

## CHIMNEY / FLUE FIRES

Fires in chimneys result from the ignition of caked products of incomplete combustion created in the fire chamber which have adhered to the walls of the chimney. Incomplete combustion can be the result of burning green/un-cured wood, "banking-down" the fire on a consistent basis, and/or burning material for which the fireplace/stove was not designed. Incomplete combustion also occurs when a fire is first ignited and as it dies out.

### General rules:

1. the cooler the fire, the higher the percentage of unburned products of combustion created;
2. the taller the chimney, the more unburned products of combustion will collect toward the top of the chimney;
3. the odds of a chimney fire occurring increase geometrically as the ratio between frequency of use and the time between cleanings increases.

Normal, correct use of the fireplace/stove will also cause, over time, products of combustion to adhere to the walls of the chimney as smoke from the fire rises and cools. This is a normal occurrence and is easily managed by cleaning the chimney on a frequency based on the use of the fireplace/stove.

The type of construction of the chimney and it's housing, as well as the style and type of the firebox, are of primary importance when dealing with a fire.

### Types of chimneys/flues:

Metal - may be freestanding, wood-framed, masonry-enclosed  
Single-wall  
Double-wall - insulated & non-insulated  
Triple-wall - insulated

Masonry - usually enclosed  
Wood-framed  
Masonry-enclosed  
Lined  
Unlined

If adequate clearance does not exist between the flue and any wood framing, over time the wood framing will carbonize and may eventually burn. Depending on the proximity of the flue to the wood framing this can occur within weeks of first use or it may occur several years later.

Any fire in a chimney closely enclosed by wood framing requires that the enclosure around the chimney be opened for a visual inspection of that area to insure that the fire has not extended outside the chimney/flue.

## Types of fireboxes:

Open fireplaces - may have propane-fed "log lighter"  
Unlined  
Lined with firebrick

Stoves - may or may not have heat deflector plate  
may have electrical connections for built-in fans

Air-tight

Manual dampers

Automatic dampers

Inserts

Free-standing

Enclosed

Free-standing - includes wood & coal cookstoves

Force-fed - - pellet stoves

## Fire attack:

Always lay an uncharged 1½" line to the front door before any extinguishing efforts begin.

Always assume, until proven otherwise by firefighters, that the fire has extended beyond the chimney.

Full protective clothing required.

SCBA should be donned by all personnel working inside the structure, but facepieces do not need to be used unless conditions warrant.

Shut off / disconnect any electrical / propane.

Try to determine where in the chimney the fire is located:

If location is fairly low, expend dry-chemical extinguisher into chimney from firebox and, if possible, exclude fresh oxygen by closing doors & dampers; (Be careful to direct dry-chemical above heat deflector)

If location is fairly high, drop 3/4" booster line with nozzle set on wide fog pattern @ 50 to 100 psi down full length of chimney and immediately pull back out & shut off. ( This attack requires laddering the roof and/or chimney and is, therefore, inherently more dangerous to firefighters.)

Whichever method is used, you may have to wait a considerable time to determine if it was successful.

Stationing one firefighter inside and one firefighter outside to monitor the chimney while waiting, will allow other firefighters to assess the overall situation and determine if the fire has extended beyond the chimney. ( see notes re: wood framing )