

Amity Township  
Fire Marshal's Office  
2004 Weavertown Road  
Douglassville, PA 19518-8971



Phone: 610-689-6000  
FAX: 610-689-9870

## Chimney Fire Prevention

### Ways to Avoid Chimney Fires

- Use seasoned wood
- Build smaller, hotter fires that burn more completely and produce less smoke
- Never burn cardboard boxes, wrapping paper, trash, rubber, or Christmas trees.
- Do not start wood stove or fireplace fires with gasoline or other flammable materials.
- Have the chimney inspected and cleaned on an annual basis.
- Check chimney for nests, animals, and debris regularly.

As the warm summer days turn into brisk winter nights, many people turn to their wood burning stoves and fireplaces to provide low-cost, heating for their families. But before you start cozying up in front of your fireplace, the first thing to think of is the condition of your chimney. Dirty chimneys can cause chimney fires, which damage structures, destroy homes, and injure or kill people.

Chimney fires can burn very intensely. In some reported circumstances chimney fires were so noisy and dramatic that they were reported by neighbors before the occupants were aware of the fire. 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 low-flying airplane.

Slow-burning chimney fires can be just as damaging and deadly but are usually less dramatic since they don't get enough air or have enough fuel to burn as intense. The temperatures they reach are very high and can cause as much damage to the chimney structure and nearby combustible parts of the house....or they can burn through the night when everyone is asleep. With proper chimney care and safe fire building techniques, chimney fires are entirely preventable.

Fireplaces and wood stoves are designed to safely contain wood fueled fires while providing heat for the home. The chimneys that serve them

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have the job of expelling the by-products of combustion—products similar to the exhaust from your automobile.

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 and can be crusty, flaky, tar-like or sticky. 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 catches fire inside the chimney flue, the result will be a chimney fire. Although any amount of creosote can burn, sweeps are concerned when creosote builds up in sufficient quantities to sustain a long, hot, destructive chimney fire.

Certain conditions encourage the buildup of creosote, restricted air supply, unseasoned wood, soft woods and cooler-than-normal chimney temperatures are all factors that can accelerate the buildup of creosote on chimney flue walls.

*Air supply:* The air supply on fireplaces may be restricted by closed glass doors or by the failure to open the damper wide enough to move heated smoke up the chimney rapidly (the longer the smoke's "residence time" in the flue, the more likely that creosote will form). A wood stove's air supply can be limited by closing down the stove damper air inlets too soon and too much, and by improperly using the stove pipe damper to restrict air movement.

*Burning unseasoned firewood:* Because so much energy is used initially just to drive off water trapped in cells of the logs, burning green wood keeps the resulting smoke cooler as it moves through the system.

*Cool fuel temperature:* In the case of wood stoves, fully-packed loads of wood contribute to creosote buildup. Condensation of the unburned by-products of combustion also occurs more rapidly in an exterior chimney, for example, than in a chimney that runs through the center of a house and exposes only the upper reaches of the flue to the elements.

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## Chimney Fires Types

### *Masonry Chimneys*

When chimney fires occur in masonry chimneys whether the flues are an older unlined type or tile lines the high temperatures at which they burn (2000F) can melt mortar, crack tiles, cause liners to collapse and damage the outer masonry material. Most often, tiles crack and mortar is displaced which provides a pathway for flames to reach the combustible wood frame of the house.

### *Pre-fabricated*

Installed in most jurisdictions in the United States, factory-built, metal chimneys that are designed to vent wood burning stoves or pre-fabricated metal fireplaces must pass special tests determined by Underwriter's Laboratories (UL). Under chimney fire conditions, damage to these systems still may occur, usually in the form of buckled or warped seams and joints on the inner liner. When pre-fabricated, factory built metal chimneys are damaged by a chimney fire they should no longer be used and must be replaced.

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- Do not start wood stove or fireplace fires with gasoline or other flammable materials.
- Have the chimney inspected and cleaned on an annual basis.

If you haven't had your chimney cleaned or inspected within the last few years, suspect a previous chimney fire, or are not comfortable cleaning it yourself, The Parker Fire District recommends that you have a professional chimney sweep inspect and clean your system.

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## Signs of a Chimney Fire

Since chimney fires can occur without anyone being aware of them or if you are moving into a new residence with a chimney there are signs to look for to recognize past chimney fires.

- Creosote with rainbow colored streaks
- Warped metal on the damper, metal smoke chamber, connector pipe or factory-built metal chimney
- Cracked (not crazed) or collapsed flue tiles or tiles with large chunks missing.
- Discolored or distorted rain/ember cap on chimney top
- Damaged roofing materials near chimney
- Cracks in exterior masonry chimneys
- Evidence of smoke escaping through mortar joints in chimney
- Burns or char on nearby structural members in attic space

If you think a chimney fire has occurred, call a professional chimney sweep for a professional evaluation. Depending on the situation, you might need a few flue tiles replaced, a relining system installed or an entire new chimney.

## What to do if you have a chimney fire

If you discover a chimney fire, follow these steps:

1. Get everyone out of the house immediately
2. Call the fire department via the 911 system

If you feel that you can extinguish a chimney fire yourself, the best method is to use a multipurpose fire extinguisher from the bottom of the chimney. Even if you do extinguish the fire, call the fire department so that we can ensure that it is, in fact, extinguished, can assist with removing smoke, and search for possible fire extension.

If you have any questions or concerns regarding your chimney or wood burning appliance, feel free to call the Amity Township Fire Marshal at 484-516-7455.

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