



## *Three Basic Strategies*

### **Source Control**

Usually the most effective way to improve indoor air quality is to eliminate individual sources of pollution or to reduce their emissions. Some sources, like those that contain asbestos, can be sealed or enclosed; others, like gas stoves, can be adjusted to decrease the amount of emissions. In many cases, source control is also a more cost-efficient approach to protecting indoor air quality than increasing ventilation because increasing ventilation can increase energy costs. Specific sources of indoor air pollution in your home are listed later in this section.

### **Ventilation Improvements**

Another approach to lowering the concentrations of indoor air pollutants in your home is to increase the amount of outdoor air coming indoors. Most home heating and cooling systems, including forced air heating systems, do not mechanically bring fresh air into the house. Opening windows and doors, operating window or attic fans, when the weather permits, or running a window air conditioner with the vent control open increases the outdoor ventilation rate. Local bathroom or kitchen fans that exhaust outdoors remove contaminants directly from the room where the fan is located and also increase the outdoor air ventilation rate.

It is particularly important to take as many of these steps as possible while you are involved in short-term activities that can generate high levels of pollutants—for example, painting, paint stripping, heating with kerosene heaters, cooking, or engaging in maintenance and hobby activities such as welding, soldering, or sanding. You might also choose to do some of these activities outdoors, if you can and if weather permits.

Advanced designs of new homes are starting to feature mechanical systems that bring outdoor air into the home. Some of these designs include energy-efficient heat recovery ventilators (also known as air-to-air heat exchangers). For more information about air-to-air heat exchangers, contact the Conservation and Renewable Energy Inquiry and Referral Service (CAREIRS), PO Box 3048, Merrifield, VA 22116; (800) 523-2929.

## Air Cleaners

There are many types and sizes of air cleaners on the market, ranging from relatively inexpensive table-top models to sophisticated and expensive whole-house systems. Some air cleaners are highly effective at particle removal, while others, including most table-top models, are much less so. Air cleaners are generally not designed to remove gaseous pollutants.

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The effectiveness of an air cleaner depends on how well it collects pollutants from indoor air (expressed as a percentage efficiency rate) and how much air it draws through the cleaning or filtering element (expressed in cubic feet per minute). A very efficient collector with a low air-circulation rate will not be effective, nor will a cleaner with a high air-circulation rate but a less efficient collector. The long-term performance of any air cleaner depends on maintaining it according to the manufacturer's directions.

Another important factor in determining the effectiveness of an air cleaner is the strength of the pollutant source. Table-top air cleaners, in particular, may not remove satisfactory amounts of pollutants from strong nearby sources. People with a sensitivity to particular sources may find that air cleaners are helpful only in conjunction with concerted efforts to remove the source.

Over the past few years, there has been some publicity suggesting that houseplants have been shown to reduce levels of some chemicals in laboratory experiments. There is currently no evidence, however, that a reasonable number of houseplants remove significant quantities of pollutants in homes and offices. Indoor houseplants should not be over-watered because overly damp soil may promote the growth of microorganisms which can affect allergic individuals.

At present, EPA does not recommend using air cleaners to reduce levels of radon and its decay products. The effectiveness of these devices is uncertain because they only partially remove the radon decay products and do not diminish the amount of radon entering the home. EPA plans to do additional research on whether air cleaners are, or could become, a reliable means of reducing the health risk from radon. EPA's booklet, [Residential Air-Cleaning Devices](#), provides further information on air-cleaning devices to reduce indoor air pollutants.

For most indoor air quality problems in the home, source control is the most effective solution. This section takes a source-by-source look at the most common indoor air pollutants, their potential health effects, and ways to reduce levels in the home. (For a summary of the points made in this section, see the section entitled

["Reference Guide to Major Indoor Air Pollutants in the Home."](#)) EPA has recently released, [Ozone Generators That Are Sold As Air Cleaners](#). The purpose of this document (which is only available via this web site) is to provide accurate information regarding the use of ozone-generating devices in indoor occupied spaces. This information is based on the most credible scientific evidence currently available.

EPA has recently published, ["Should You Have the Air Ducts in Your Home Cleaned?"](#) EPA-402-K-97-002, October 1997. This document is intended to help consumers answer this often confusing question. The document explains what air duct cleaning is, provides guidance to help consumers decide whether to have the service performed in their home, and provides helpful information for choosing a duct cleaner, determining if duct cleaning was done properly, and how to prevent contamination of air ducts.

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