

KEEPING YOUR CHIMNEYS AND FLUES OPERATING PROPERLY

Chimneys Are Made to Protect You

A chimney is a structure made of masonry or metal that surrounds and supports a flue or multiple flues; it vents byproducts of combustion from gas, oil, or solid fuel appliances or fireplaces. The flue, then, is the inner part of the chimney: the part that actually contains and vents the byproducts of combustion. Flues can be made of clay, as in the case of most masonry chimneys, or of metal, as in prefabricated or manufactured chimneys.

One way to think of a chimney and the flue within it is to think of it as a structure built to protect you. That is an important function of all chimneys no matter what kind of appliance or fireplace they serve.

Remember, the main purpose of a chimney is to vent the products of combustion from your home. That function is crucial because the byproducts of combustion contain hazardous and noxious gases. One of the hazardous gases your chimney needs to remove from your home is carbon monoxide.

Carbon monoxide is a colorless, odorless, tasteless gas that can cause serious illness or death when it is present in sufficient amounts. It is responsible for hundreds of deaths and countless illnesses every year in homes across America. In many cases carbon monoxide in the home originates in a furnace or other burning appliance and finds its way into the house due to inadequate venting.

What causes inadequate venting? There are several possibilities. One is that the flue has become blocked. The blockage can come from debris falling into the chimney due to deteriorating masonry; or it may be the result of nests built there by animals or birds. Carbon monoxide can also seep into the house through cracks or holes in flues and chimneys that have been damaged by moisture, chemical residue, or chimney fires.

The other important function of a chimney, especially one serving solid fuel burning appliances like wood stoves or fireplaces, is to keep excessive heat away from combustible materials that surround it. Heat or flames from a chimney fire can escape through cracks in the clay flue liner or through damaged or missing mortar joints of a chimney. They can then ignite surrounding combustible framing members of a house.

Chimney fires occur within the structure of the chimney itself. They happen when hot flue gases or cinders ignite creosote accumulated on the walls of an unclean chimney flue. Creosote is a natural byproduct of burning wood. It is highly flammable and will accumulate on the inner walls of the flue under certain burning conditions.

Even without the occurrence of a chimney fire, framing members surrounding a chimney can have their molecular structure altered and become more flammable when exposed to excessive heat over long periods of time. This process is known as pyrolysis. Once wood is sufficiently pyrolyzed it can ignite at relatively low temperatures and thus becomes a significant fire hazard.

So, you see, a well-structured chimney is designed to offer protection to your family and home from both the dangers of noxious gases such as carbon monoxide and from the high levels of heat present in the flue gases of solid fuel burning appliances and fireplaces. Like all structures, it must receive regular inspections and maintenance in order to retain its integrity and to continue doing its job efficiently.

How To Maintain a Properly Functioning Chimney

It is easy to understand from the information above why it is strongly recommended that all flues and chimneys in use should receive annual inspections. In fact, you may want to consider more frequent inspections for chimneys and flues that receive heavy use, especially those venting hotter flue gasses that contain creosote and soot produced by solid fuel burning fires.

A proper inspection of your chimney by a qualified chimney professional should include a thorough examination of the external structure to look for signs of deterioration or weakness. Exterior staining due to flue gases seeping through the chimney structure, broken or spalled bricks, and deterioration of mortar joints are all signs that your chimney may need repair.

A proper evaluation should also include a visual inspection of the flue inside the chimney. In some instances, that internal inspection may be done using a video camera. to allow the chimney professional to detect even small cracks in the chimney liner that may not be seen with the naked eye. *According to the National Fire Protection Agency code, cracked chimney liners constitute a significant safety hazard and must be replaced.*

All connections from the burning appliance to the chimney should also be thoroughly inspected.

If the inspections described above indicate the possibility of a chimney deficiency, then a more thorough inspection of the chimney and the structural members surrounding it may be required.

However, regular annual inspections by a qualified chimney professional will help to avoid serious chimney problems and the need for expensive repairs.

For an inspection to yield the best results, the flues to be inspected will need to be cleaned first. Otherwise, soot, creosote, or other residue might mask cracks or problems with the flue or flue liner.

What You Can Do Between Inspections To Keep Your Chimney Operating Properly

Make sure you have working carbon monoxide detectors in your home and check them regularly. They should be located in the sleeping areas of your home and preferably on each floor. Carbon monoxide detectors can alert you to possible problems within the venting systems of your furnace and gas hot water heater and keep you from prolonged exposure to even low levels of carbon monoxide.

When using a wood-burning appliance, avoid banking the fire and closing the damper in order to prolong burning. Slower, cooler-burning wood fires are the primary cause of creosote in chimneys. Be certain to burn wood that has been properly aged; burning green wood also contributes to creosote in chimneys.

Whenever possible burn your wood fires hot. Hotter flue gases prevent the condensation of creosote and pass more quickly through the chimney. They are therefore useful in preventing the accumulation of creosote in the flue. (If you are using a wood stove, be sure to have a stove thermometer in place so you can avoid overfiring your stove.)

It is a good idea to treat your firewood with a compound that will help keep creosote from accumulating in your chimney. You can ask your chimney professional for his recommendation as there are several compounds on the market created for this purpose.

Make periodic visual inspections of the external portions of your chimney and any connections between burning appliances and your flue. Even cursory visual inspections can alert you to problems like connectors that have come loose or a chimney that is deteriorating.

By having your chimney inspected by a qualified professional on a regular basis and following the simple principles for proper operation of your burning appliances, you should enjoy years of trouble-free operation of your chimneys and flues.

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