

# HOME ENERGY GUIDE

## POINT SOURCE VENTILATION

*Good indoor air quality is important for a healthy home. Proper and efficient ventilation removes unhealthy contaminants (such as smoke from cooking, moisture from bathing, or combustion products from heating systems) and brings fresh air into the living spaces.*

### Types of ventilation systems

There are two basic types of ventilation systems in homes: “point source” and “balanced.”

### Point source ventilation

Point source ventilation is located near the source of the contaminated air, such as in a kitchen, bathroom, or workshop. These are usually exhaust only systems—pulling air from inside the house with a fan and exhausting it to the outside through ducts—and are usually controlled by separate, manual switches.

### The need for ‘make-up’ air

When exhaust fans operate they pull air from the house—air which needs to be replaced, somehow. In the past, this was done with air that leaked into the building around windows, doors, or foundation cracks. In a well-sealed home, however, there are very few of these leaks. Without an additional source, the fans pull air down chimneys, flues, or other exhaust fans, leading to the entry of dangerous combustion products or other contaminants. The solution is to provide sufficient air to “make-up” the air that is being exhausted. This is usually done with an insulated duct that enters the house (often in the basement). When properly installed, this duct will only allow the entry of air when needed.

### Bathroom fans

Building code requires that bathrooms have either an operable window or a fan to remove odor and excess moisture. A bathroom fan is often quicker and more effective than opening a window—especially during heating or cooling seasons.

In order to minimize moisture buildup and mold, it is essential that bathroom fans be installed properly, using short, insulated ducts with no bends or kinks. Additionally, fans must be air sealed at the ceiling and insulated to prevent heat loss into the attic, and ducts must be sealed at all joints and connections, all the way through to the exit point at the roof or wall.

ENERGY STAR® rated fans are not only much more efficient, they also are quieter and have a longer estimated life.

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### Point source ventilation

Kitchens and bathrooms are the primary locations where point source ventilation is required, to remove odor and excess moisture from the air.



### ***Kitchen fans***

Most kitchens have hood fans over the stove top or range. Unfortunately, many are not connected to ducts that lead to the exterior, and are merely “recirculating” the air through the fan filter. Although this may collect some of the larger particles of grease, these installations will do little to control smoke, odor, or the by-products of combustion (from a gas stove or range).

The same requirements for proper installation apply to kitchen fans as to bathroom fans, and ENERGY STAR® products will perform better than standard ones.

### ***High volume fans require extra precautions***

Found in some kitchens, workshops or utility areas, exhaust fans of over 250 cfm (cubic feet per minute) can do a very good job of removing smoke, dust, and other contaminants very quickly. However, their very power can lead to problems with inadequate air supply and they usually require additional make-up air.

### ***Exhaust fan use***

Exhaust fans should be used whenever there are indoor air pollutants (including moisture from cooking or showers) that are present in the home. Exhaust fans should be run whenever the pollutants are being introduced into the air and for at least 15 minutes after the pollutants have stopped occurring in the home or until signs that the pollutants have left the home (for example, when there is no longer any condensation on the windows after a shower). The use of a timer switch to control exhaust fans is a good way to provide adequate ventilation and limit run time.

### **Attic or home ventilation: What is the difference?**

Many people confuse the ventilation requirements of an attic with those of the living spaces below. The two types of ventilation are not related and the systems are completely separate.

Attic ventilation is needed to protect the insulation and building materials in the attic from excess moisture, caused primarily by air leakage from the moisture-laden living space. Although sealing air leaks will reduce the need for attic ventilation (and reduce energy use and ice dam risks), minimum attic ventilation is still required.

The ventilation required for the living space, however, is all about providing a safe and healthy environment for the occupants by replacing contaminated air with fresh air.