Gas furnace service: why neglected heating equipment raises carbon monoxide risk

Every winter, homes across Brant County and nearby Ontario communities rely on gas-fired furnaces and boilers to stay warm. What many homeowners do not realise is that skipping routine gas furnace service can create a hidden danger. Carbon monoxide, a colourless, odourless gas produced during incomplete combustion, can build up indoors when a furnace is not working properly. Understanding why this happens and what to watch for helps you keep your household safe without unnecessary worry.

A gas furnace burns natural gas or propane to produce heat. When the fuel mixes with the right amount of air and burns completely, the main byproducts are carbon dioxide and water vapour. Both are harmless in normal concentrations. But if something goes wrong with the burner, the heat exchanger, or the venting system, the flame can burn rich, meaning it gets too little oxygen. That incomplete combustion produces carbon monoxide instead of carbon dioxide. Even a small leak of this gas into the living space can cause headaches, nausea, dizziness, and, at higher levels, unconsciousness or death.

So what causes a furnace to start producing carbon monoxide? Most of the time it is neglect. A unit that has not had regular gas furnace service can develop several problems that lead to incomplete combustion. The most common is a dirty or partially blocked flue pipe. The flue pipe is the metal duct that carries exhaust gases from the furnace to the outside. If it becomes clogged with debris, soot, or even a bird’s nest, the combustion gases cannot escape properly. They may spill back into the furnace cabinet and, from there, into the home. A blocked flue is one of the fastest ways to create a carbon monoxide hazard.

Another frequent issue is insufficient combustion air. Every gas burner needs a steady supply of fresh air to support the flame. In older homes, the furnace room often draws air from the surrounding space through a louvred door or a dedicated air inlet. If that inlet gets painted over, blocked by storage boxes, or covered by insulation, the burner starves for oxygen. The flame then burns yellow and lazy instead of sharp and blue, and it produces more carbon monoxide. Modern high-efficiency furnaces often have sealed combustion, pulling air directly from outside through a plastic pipe. Even these can fail if the intake pipe gets blocked by snow, leaves, or a misplaced garden tool.

The gas valve and burner assembly also need to stay clean and correctly adjusted. Over time, dust and lint can accumulate on burner ports, causing an uneven flame pattern. The gas valve itself can drift out of calibration, delivering too much fuel or too little. Both conditions lead to incomplete combustion. A skilled technician checks the gas pressure, cleans the burner, and

adjusts the air shutter so the flame burns properly. That is a core part of any thorough gas furnace service.

A failing heat exchanger can also cause trouble. The heat exchanger sits above the burner and transfers heat from the hot exhaust gases to the air that circulates through the ductwork. If the metal develops a crack or a rust hole, exhaust gases can mix with the warm air being pushed into the house. That is a direct route for carbon monoxide to enter the living space. A technician can inspect the heat exchanger for signs of corrosion or cracking during a routine check. Catching it early beats waiting until the unit starts leaking.

Do not forget the pilot light. On older furnaces with a standing pilot, a yellow or lifting flame can itself produce carbon monoxide. Even on modern electronic ignition systems, a faulty igniter or a dirty flame sensor can cause repeated failed ignitions, which release unburned gas and incomplete-combustion byproducts. A skilled service call addresses all these components.

What does all this mean for you as a homeowner? It means that heating inspections for winter safety are not just about making sure the furnace turns on when it gets cold. They are about verifying that the combustion process is complete and that all exhaust gases go where they belong. A yearly check before the heating season starts can catch blocked flues, dirty burners, and cracked heat exchangers before they become life-threatening.

Carbon monoxide detectors are an essential backup, but they are not a substitute for proper maintenance. A detector can alert you to a problem after it has already started. Prevention, by contrast, stops the problem from occurring in the first place. Install a detector on every floor and near sleeping areas, and test it monthly. But rely on regular gas furnace service to keep the furnace itself operating safely.

There are also signs you can watch for between service visits. If you notice a yellow or flickering flame on the burner, soot on the front of the furnace, or a persistent smell of hot metal or exhaust when the unit runs, those are red flags. Strange noises, such as rumbling or banging, can indicate a burner that is starving for air or a heat exchanger that is overheating. If any of these appear, turn off the furnace and call a qualified technician. Do not try to clean or adjust anything yourself; gas equipment is not a DIY project.

Ventilation in the furnace room matters too. If your furnace draws combustion air from the room, make sure the louvred door or grille stays unobstructed. Never store paint cans, cleaning solvents, or other chemicals near the furnace. Their fumes can be drawn into the burner and affect combustion. And if you have a power-vented furnace, check the outside vent terminal every few weeks during winter to make sure snow or ice has not blocked it.

Neglect does not happen overnight. It creeps in when a furnace seems to be running fine year after year. But the risks accumulate quietly. A slightly dirty burner today may be a cracked heat exchanger next season. A partially blocked flue this winter could be a fully blocked one next year. The cost of a professional inspection is small compared to the potential consequences of a carbon monoxide leak.

For homeowners in Brant County and surrounding communities, local technicians are familiar with the older homes and the newer sealed-combustion units common in the area. They can perform a thorough check that includes testing the heat exchanger, inspecting the flue, measuring combustion gases, and verifying that the safety shutoff devices work. That last item is important: every modern furnace has a safety shutoff that stops the gas supply if the flame goes out or if the flue becomes blocked. But those devices can fail if they are not tested. A technician will confirm that the limit switches and rollout switches are in good condition.

Ultimately, **heating inspections for winter safety** are a straightforward way to protect your household from an invisible threat. They do not take long, and they give you peace of mind. If you have not had your furnace checked in the past year, now is the time to call a professional. Your family’s safety depends on a furnace that burns cleanly and vents properly. Regular gas furnace service is the best way to ensure that.