



Smoke billows from the fireplace at the TV project house in Winchester, Mass., whenever it's lit. Fortunately, most smoke-belching fireplaces can be fixed.

No Smoking

Fixes for problem fireplaces

A *This Old House* TV project in Winchester, Massachusetts,

BY DAN DICLERICO

is plagued by problems common in older buildings (and plenty of new ones, too). For starters, the flue is too small for the firebox, choking off the upward draft of hot air. Inside the flue, there's a gaping hole that leads to a second flue for the basement boiler, giving smoke a potential avenue to leak back into the house. Finally, a nearby hemlock tree towers over the house and pushes smoke down the chimney on windy days. Put these problems together and on some days the damper may as well be closed.

The good news is that this chimney can be put right—as can almost any smoke-belching fireplace. Often, all it takes to pinpoint the problem is a basic understanding of how chimneys work. It may require the help of a reputable chimney sweep or a mason familiar with fireplace construction to provide the solution (in this case, some judicious limb pruning and rebuilding the flue). But, as we show on the following pages, there are plenty of affordable fixes available to homeowners. Installing glass doors, for instance, will help keep smoke from seeping into the living space, while adding a chimney cap will guard against wind-induced downdrafts. And don't forget an annual inspection and, if necessary, a cleaning by a chimney sweep. That's the simplest way to keep your fireplace performing at its best.

Smoke Signals What your fireplace is trying to tell you

"To figure out why a fireplace smokes, you have to think like Sherlock Holmes," says Mark Schaub, the owner of Chimney Savers in Hillsborough, New Jersey. Schaub, a frequent flue-fixer for *This Old House*, says you've got to look for clues not only in the way the chimney is built but also in the profile of the surrounding terrain, the height of nearby structures, and the weather conditions when the fireplace misbehaves. Below, Schaub identifies

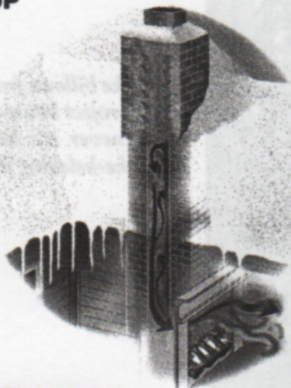
underlying causes for five common smoking problems and suggests ways to stop them. (A Chimney Savers expert is shown installing some of these fixes on page 64.) While there are some problems you can alleviate by yourself, most require the help of a mason or sweep to make an accurate diagnosis and implement a permanent solution that complies with local fire-safety and building codes.

■ SMOKES DURING START-UP

cause: A plug of cold, dense air in the flue inhibits the draft; sometimes called "cold flue."

quick fix: Before lighting the fire, hold a burning roll of newspaper near the damper to send heat up the flue.

permanent solution: Install a flue-top damper* to keep the flue warm. (See page 64 for this and other fixes marked with an *.)



■ SMOKES ON RAINY OR SNOWY DAYS

cause: Moisture is cooling the flue.

permanent solution: Install a chimney cap* to shelter the flue.

■ SMOKES ON WINDY DAYS

cause: Surrounding hills, overhanging trees, or tall buildings create downdrafts.

quick fix: Trim overhanging tree limbs.

permanent solutions: Add a wind-baffled chimney cap* or exhaust fan*.



OR

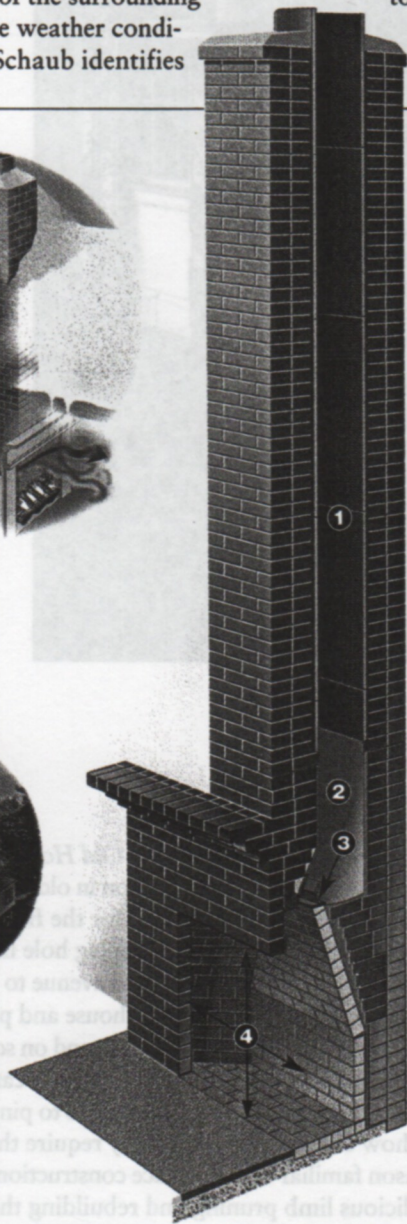
cause: The chimney is too short relative to the house's roofline. (Chimney tops should extend at least 3 feet above a roofline and not less than 2 feet above anything within 10 feet of the flue.)

