

Three Steps to Better Indoor Air Quality

1. Understand the Problem

While most people would think twice before eating from dirty dishes or drinking impure water, surprisingly few take the steps necessary to understand the quality of the air inside their own home. Yet, indoor air pollution inside the typical American home is typically 2-10 times higher than outdoor air pollution and by some estimates is responsible for as much as 50% of all illnesses. In fact, the U.S. Environmental Protection Agency (EPA) considers indoor air pollution the number one environmental health problem in the United States.

Some facts to consider:

- For every 1,500 square feet of living space your home acquires about 40 pounds of dust per year. Dust is the primary means for mites, bacteria, viruses and germs to enter your lungs (the average pillow's weight is 50% dust mites!)
- Everything from cigarette smoke to gas stoves, from naturally occurring radon to the chemicals used in household cleaners creates harmful gases that linger indoors for lengthy periods of time.
- Due to the out-gassing of carpets, mold, mildews, mites and fungi in the typical American home, a baby crawling on the floor inhales pollutants equivalent to 4 cigarettes every day!
- More Americans are taking steps to seal their homes in order to increase energy efficiency. One side-effect, however, is that less air is exchanged with the outdoors and pollutants can build to dangerous levels. A heavily-insulated home, for instance, can contain pollution levels as much as 200% higher than ordinary homes.
- The EPA estimates that nearly 60% of all American homes are "sick"—this means that the air inside them is considered hazardous to breathe.

2. Recognize Your Options

The first step to improve the quality of air inside your home is to have a professional Indoor Air Quality expert test and evaluate it. Once you have all the facts, and have discussed the findings with a professional, there are three proven means for improving your home's Indoor Air Quality:

- **Source Control**—This simply refers to taking the steps necessary to decrease or eliminate the causes of indoor air pollution in your home. Those with a gas stove or furnace should have a professional check vents for proper air draw and pipes and fixtures for leaks which, however small, can create hazardous, potentially deadly, buildups of fumes over time. Other means of remediation may include restricting cigarette smoking from your home or at least requiring that smokers do so near a ventilation source. Switching to "green" cleaners and increasing the frequency of vacuuming and dusting are also relatively easy and inexpensive means to improve indoor air quality. Your IAQ professional will help by making Source Control recommendations geared to your particular property.
- **Ventilation**—Sure, opening the windows can help, but weather conditions don't always make this possible and even when the windows are open the actual exchange of air with the outside may be relatively small due to a build-up of positive pressure indoors. For this reason, the EPA recommends that homes, particularly newer, well-sealed homes, use some form of mechanical ventilation to ensure a certain level of air exchange with the outdoors. HVAC systems and exhaust fans both play an important role in this regard but since neither is typically left on all the time homeowners may want to consider additional measures. There are a variety of systems on the market designed specifically to increase the air exchange rate between the inside of your home and the outdoors. Your IAQ professional will help by making Ventilation recommendations geared to your particular property.

- Air Purification - While Source Control is inarguably the most important step to improve indoor air quality, the addition of an air purification system is certainly the most underutilized. Many homeowners fail to realize that the panel filters used by most HVAC systems are designed to protect the equipment, not the people inside the home, from airborne pollutants. Older ducts systems can actually decrease the IAQ by providing a breeding ground for mold and bacteria. As such, more and more Americans are opting to employ some type of indoor air purification technology in their home. In fact, air purification is a growing industry—estimated to increase by over 5% per year until at least 2012.

3. Know Your IAQ Systems

There are a variety of indoor air purification technologies available to the consumer. Each has distinct advantages and disadvantages. For this reason it is best to consult with a professional who can provide accurate testing and then recommend the most suitable air purification system, or combination of systems, for your particular indoor environment.

Some of the most common types of Indoor Air Purification technologies include:

HEPA (High Efficiency Particular Air) Filters— These powerful filters are capable of 99.7 percent effectiveness in eliminating allergens and most types of bacteria but will not remove gases and fumes, including those produced by cigarettes, stoves and many household cleaners.

Ultraviolet Germicidal Irradiation (UVGI) Lamps— long used in laboratories and hospitals for their ability to kill disease causing micro-organisms, a home UVGI light system can make a valuable contribution to increasing indoor air quality. The lights are typically placed within the HVAC system or ducts and so are not visible to the home's occupants. While they do destroy a host of dangerous micro-organisms, UVGI systems do not actually remove particles or gases from the air and are less effective against mold and bacteria.

Ionizer Purifiers— these units use electricity to create charged ions which attach themselves to airborne pollutants which are then drawn into a charged collection plate that can be periodically cleaned. Ionizer Purifiers are available as portable units or can be permanently mounted (in which case they are called electrostatic precipitators). Disadvantages include the production of trace amounts of ozone and, in some units, a popping noise from the electrostatic charge.

Humidifiers and Dehumidifiers— to achieve a healthy home it is essential to maintain the proper level of humidity—too much moisture in the air can lead to the growth of mold and harmful bacteria, too little allows particles to remain airborne and can lead to increased instances of illness. A trained IAQ professional can measure the level of humidity in your home and make recommendations for the right system to regulate it.