

the house closed up, and while operating as many exhaust fans as might conceivably be on at once. The National Center for Appropriate Technology (NCAT) in a recent publication, "Introducing Supplemental Combustion Air," makes additional suggestions, including looking for excess carbon build-ups around the burner and flue corrosion.

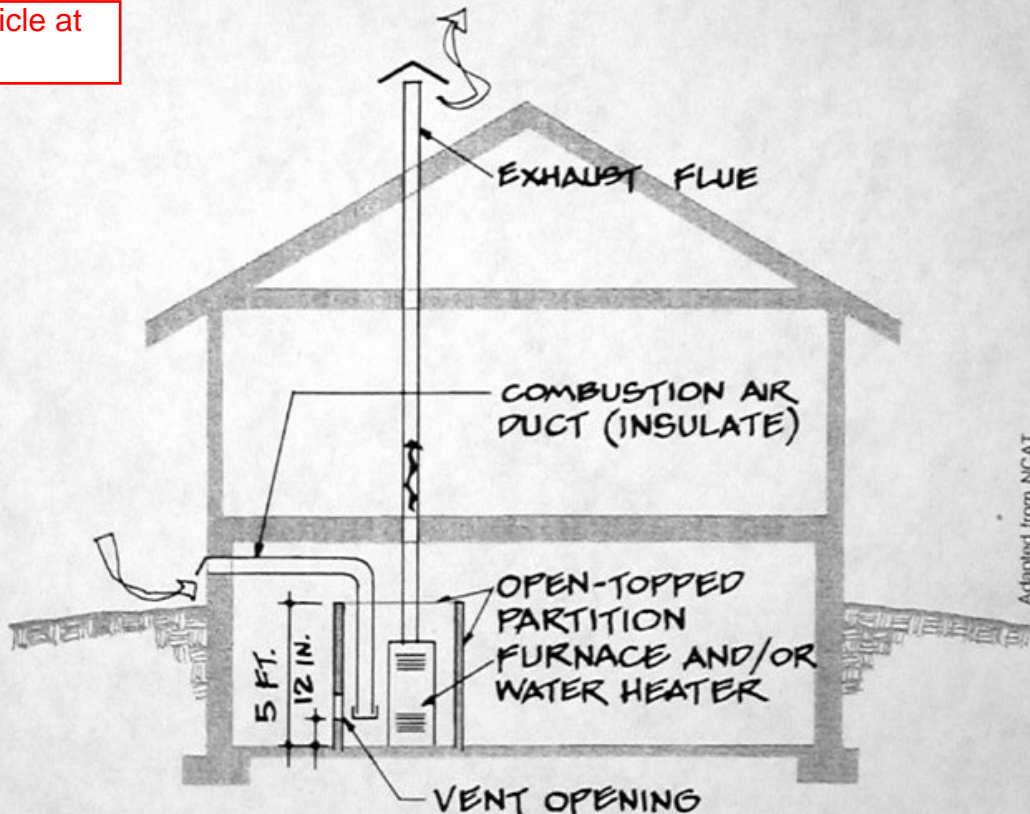
For other types of fuels, check with the manufacturer or service rep. As for woodstoves, when there's a backdraft the pungent smell of wood smoke will let you know.

These tests are primarily aimed at retrofits. Houses that flunk them may need additional combustion air (or furnace adjustments or a bird's nest removed from the flue). Regardless, the measures suggested here are intended to increase safety and possibly improve thermal performance, so you needn't wait for problems. At least one model code organization, the ICBO, is considering an outside combustion air requirement for "very tight construction."

## Gas appliances

The NCAT booklet, says contributor Toby Benson, was written primarily for retrofitters, but its guidelines are based on the Uniform Mechanical Code and the National Fuel Gas Code and apply to new construction as well.

It gives two approaches for supplying out-



**Figure 2.** NCAT suggests this alternative where there isn't enough space to build a full furnace enclosure. The partial height walls reduce mixing of combustion air with house air.

side combustion air. In one, the appliances are fully isolated from the living space with partitions. In the other, confining partitions are left open at the top—an approach the authors felt would save considerable construction money.

A fully enclosed furnace area (Figure 1) should have two vents to the outside, one within a foot of the ceiling and one within a foot of the floor. If vertical ducts are used, each vent should be sized to one square inch of free vent area per 4000 Btu/hour