



## Short Safety Subject

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[www.bragg.army.mil/psbc-bm/PubsAndForms/ShortSafetySubjects.htm](http://www.bragg.army.mil/psbc-bm/PubsAndForms/ShortSafetySubjects.htm)

### Chimney Fire Hazards



Research indicates that most wood heating fires involve the chimney and not the fire place or wood stove itself. The majority of these fires are contained within the chimney and cause no damage to the house, however, a potential future hazard is created from the continued use of chimneys whose structural integrity has been compromised by a chimney fire. This is especially true in light of the fact that many contained chimney fires are not reported to the fire services; in fact, consumers may not even be aware that a chimney fire has

occurred.

Most fires involving either masonry or prefabricated metal chimneys occur because of improper installation, use or maintenance. Common causes of fires:

- Improper chimney installation too close to wood framing.
- Installation of thermal insulation too close to the chimney.
- Improperly passing the stovepipe or chimney through a ceiling or wall, causing ignition of wood framing.
- Structural damage to the chimney caused by the ignition of creosote (a black tar-like substance that builds up inside the chimney in normal use).
- Structural damage to metal prefabricated chimneys that results in wood framing being exposed to excessive temperatures or leakage of potentially toxic gases to the interior of the home can take the following forms:
  - Corrosion or rusting of the inner liners of metal chimneys.
  - Buckling, separation of the seam, or collapsing of the inner liner of metal chimneys.

This can result from too hot a fire, especially in high-efficiency stoves and in fireplace inserts, or from a creosote fire.

Structural damage also occurs in masonry chimneys, often associated with deterioration or improper installation of the chimney. The tile inner liner and the surrounding brick or block structure may crack and separate, perhaps as a result of the ignition of creosote that has built up in the chimney. Many old chimneys do not have a tile liner. If your chimney does not have a liner, the addition of a properly installed liner is advisable. Also, a clay liner should be sealed with refractory cement.

Even when the heating appliance is properly installed, people with either metal or masonry chimney systems should frequently check the chimney for creosote deposits, soot build-up, or physical damage. This involves only a simple visual examination, but it should be done as often as twice a month during heavy use. If you see heavy creosote buildup, suspect a problem, or have had a chimney fire, a qualified chimney repairman or chimney "sweep" should perform a complete safety inspection. They can arrange for any necessary repairs or creosote removal, which must be done before the heating appliance is used again.

There are products now available which, according to recent tests conducted by independent laboratories, show promise for reducing the production of creosote and harmful pollutant emissions. Advance wood stove designs appear to provide more complete combustion of the fuel. Catalytic combustors appear to achieve similar results, and are available with new stoves or as separate components which can be installed between the flue gas exit and the chimney connector of existing stoves.

- Be sure that the chimney and stovepipe were installed correctly in accordance with the manufacturer's recommendations and local codes. If there is any doubt, a building inspector or fire official can determine whether the system is properly installed.
- Minimize creosote formation by using proper stove size and avoiding using low damper settings for extended periods of time.
- Have the chimney checked and cleaned routinely by a chimney "sweep" at least once a year. Inspect it frequently, as often as twice a month if necessary, and clean when a creosote buildup is noted.
- Always operate your appliance within the manufacturer's recommended temperature limits. Too low a temperature increases creosote buildup, and too high a temperature may eventually cause damage to the chimney and result in a fire.
- Frequently look for signs of structural failure