permanent solution: Increase flue height by adding a chimney pot* or several more courses of brick.

■ SMOKES AS FIRE DIES

cause: The flue is too large, so the fire can't generate enough heat to drive the draft.

permanent solutions: Install glass doors and keep them closed as the fire dies, or install an exhaust fan* at the top of the flue to increase draft, or reline the flue to reduce its inside dimensions.



ANATOMY OF A CHIMNEY

1. Flue and flue liner
2. Smoke chamber
3. Damper
4. Firebox opening

■ SMOKES CONSTANTLY

cause: Nests or animals are plugging the flue.

permanent solution: Remove the obstruction, then install a chimney cap*.

OR

cause: Creosote buildup is choking the flue.

permanent solution: Hire a chimney sweep, certified by the Chimney Safety Institute of America, to clean the flue. Then contract for an annual inspection and cleaning as necessary.

OR

cause: The damper is set too low (less than 12 inches from the top of the firebox).

permanent solution: Remove the old damper and install a flue-top damper*.

OR

cause: Warm air escaping through the top of the house creates a dominant draft that draws smoke down the chimney.

quick fix: Weatherstrip all top-story windows and keep them closed.

permanent solutions: Seal air leaks in attic; raise chimney height by adding more courses of brick or a chimney pot*, or install a flue-top exhaust fan*.



OR

cause: Flue is too small relative to the fireplace opening. (A flue's cross section should be 1/10 the size of the fireplace opening for square flues and 1/12 the size for round ones.)

quick fix: Attach a smoke guard to the top edge of the firebox to reduce the opening size.

permanent solution: Reduce the firebox opening by installing fireplace doors, or a fireplace insert* and flue liner, or by lining the firebox with additional firebrick.

OR

cause: House is too tight, starving the flue of sufficient draft.

quick fix: Crack a first-floor window on the house's windward side.

permanent solution: Install a vent to supply outside air to the firebox.

*See page 64 for fixes.

Smoke Enders Problem-solving products for smoking fireplaces



FLUE-TOP DAMPER

Helps keep the flue warm and deters animals when the fireplace is not in use. A cable that hangs down the flue into the firebox controls the spring-loaded cover. A pull before the fire starts pops the damper open; another pull at the other end shuts it down. Price: \$200-\$400



CHIMNEY CAP

An inexpensive cure for many smoking problems, including nesting animals, wet flues, and wind-induced downdrafts. Mesh-covered openings also keep stray embers off the roof. Available in copper, stainless steel, and aluminum. Price: \$50-\$500



CHIMNEY POT

Adds up to 4 feet to a chimney's height, improving the draft, and the appearance, of most chimneys. The base diameter should be as big as or bigger than the existing flue, but the top must be smaller, to reduce the effects of wind. Price: \$100-\$1,000



WIND-BAFFLED CAP

The stainless steel Vacu-Stack is a fixed cap that funnels the wind, regardless of its direction, past the flue, creating a suction that pulls smoke out of the chimney. Rotating weathervane- and turbine-style caps also improve a chimney's performance when the wind blows—but they require lubrication. Price: \$75-\$250



FIREPLACE INSERT

If a flue is too small, one solution is to reduce the size of the firebox opening with a fireplace insert made of sheet metal or cast iron; many have decorative tile or enamel trim. An insert can also dramatically improve the amount of heat an old fireplace puts out. Price: \$1,500-\$3,500



FLUE-TOP EXHAUST FAN

Sucks smoke up the flue. At low speed, a midsize unit uses as much electricity as an 80-watt lightbulb; the fan should be cleaned annually for best performance. (Note: In very tight houses, fans can pull heating-system exhaust into living spaces, a danger known as backdrafting.) Price: \$1,200-\$2,200