

# Houses Need A Breath Of Fresh Air

**M**any modern homes are sealed tighter than a clam. While that's a good thing for anyone trying to stay warm in the winter and cool in the summer, it also means such a house will have no fresh air.

To avoid "sick house syndrome" and other problems caused by stale and contaminated indoor air, many well sealed homes now employ heat recovery ventilators – devices that result in lower energy bills and avoid lousy indoor air quality.

Heat recovery ventilation systems bring fresh air in from outside and circulate it throughout the house, but also heat or cool it as required using a heat exchanger. Such a system usually operates year round, revving up when the air in the house is unusually humid.

Fresh air is important for the health and comfort of inhabitants but is also necessary for the safe operation of combustion appliances such as gas furnaces, gas water heaters and fireplaces. A frequent cause of deadly carbon monoxide gas is incomplete combustion due to an inadequate supply of oxygen.

It's also vital that household air be flushed to get rid of pollutants that build up and irritate humans and threaten our health. These contaminants originate in the building materials, furniture fabrics and even from cooking and the family pet.

Some of these contaminants are downright deadly, including carbon monoxide, radon gas from the rock beneath the house, formaldehyde from glue and fabrics, and tiny solid particles from tobacco, dust and smoke.

These days, new construction methods and materials reduce the number of air-borne contaminants, but the only sure way to have fresh air is to have good ventilation. This is even more important in highly insulated and sealed R-2000 homes, which can be virtually air-tight.

In winter, heat recovery ventilators extract the heat from stale air being exhausted from the house and use it to heat the incoming fresh, cold air. It then takes less effort and fuel for the furnace to heat the fresh air up to room temperature. In summer, heat is transferred from the warm incoming air to the outgoing air, so that the air conditioner has less work to do.

Heat recovery ventilators are required in R-2000 homes and are a good idea in many other homes, whose owners over the years have increased the

amount of insulation, installed energy efficient doors and windows, and plugged and sealed every cracks and crevice they could find.

A professional home inspection can determine the effectiveness of these and other ventilation systems. The airflow can be measured and the ductwork, filters, fans and vents can all be visually checked.

It's important that a heat recovery ventilation system be working properly and be well balanced. If more air is being drawn into the house than exhausted from the house – or vice versa – the pressure difference between inside and outside can cause serious problems.

These so-called fresh air machines are great devices for most North American homes, but they do require regular maintenance and should be included in a home inspection if you are thinking of buying a house equipped with a heat recovery ventilation system.

