

UI Extension Forestry Information Series

Smoke Problems and Their Cures

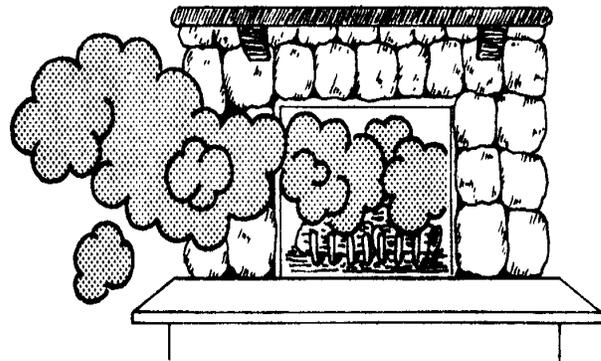
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Smoke problems when burning wood can occur from various sources. The fireplace design, stove installation, chimney construction, weather and the house itself are major factors. The most common cause of smoking in newer houses is a lack of air for the updraft since houses are relatively airtight. Another common problem is lack of chimney height.

If a stove or fireplace is letting smoke into the house, first make sure that the flue gas dampers are open. If the dampers are open, then the best way to solve the immediate problem is to open a window or door on the first floor or basement. At the same time, close all openings in the upper parts of the house. If the weather is windy, the open windows or doors should be on the windward side of the house.

To keep smoke from entering a room, turn off kitchen and bathroom exhaust fans. Close forced air heating registers that are near the fireplace.

Smoke problems, their causes and solutions are shown in Table 1 (on page 2). If you still have problems, here are a few additional things you can do. If

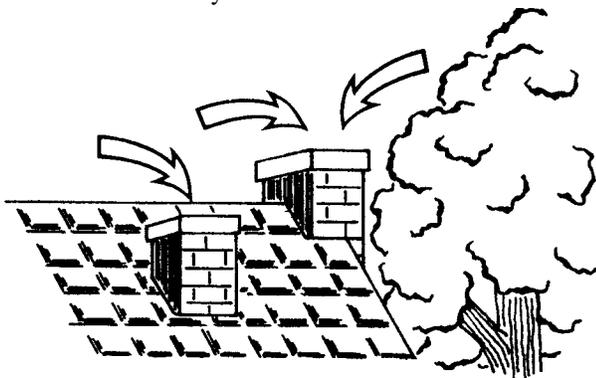


the chimney serves a stove, move the stove closer to the chimney and eliminate elbows in the stovepipe connector. If the chimney serves a fireplace, the only solution may be to make the fireplace opening smaller. This can be done by raising the hearth or installing a canopy hood down from the top of the fireplace opening.

Prefabricated chimneys can be made taller by adding another section or two. Also, use weather stripping or other sealers on upstairs windows and attic doors.

If you have tried these ideas and smoking still occurs, the only remedy is either installing a smaller stove or fireplace or installing a new chimney is the surest way to get more capacity.

Figure 1. Nearby trees or buildings can cause wind currents to flow down into the chimney or wind can flow down into a chimney which is too low.



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Table 1. Trouble shooting smoke problems.

Problem	Possible causes	Remedies
Smoke coming out of stove when first starting fire in cold weather.	<ol style="list-style-type: none"> 1. Temperature difference between outdoors and indoors causing changes in air movement in the house to equalize that of the outside pressure. The air in the house becomes buoyant, drawing air from the chimney. 2. Not enough air to supply fire. 	<ol style="list-style-type: none"> 1. Place a lighted newspaper in the stovepipe inlet. 2. Add an outside air supply or open a window near the stove or fireplace.
Smoke coming out of stove or fireplace when windy.	Wind currents force air back down the chimney. Nearby trees, buildings, and roof projections often cause downdrafts during windy periods (Figure 1).	<ol style="list-style-type: none"> 1. Check chimney for correct height in relation to nearby objects and remove nearby obstructions. 2. Place a chimney cap on chimney. If there is an existing cap, try a cap of a different design. 3. Change the chimney height.
Smoke continuously coming out of stove or fireplace.	<ol style="list-style-type: none"> 1. Blocked flow of flue gasses or flues partially filled with soot and creosote. 2. The flue may not be large enough to carry the smoke and gases outside. 3. Green or wet wood can cause smoke since heat is needed to dry the wood. Also, softwoods can cause smoke because of their resin content. 4. The flue may be too large. 5. Not enough air is present for efficient combustion. 6. Cracks or leaks may be present in the flue lining. 	<ol style="list-style-type: none"> 1. Check chimney for obstacles (bird nests, branches, leaves, etc.). If dirty, clean the chimney. 2. Install a larger flue or attach a smaller appliance to the existing flue. 3. Keep a hot fire going. Use seasoned dry wood or split green wood finer and mix the supply with dry wood. 4. Reduce the cross-sectional area at the top of the chimney or install a stovepipe through the center of the chimney. 5. Provide a separate air inlet for wood burning appliances. 6. Check the flue liner for cracks. Install a smoke shelf in the fireplace.
Smoke coming out of one fireplace while another wood stove or fireplace is in use.	<ol style="list-style-type: none"> 1. If two wood burning appliances share the same flue, smoke may travel from one appliance to another. 2. If each appliance has a separate flue, smoke may be leaking from one liner to an adjacent liner serving the other appliance. 3. If the flue height in adjacent liners is equal at the chimney cap, smoke can be pushed or sucked down another liner. 	<ol style="list-style-type: none"> 1. Disconnect one appliance and plug the flue opening to any second appliance sharing the same flue. Better, add a separate flue for each appliance. 2. Check for breaks in adjoining flues or stagger glue joints. 3. Change the heights of nearby flues extending out from the chimney.