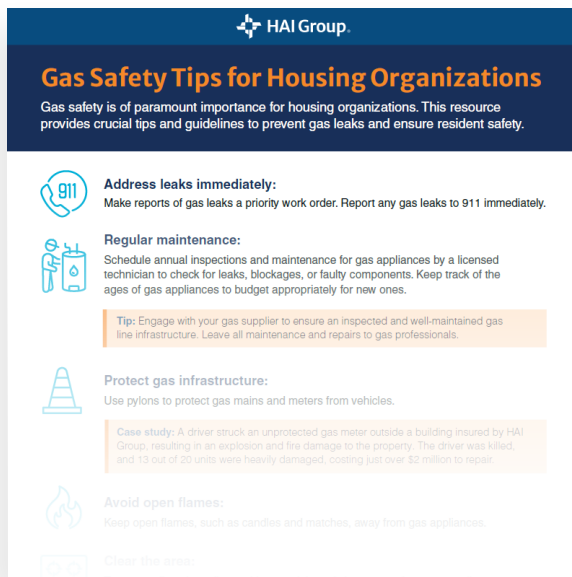
Flooding is [a red flag for gas utility providers](#) because of the impact it can have on infrastructure.

“Flooding concerns us,” White said. “When we start seeing the potential for flood conditions, we change our operations and stage crews in flood-prone areas. If we expect heavy flooding, we may shut off gas service to an area for safety.”

Flooding can cause stresses to natural gas piping, possibly resulting in a gas leak. Older pipelines can get inundated with water, causing gas burping. A gas burp can cause a standing pilot light to go out, leaking raw gas into a property.

After a flood, call your utility provider to have your gas infrastructure thoroughly inspected.





Want to learn more about preventing gas leaks?

Check out our *Gas Safety Tips* resource for crucial tips and guidelines.

[Download Now](#)

Bottom line: If a gas leak is suspected, evacuate immediately and call 911

Natural gas is a valuable resource in residential settings but requires careful handling and awareness of potential risks. By following the safety tips outlined in this resource and staying vigilant, housing organizations can enjoy the benefits of natural gas while ensuring the safety of their properties, residents, and employees

Interested in working with HAI Group to manage your agency's risk?

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