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Indoor Air Quality

We usually think of air pollution as an outdoor problem – car exhaust and smokestacks and such. Surprisingly, the air you breathe in your own home may be even more polluted than outside air. Home indoor air pollutants can cause health problems, even if you are exposed to some pollutants for a short time. Symptoms range from allergic reactions (sneezing, coughing, watery eyes) to headaches, nausea, and fatigue. Some pollutants have even been linked to cancer and other serious illnesses.

Gases and particles from fuel-burning appliances can pollute the air in your home. No matter the fuel source – natural gas, propane, kerosene, wood or coal – all combustion appliances have the potential to release harmful gases such as carbon monoxide into your home. Wood-burners can also introduce irritating smoke and ash particles. Always closely follow installation and operating instructions for furnaces, water heaters, wood stoves, ranges, clothes dryers, space heaters, and fireplaces, and keep these appliances in good working order. If you have any combustion appliance, it is recommended that you install a carbon monoxide detector. For more details, read the *Home Energy Efficiency Fact Sheet on Carbon Monoxide and Gas Appliances*.

Biological pollutants include mold, mildew, bacteria, fungi, dust mites, pollen and animal dander. These microscopic pollutants often cause allergic reactions and can trigger asthma attacks. You can't eliminate them entirely, but you can keep their numbers down with adequate ventilation and regular cleaning. Use a vacuum with a high-efficiency particulate air (HEPA) filter. Minimize dampness by venting the clothes dryer and kitchen and bathroom fans to the outdoors – not to the crawl space, basement, or attic. Be sure there are vents in the attic and crawl space to the outside. Regularly clean humidifiers and evaporation trays in air conditioners and refrigerators. And for even more tips on controlling moisture, read the *Home Energy Efficiency Fact Sheet called Controlling Condensation in the Home*.

Asbestos is a mineral fiber often found in many products such as pipe insulation in older homes. However, until the late 1970s, it was also used to make floor tiles, roof and siding shingles, thermal insulators, and other fire-retardant, insulating building materials. Asbestos is harmful only when disturbed, usually during remodeling jobs. Inhaling its tiny fibers can cause lung and abdominal cancer years after the exposure. If your house contains an asbestos product in good shape, it is probably best to leave it alone because it only causes harm if the fibers become airborne. If it is deteriorating or must be repaired or removed, contact a professional for advice before disturbing.



Lead found in house paint made before 1978 is a big indoor air quality concern, especially during remodeling projects. Breathing lead paint dust as a result of weatherizing or remodeling your home can harm blood cells and kidneys and damage the brain and central nervous system. It can also cause serious developmental problems in children and pregnant women. Old paint in good condition and not disturbed is less of a threat, but dust and loose paint chips are common in old homes, especially around windows, and should be corrected as soon as possible. To limit exposure, duct tape works well for picking up chips, and frequent damp cleaning is a good way to control dust. Consult an EPA certified renovator before remodeling jobs, especially if you have small children and the house was built before 1978. If you're unsure about the presence of lead, never sand, scrape or undertake a construction project in a home built before 1978 without determining if lead paint is present. To conduct a lead risk assessment contact an EPA certified firm (see www.epa.gov/lead for a list of certified firms).

Household products such as paints, solvents, paint strippers, glues, pesticides, aerosol products and some cleaners must be handled with care – especially those containing volatile organic compounds (VOCs). VOCs are chemicals that are released into the air when you use products that contain them. Some VOCs escape even from stored, closed containers.

Breathing the gases can irritate your eyes, nose and throat, or cause headaches and dizziness. Long-term exposure may cause liver, kidney or nervous system damage. Buy these products only in quantities you'll use right away, always follow the directions closely, and work in a well-ventilated area.

Formaldehyde is a smelly gas commonly found in the glues used to make pressed wood products such as particleboard, paneling and furniture. It's also in some draperies and upholstered furniture. Some people are much more sensitive than others to this gas, which can cause watery eyes, burning sensations in the eyes, nose and throat, rashes, headaches, loss of coordination and breathing difficulties. Keeping your house cool and at humidity levels below 50 percent reduces formaldehyde emissions.

You can also coat pressed-wood surfaces with a special sealant to reduce out-gassing.

Radon is an odorless, radioactive gas that can cause lung cancer. It naturally occurs in rocks and soils and usually enters homes through basements or crawl spaces, although it can also enter with well water and granite building materials.

The only way to find out if you have a radon problem is by testing. This can be done by hiring a monitoring service or by buying a do-it-yourself test kit at your local hardware store or Extension office and carefully following the directions. Radon problems can be fixed, but you should consult a professional before tackling the job.

Second-hand smoke is a combination of the tobacco smoke exhaled by smokers and that produced by the burning end of a cigarette, cigar, or pipe. It irritates the eyes, nose and throat and may lead to lung cancer, asthma and chronic respiratory ailments such as coughing, wheezing and excess phlegm. Children are especially prone to problems caused by passive smoking as it's also called. You can eliminate this indoor air hazard by asking smokers to smoke outdoors. If smoking does take place indoors, make sure children aren't present and increase ventilation by opening windows or using an exhaust fan.

Energy-Efficiency Alert!

If your home is energy-efficient – if it's insulated and air leaks are sealed with caulking and weatherstripping – maintaining good indoor air quality is all the more important. The easiest way is to cut back on your use of fuel-burning appliances and use of products that produce volatile organic compounds (VOCs). Another important step is to make sure your home is adequately ventilated. If you're particularly sensitive to pollution, you could also consider buying a home air-cleaner, but always try to reduce the source of air pollution first.

Signs of possible indoor air quality problems include:

- unusual and noticeable odors, stale or stuffy air
- noticeable lack of air movement
- dirty or faulty central heating or air conditioning equipment
- damaged flue pipes or chimneys
- no source of combustion air for fossil fuel appliances
- no exhaust ventilation for fossil fuel appliances
- excessive humidity
- tightly constructed or remodeled home
- presence of molds and mildew
- health reaction after remodeling, weatherizing, using new furniture, use of household or hobby product, or moving into a new home
- feeling noticeably healthier outside the home

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