

# Why do chimney problems occur?

Each year thousands of modern gas appliances are vented into outdated masonry chimneys, resulting in **POOR DRAFT**, excessive **WATER VAPOR** and **CORROSION**. The chimney maintenance industry considers these problems serious because their effects do not show up immediately and the homeowner may not be aware that they exist.

In cold, oversized masonry chimneys, the low temperature exhaust gases of modern appliances rapidly expand and cool. **DRAFT**, which depends on the buoyancy of these gases, is drastically reduced. If the flue gases stay in your chimney longer, the danger of them leaking into the home increases.

**WATER VAPOR** is a normal by-product of combustion with any fuel. It condenses on the cool inside surfaces of masonry chimneys, especially those on exterior walls. The resulting water is absorbed by the chimney and transferred through the walls, causing paint to peel and wall-paper and plaster to fail.



Water damage to interior walls caused by porous chimneys liners.

To the right is damage from condensate in the chimney.

Below is acidic condensation leakage caused by a cool, oversized chimney



To the right is condensation leakage through chimney thimbles and cleanout doors.

In winter, wet chimneys experience numerous freeze and thaw cycles causing eroded mortar joints, cracked and spalled bricks, blocks and clay tile liners. Open mortar joints and flues blocked by debris can force carbon monoxide into the home.

**CORROSION**, usually associated with metals, can also occur in masonry chimneys, especially when they were previously used to vent oil and coal heaters. Chemical compounds, residues of these fuels and air pollution, combine with water to form acids capable of causing considerable damage to masonry materials.

A major industry study\* identified indoor air pollution as a significant factor in the production of acidic condensation in modern heating equipment. The chemical compounds responsible for this acidic condensation originate from carpets, household bleach, cleaning solvents, laundry detergents, paint thinner, etc., ...items we all innocently use and store in our homes.

\*1985 Gas Research Institute Study

For more information on relining your fireplace, gas or oil flues, contact your local VENTINOX® installer.



**VENTINOX® CHIMNEY LINING SYSTEM**  
Safe, reliable venting for gas, oil and wood

[www.protechinfo.com](http://www.protechinfo.com)

**VENTINOX®**  
Chimney Lining System

An  
Important  
Security System  
for your Home



## What other problems can cause chimney damage?



Above photo is a creosote filled chimney

Unfortunately, many times chimney problems go undetected or misdiagnosed. An oversized chimney without a liner reduces the performance and efficiency of any heating appliance.

Low chimney temperatures produce excessive acidic condensation on chimney walls, which causes deterioration both inside and out. Often times, costly repairs to a chimney are performed when a properly sized liner would solve the problem.

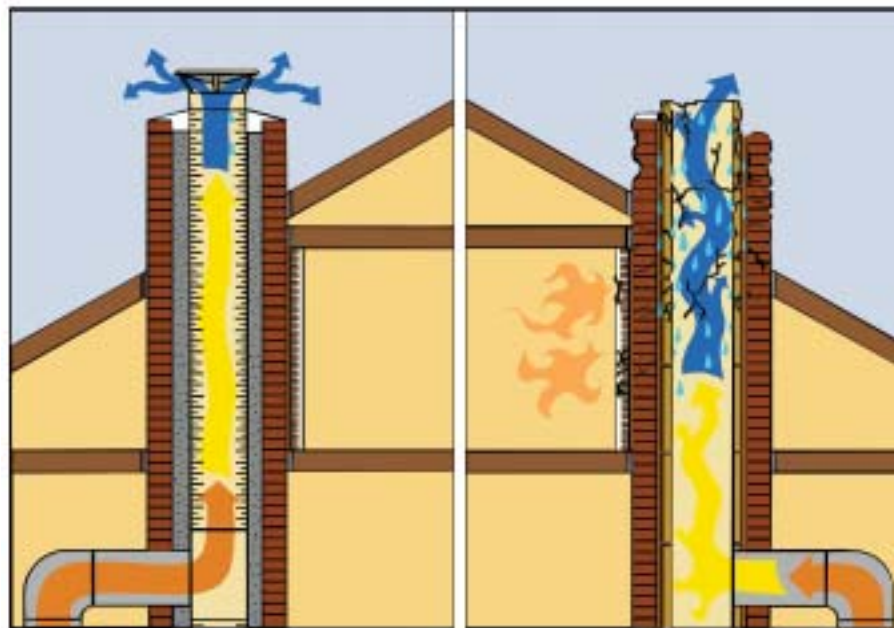
When burning solid fuel such as wood, dense creosote deposits left in your chimney can ignite quickly. In deteriorated chimneys, flames can escape to living space and spread rapidly throughout the home.

Damaged, blocked or improperly sized chimneys can create deadly toxins such as carbon monoxide. Leaking undetected through the smallest cracks or backdrafting into your home, they can cause sickness and in some cases, even death.

Below is a deteriorated chimney, which caused the flue to be blocked



This costly rebuilt chimney will continue to deteriorate unless a properly sized liner is installed



## What can be done to prevent or solve these problems?

Fitting a chimney with a properly sized liner is the best line of defense. This ensures good draft by preventing flue gases from expanding and cooling. The warm, buoyant flue gases exit the chimney faster and have less time to leak into a home or condense on chimney walls.

Water vapor in flue gases cannot be eliminated, but the amount that condenses in a chimney can and must be reduced. By properly sizing and then insulating chimneys, that goal can be achieved. Any remaining water must be contained within an air and watertight conduit. Porous masonry chimneys, chimneys with jointed clay tiles or interlocked stainless steel liners cannot do the job.

Keeping water inside the liner inhibits further damage to masonry walls from freeze and thaw cycles and corrosion. However, to contain the corrosive moisture, the chimney liner must be

made from a material with superior corrosion resistance. Traditionally used aluminum and stainless steels are not suitable for long term exposure to acidic condensates.

VENTINOX® stainless steel chimney liners are specifically designed to solve problems which may occur in gas, oil or solid fuel chimneys. Available in 3"-12" diameters, VENTINOX® can be formed to any chimney shape, making proper sizing possible. VENTINOX is non-porous, leak-proof and may be insulated, perfect for reducing and containing condensation. To combat corrosion, VENTINOX® is made from alloys recommended in the Gas Research Institute Study for use with modern heating equipment. No other liner on the market comes close to matching the superior quality and established long term performance of VENTINOX®

VENTINOX® is a registered trademark of American Boa. Inc.

In the National Fire Protection Association Standard for Chimneys, Fireplaces, Vents, & Solid Fuel Burning Appliances (NFPA 211). In Chapter 10, maintenance section 10-9 it states: "Damaged or Deteriorated Liners. If the flue liner in a chimney has softened, cracked, or otherwise deteriorated so that it no longer has the continued ability to contain the products of combustion (i.e., heat, moisture, creosote, and flue gas), it shall be either removed and replaced, repaired, or relined with a listed liner system of other approved material that will resist corrosion, softening, or cracking from flue gases at temperatures appropriate to the class of chimney service."

## Why choose a VENTINOX®



## chimney liner?

Trusted in thousands of American homes since 1982, VENTINOX® features the original WELDED design and is engineered with precision.

The only time tested flexible stainless steel chimney liner, VENTINOX® provides safe, reliable venting for gas, oil & wood.

- Restores deteriorated chimneys for use with fireplaces, water heaters, gas inserts and heating appliances
- Protects against harmful flue gases
- Improves chimney performance by creating strong draft
- Preserves aesthetic appearances
- Highly acid resistant
- Water and gas tight
- UL Listed for all fuels
- Lifetime warranty by a reliable, solid manufacturer