

# ENERGY FACTS

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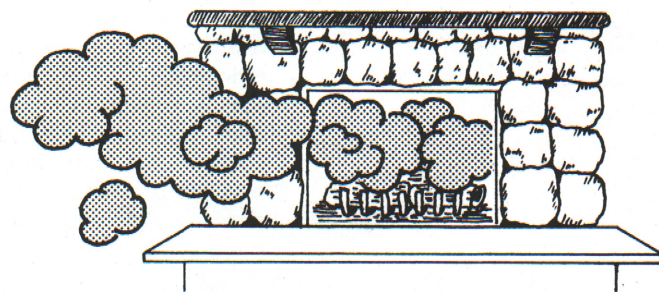


## Smoke Problems and Their Cures

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 up-draft since houses are relatively airtight. Another common problem is lack of chimney height. This is discussed in detail in CIS No. 479, Chimneys.

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 while 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 and close forced air heating registers that are near the fireplace.

Smoke problems, their causes and solutions are shown in Table 1. 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. Weather stripping or otherwise sealing upstairs windows and attic doors can help.

If you tried these remedies and smoking still occurs, the only remedies are either a smaller stove or fireplace, or a new chimney. Increasing the diameter of the chimney is the surest way to get more capacity.

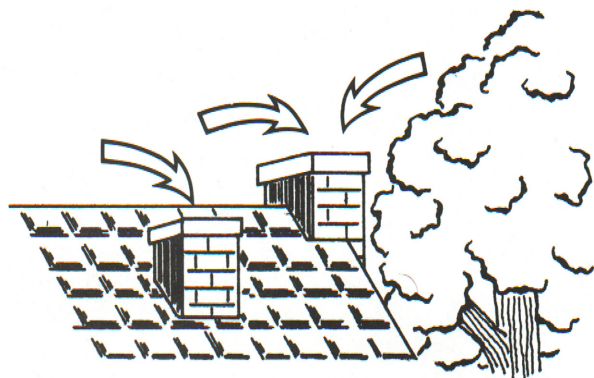


Fig. 1. Nearby trees or buildings can cause wind currents to flow down into the chimney or wind can flow down into a chimney which is too low.

### *For Additional Reading*

**Book of Successful Fireplaces:** How to build, decorate and use them by R.J. Lytle and M.J. Lytle. 1976. Structures Publishing Co., Farmington, MI 48024.

**The Wood Burners Encyclopedia** by Jay W. Sheldon and A.W. Shapiro. 1976. Vermont Crossroads Press, Waitsfield, VT 05673.

**Curing Smokey Fireplaces** by Douglas Merrilless. 1973. Garden Way Publishing Co., Charlet, VT 05445.

**Wood Heat** by John Vivian. 1976. Rodale Press, Emmaus, PA 18049.

**Table 1. Trouble shooting smoke problems.**

<b>Problem</b>	<b>Cause</b>	<b>Remedy</b>
Smoke coming out of stove while first starting up in cold weather.	Temperature differential 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 bouyant, drawing air from the chimney (reverse chimney flow); or not enough air to supply fire.	Open a window near the stove (easiest, safest). Provide a separate air inlet.  or Place a lighted newspaper in the stove pipe inlet.
Smoke coming out of stove or fireplace when windy.	Wind currents force air back down the chimney. Nearby trees, buildings in roof projections often cause downdrafts during windy periods.	Check chimney for correct height in relation to nearby objects. Remove nearby obstructions. Place a chimney cap on chimney. If there is an existing cap, try a cap of different design. Change chimney height.
Smoke continuously out of stove or fireplace.	Blocked flow of flue gases or flues partially filled with soot and creosote; or the flue may not be large enough to carry the smoke and gases outside; or green or wet wood can cause smoke since heat is used to dry the wood, also softwoods can cause smoke because of the resin in wood; or the flue may be too large (in older houses which have a large central chimney with several fireplaces and flue openings, there may not be enough draft to keep the column of smoke rising if only one fireplace or stove is used); or not enough air for efficient combustion; or cracks or leaks in flue lining.	Check chimney for obstacles (bird-nests, branches, leaves, etc.). Clean the chimney. Install a large flue or attach a smaller appliance. Keep hot fire going; use seasoned dry wood or split the green wood finer and mix it with dry wood. Reduce the cross sectional area at the top of the chimney or install a stove pipe through the center of the chimney. Provide a separate air inlet for wood burning appliances. Check flue liners. Install a smoke shelf in fireplace.
Smoke coming out of one fireplace while another wood stove or fireplace is in use.	Two wood burning appliances sharing the same flue may result in smoke traveling from one appliance to another. If each appliance has a separate flue, there may be smoke leaking from an adjacent liner to the liner serving the other appliance. If the flue height in adjacent liners is equal at the chimney cap, smoke can be pushed or sucked down another liner.	Either disconnect one appliance or plug the fireplace opening if two appliances are sharing same fireplace flue. Add a separate flue for each appliance. Check for breaks in adjoining flues or stagger flue joints. Change height of nearby flues extending out the chimney.



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