

## “But my chimney looks fine on the outside.”

Many chimneys appear to be in fine condition on the outside. But inside it can be a completely different situation. Yesterday's chimneys were not designed for venting today's more energy-efficient appliances. Let's take a close look at what really counts ... the inside of the chimney.



## Now look inside... see the problems?

A look inside a chimney that appears fine on the outside often reveals a totally different picture. There may be cracks and even pieces missing from the original clay liner. Older chimneys may not even have a clay liner. Mortar and bricks may be loose and falling, and there may be other deterioration.



In the flue marked **A**, servicing a fireplace or woodstove, you can see a creosote buildup, cracked and missing liner, and eroded brick and mortar. These conditions may be the result of numerous things: flue fires, an improperly vented appliance, misused woodstove, poor construction, and excessive moisture. With continued use this flue presents hazards to the home's occupants from fire or carbon monoxide poisoning.

In the flue marked **B**, servicing the furnace side of this chimney shows how moisture is leaching into the home. Cracked and missing tiles will also lead to carbon monoxide seeping into the home. Flaking plaster, peeling wallpaper, eroded or missing clay liner, can mean excessive moisture in gas flues and, excessive soot in oil flues.

## Chimney problems can cause illness and even loss of lives.

It happens thousands of times a year. Chimney defects result in injury and death from fire and from carbon monoxide poisoning.



It doesn't take much to start a house fire **A**. One spark flitting through a crack, or an ember igniting a chimney fire which climbs the chimney "looking" for an escape route is often enough to start a house fire. Excessive heat conducted through the chimney walls where the liner is cracked or missing is another common culprit in house fires.

On the furnace side **B**, tile deterioration can allow deadly flue gases to escape into your home through the tiniest cracks. In the severest cases there can be partial or complete collapse of the clay flue liner, blocking the flue, and spilling deadly fumes throughout the home.

Fortunately, all these problems can usually be corrected without completely rebuilding the chimney.

## “What causes water in a gas appliance flue?”

The modern, higher-efficiency gas heating appliance is a fabulous engineering marvel.

In the old days, low-efficiency gas heating appliances sent almost as much heat up the chimney as they put into your home. This pushed your utility bills sky-high and wasted precious natural resources.

Today's higher-efficiency gas heating appliances extract more heat during the burning process and send much less of it up the flue. But for all the benefits these furnaces offer, there's one important side effect that must be dealt with — excessive moisture in the flue.

You see, water is a by-product of burning. In fact, when you burn one cubic foot of gas, you create two cubic feet of water vapor. Those old, inefficient heating appliances sent so much heat up the

flue that the water created in the combustion process stayed in the form of hot steam all the way up and out the chimney.

New higher efficiency heating appliances don't put as much heat into the flue. The problem is, the water vapor that's created during burning now doesn't have the draft power to push it up and out your furnace flue. So what happens? It condenses on the walls of your chimney. And, unfortunately, no masonry chimney is designed to be constantly bathed with water, especially the acid-laden water found in your flue.

The result is the deterioration we've outlined above. Installing a new stainless steel relining pipe like those listed in this book, will vent these water vapors efficiently and with maximum safety.



## “What problems result from sulfur compounds in an oil appliance flue?”

While we commonly think of a masonry chimney as a permanent structure, practically impervious to damage, that's not the case. Without a proper liner and annual maintenance, the toll can be a heavy one.

When the oil you heat with is burned, a sulfur soot is formed on the inner wall of your chimney.

This sulfur-laden soot combines with moisture in the flue, a natural by-product of today's highly efficient heating appliances. This forms an acid mixture which attacks your chimney, eroding your flue tiles and mortar joints.

This leaves dangerous voids and allows the sulfuric acid mixture to attack the brickwork, your last line of defense against deadly sulfur dioxide and carbon monoxide poisoning. Additional danger exists as chimney debris or silt falls to the bottom of your chimney. This can eventually plug the chimney, allowing dangerous gases to enter your home.

Again, the simple solution is to install a new, high-quality, stainless steel relining pipe to vent this dangerous and corrosive soot efficiently and with maximum safety.