**Chimney Safety Overview**

**An annual chimney inspection performed by a qualified professional can help prevent carbon monoxide intrusion and chimney fires. These inspections can also identify potential system issues to address them before they become costly.** ​ ​

Many agencies and organizations now recognize the importance of annual heating system inspection and maintenance in keeping “the silent killer” at bay. ​

A well-tuned furnace or boiler will operate efficiently and produce a warm and comfortable home. An overlooked heating system can produce death and heartbreak.

Considering the risks involved when heating systems are neglected - and the benefits of having them properly maintained - it is wise to have your chimneys checked annually by a CSIA Certified Chimney Sweep and swept or repaired as needed. **You can find a local CSIA Certified professional at www.csia.org/search.**

**The Facts About Chimney Fires**

Your chimney–and the flue that lines it–adds architectural interest to your home, but its’ real function is to carry dangerous flue gases from your fireplace, wood stove or furnace safely out of your home. A chimney helps your household air stay breathable… just as your windows and your bathroom, attic and kitchen vents do. Unlike those other exhaust points in your home, however, fireplace and wood stove chimneys need a special kind of care.

As you snuggle in front of a cozy fire or bask in the warmth of your wood stove, you are taking part in a ritual of comfort and enjoyment handed down through the centuries. The last thing you are likely to be thinking about is the condition of your chimney. However, if you don’t give some thought to it before you light those winter fires, your enjoyment may be very short-lived. Why? Dirty chimneys can cause chimney fires, which damage structures, destroy homes and injure or kill people.

**No One Welcomes a Chimney Fire**

A chimney fire in action can be impressive. Indications of a chimney fire have been described as creating:

* loud cracking and popping noise
* a lot of dense smoke, and
* an intense, hot smell

​Chimney fires can burn explosively – noisy and dramatic enough to be detected by neighbors or people passing by. Flames or dense smoke may shoot from the top of the chimney. Homeowners report being startled by a low rumbling sound that reminds them of a freight train or a low flying airplane. However, those are only the chimney fires you know about.

**The Majority of Chimney Fires Go Undetected**

​Slow-burning chimney fires don’t get enough air or have fuel to be dramatic or visible and they often go undetected until a later chimney inspection, but, the temperatures they reach are very high and can cause as much damage to the chimney structure – and nearby combustible parts of the house – as their more spectacular cousins.

**Creosote & Chimney Fires: What You Must Know**

Fireplaces and wood stoves are designed to safely contain wood-fuel fires, while providing heat for a home. The chimneys that serve them have the job of expelling the by-products of combustion – the substances produced when wood burns. These include smoke, water vapor, gases, unburned wood particles, hydrocarbon, tar fog and assorted minerals. As these substances exit the fireplace or wood stove, and flow up into the relatively cooler chimney, condensation occurs. The resulting residue that sticks to the inner walls of the chimney is called creosote.

Creosote is black or brown in appearance. It can be crusty and flaky…tar-like, drippy and sticky…or shiny and hardened. Often, all forms will occur in one chimney system. Whatever form it takes, creosote is highly combustible. If it builds up in sufficient quantities – and the internal flue temperature is high enough – the result could be a chimney fire. Certain conditions encourage the buildup of creosote. Restricted air supply, unseasoned wood and, cooler than normal chimney temperatures are all factors that can accelerate the buildup of creosote on chimney flue walls. Air supply may be restricted by closing the glass doors, by failing to open the damper wide enough, and the lack of sufficient make-up air to move heated smoke up the chimney rapidly (the longer the smoke’s “residence time” in the flue, the more likely is it that creosote will form). A wood stove’s air supply can be limited by closing down the stove damper or air inlets too soon or too much. Burning unseasoned wood – because so much energy is used initially just to drive off the water trapped in the cells of the logs– keeps the resulting smoke cooler, than if seasoned wood is used. In the case of wood stoves, overloading the firebox with wood in an attempt to get a longer burn time also contributes to creosote buildup.

**How Chimney Fires Damage Chimneys**

**Masonry Chimneys**

When a chimney fire occurs in a masonry chimney – whether the flue is an older, unlined type or tile lined to meet current safety codes – the high temperatures at which they burn (around 2000°F) can “melt mortar, crack tiles, cause liners to collapse and damage the outer masonry material”. Most often, thermal shock occurs and tiles crack and mortar is displaced, which provides a pathway for flames to reach the combustible wood frame of the house. This event is extremely dangerous, call 911 immediately.

**Prefabricated, factory-built, metal chimneys (majority of residential communities)**

To be installed in most jurisdictions in the United States, factory built, metal chimneys that are designed to vent wood burning stoves or prefabricated metal fireplaces must pass special tests. Most tests require the chimney to withstand flue temperatures up to 2100°F – without sustaining damage. Under chimney fire conditions, damage to these systems still may occur. When prefabricated, factory-built metal chimneys are damaged by a chimney fire, they should no longer be used and must be replaced.

**Nine Signs that You’ve Had a Chimney Fire**

Since a chimney, damaged by a chimney fire, can endanger a home and its’ occupants and a chimney fire can occur without anyone being aware of them it’s important to have your chimney regularly inspected by a CSIA Certified Chimney Sweep. Here are the signs that a professional chimney sweep looks for:

* “Puffy” or “honey combed” creosote
* Warped metal of the damper, metal smoke chamber connector pipe or factory-built metal chimney
* Cracked or collapsed flue tiles, or tiles with large chunks missing
* Discolored and/or distorted rain cap
* Heat-damaged TV antenna attached to the chimney
* Creosote flakes and pieces found on the roof or ground
* Roofing material damaged from hot creosote
* Cracks in exterior masonry
* Evidence of smoke escaping through mortar joints of masonry or tile liners​

If you think a chimney fire has occurred, call a CSIA Certified Chimney Sweep for a professional evaluation. If your suspicions are confirmed, a certified sweep will be able to make recommendations about how to bring the system back into compliance with safety standards. Depending on the situation, you might need a few flue tiles replaced, a new liner system installed or an entire chimney rebuilt. Each situation is unique and will dictate its own solution.

**Proper Maintenance**

Clean chimneys don’t catch fire. Make sure a CSIA Certified Chimney Sweep inspects your solid fuel venting system annually, and cleans and repairs it whenever needed. Your sweep may have other maintenance recommendations depending on how you use your fireplace or stove. CSIA recommends that you call on CSIA Certified Chimney Sweeps, since they are regularly tested on their understanding of the complexities of chimney and venting systems. ​