

CHIMNEY DETERIORATION -- RESEARCH and WORKING KNOWLEDGE

Home owner problems resulting from venting gas appliances into masonry chimneys are many; -- and costly. Rapid chimney deterioration, along with wet spots appearing on inside walls, rate about equal importance. Improper draft (too much or too little) can also be the result of a chimney being constructed for one purpose -- then being used for another. For probably when you get right down to it, masonry chimneys were never intended to be used for venting gas appliances in the first place. It all began years back in Grandpa's time, when only coal, wood and corncobs were used as fuel for the furnace or stove and fireproof construction was number one importance. Times have changed but methods haven't.

Grandpa's chimney didn't need a general overhaul every few years. When the rain fell on his chimney it was almost like spitting on a hot stove. He had a continuous fire in the stove and his chimney was warm and stayed dry. He also had terrific heat loss up the chimney but it did serve some useful purpose: -- he seldom had to repair his chimney. Unlike coal or wood, modern gas appliances allow very little heat loss up the chimney. All the B. T. U's you pay for are used to heat the house and this is good, but it is hard to get your chimney dried out because of the low stack temperature. The chimney being the highest point on your house, it is exposed to erosion, wetting, freezing and thawing. In many cases cement crowns soon crack and split, mortar deadens: -- then loosens, bricks and lining shale or flake off. Chimneys deteriorate rapidly once they begin, so watch for these signs if you heat with gas.

We have been talking about the outside: -- now let's look at the inside of the chimney. A gas furnace large enough to heat the average five room house will discharge approximately 15 to 18 lbs. of water vapor into the chimney every hour of continuous operation. It would be well if it would rapidly discharge this vapor, however it cannot always do so. Being thermostatically controlled, and thus firing intermittently, the chimney fills with cold air "between fires" and blocks off the escape of moisture laden vapor temporarily, causing condensation to form inside the chimney. This condensation forms when the wet flue gases, coming in contact with cold masonry surfaces, are reduced below their dew-point temperature. The chimney is now being watered down inside by condensation and outside by the elements. This is an unbeatable combination for completely wrecking your chimney.

In defense of gas for house heating, let us say you should not be without it. It is economical, quiet, efficient and dependable. We are saying it should not be vented into a masonry flue without the benefit of a vapor tight metal lining to stop moisture penetration due to condensation. Without a vapor tight lining, the moisture inside the chimney seeps through and will cause inside plaster to show blotchy water spots, wallpaper to come loose or discolor: -- even silver will come off mirrors if hung on the damp chimney breast. Many home owners feel secure because their chimney has a clay lining, however most of these are of butt-tile construction and mortar is not bedded in well at the joints, particularly at bends and offsets. To prevent these inside chimney leaks, one cities' gas heating code requires chimney lining to be of glazed bell joint sewer tile, with the bell turned upward and filled with acid proof cement. This has proved very effective. Another city tried cleaning the inside of unlined chimneys with chains and brushes, then spraying the inside with asphalt and chromate emulsion but this soon loosened and proved unsatisfactory.

We feel the surest and least expensive protection is a metal lining, either aluminum or stainless steel, running from the furnace and water heater connections, through and extending some inches above the chimney.

It is further recommended to install a rain cap over the entire chimney to keep the rain and snow out of the opening and off the chimney. This lining and cover combination should provide years of maintenance free usage of any properly constructed masonry chimney.