

## **DISCUSSION OF OUTSIDE AIR SOURCES**

by Armin Rudd

The 2000 International Residential Code prohibits sources of outside air as follows:

### **M1602.3 Prohibited sources.**

Outside or return air for a forced-air heating or cooling system shall not be taken from the following locations:

1. Closer than 10 feet (3048 mm) from an appliance vent outlet, a vent opening from a plumbing drainage system or the discharge outlet of an exhaust fan, unless the outlet is 3 feet (914 mm) above the outside air inlet.
2. Where there is the presence of flammable vapors; or where located less than 10 feet (3048 mm) above the surface of any abutting public way or driveway; or where located at grade level by a sidewalk, street, alley or driveway.

The code is meant as a minimum standard and inspectors aren't perfect. Based on experience, I have found the following problems with allowing outside air to come from a duct going through the roof:

1. Due to close proximity (code is not always enforced) and wind effects, air from exhausts, vents, and chimneys can easily be re-entrained in outside air intakes.
2. Air taken from shingle roofs can have an asphalt odor.
3. In summer, air taken from roofs is usually hotter than air taken from sidewalls.
4. The additional roof penetration is another potential water leak.

Therefore, especially on asphalt roofs, it is not recommended to take air from the roof. Taking the air from a sidewall or gable is required for our Building America houses. For 2-story units, going out the band joist often works well. For 1-story units that have no gable, a small 45 degree fur-down in a closet on an outside wall, or in the back corner of the garage works well to get to the sidewall below the cornice.