

Hibernate in a Healthy Space

The place that gives you so much joy, so much solace, so much comfort could also be giving you headaches, sore throats, a runny nose, coughing and sneezing fits, asthma attacks, lung damage and even cancer. That's because your indoor air quality could be making your home a not-so-safe haven.

According to the U.S. Environmental Protection Agency (EPA), you spend as much as 90% of your time indoors. And their studies indicate that indoor air pollution may be two to five times higher than outdoor levels. Here's just a short list of what could be taking place inside your castle right this moment: furniture, made with particle board, off-gassing formaldehyde; carbon monoxide levels rising due to warming up your car in your attached garage; carpet, soggy from last week's aquarium accident or washing machine overflow, growing mold and mildew; dust mites cuddling up with you in your warm, moist sheets; dangerous levels of ozone seeping into your lungs as you sleep with your bedroom door closed and your ozone-generating air purifier on; chemicals off-gassing from your just-picked-up dry cleaning hanging in your closet; air being "freshened" by the active ingredient in mothballs; toxins from household cleaners swirling in the air, and drawn into your lungs; pet dander pervading your spaces, even though Fluffy has long since gone to doggy heaven. And then there's smoke, radon, asbestos and lead to worry about.

If you're skeptical that your freshly cleaned house could possibly be a source of such irritants, look at the sunlight streaming through your gleaming windows—see all those particles floating in it? That's visible proof. Sniff the air. That "clean" smell from all your scrubbing and mopping? Chemicals, most likely harmful in some way. And if you proudly state that you don't have mice, roaches or other pests, you better check the ingredients of what you used to rid your home of them. The "cide" in insecticide means "kill," you know—and you're not just talking bugs.

Your best strategies for a healthy home and good indoor air quality, according to the EPA, are controlling the source of the pollutant, ventilation, and, as a supplement to those, air cleaning.

You can control some sources simply by containing them. Asbestos and lead are two examples, but these are best left to the experts. A third example: dust mites. These microscopic spiders, or rather their skin and feces, are allergic "triggers" for many people. If you wake up coughing, itching or sneezing, these guys could be to blame. "Dust mites live in mattresses, pillows, bedding, on clothing, upholstery, carpets and stuffed animals. It's almost impossible to get rid of all dust mites," says Karen Clark, CEO of allersphereΔ, a catalog and Internet company specializing in natural and allergy-free products. You can contain dust mites with anti-allergen encasings that cover the entire mattress and zip closed on all bedding. (See sidebar, Good Health is Priceless) Clark also recommends washing all bedding once a week in hot (130_) water.

Tempted to warm up your car, snow blower, lawn mower or motorcycle in your attached garage? Don't be, because you could be inviting carbon monoxide into your home. Be sure to install carbon monoxide monitors to guard against exposure to this deadly gas. And buy a state-certified radon test kit and use it to check for harmful levels, especially if you or anyone in your house smokes, as the combination of smoking and inhaling radon puts you at an especially high risk of lung cancer. Annual checks of your furnace, fireplace and gas appliances are also recommended.

Just like you, your house needs to breathe, bringing in fresh air and exhaling the stale stuff. In a "leaky" home, outdoor air enters the house—through cracks, unsealed joints, and penetrations—intermittently, depending largely on the weather. While air circulation is key, you want to ventilate your house in a planned, rather than random, manner, controlling how you bring air in and out. So that means a combination of sealing up your house and then ventilating it correctly. The U.S. Department of Energy notes that while windows, doors and outside walls contribute to air leakage, the biggest holes connect the house to the attic, crawlspace or basement, and need to be sealed. And for ventilation, it's important to use localized exhaust fans, vented correctly, such as those in your bathrooms and kitchen.

"There's a misconception that a house can be too tight. Actually, you can't make a house too tight, as long as it's ventilated well," says Carl Seville, consultant to the green-building industry and expert on indoor air quality. "A well-sealed house doesn't get dusty and it has good humidity control," he says. That's important, because dust is made up of all kinds of pollutant particles, and moisture is the culprit in many problems, including mold, mildew, and those pesky dust mites

The EPA recommends keeping your humidity levels to between thirty and fifty percent. "At 70%, mold grows; at 100%, wood rots. It's a good idea to check the humidity levels in your house, especially in the basement and crawl space. You may need to run a dehumidifier all year round in those areas," Seville says. And Seville cautions you not to water the house when you water the lawn and gardens. The house needs to be drained properly, with land sloping away from the foundation. "Get your basement waterproofed, if necessary," says Seville.

A clean home is a healthy home, right? Yes, as long as what you're cleaning with isn't adding to the indoor air pollution problem. "Many of the household cleaning products on the market today are highly toxic, and their fumes stay in the air where you can inhale them," says Clark. "Use natural cleaning products that contain everyday items like vinegar, salt, lemons and baking soda to effectively clean and deodorize."

When it comes to floor coverings, Clark isn't a big fan of carpeting, especially if you have allergies or asthma. And the American Lung Association says, "Carpet can act as a 'sink' for chemical and biological pollutants, including pesticides, dust mites and fungi." New carpets, as well as their adhesives and padding, can emit volatile organic compounds (VOCs). If you're getting new carpeting, look for the Carpet and Rug Institute's "Green Label" to ensure low-VOC products. Be sure to have your carpet

retailer unroll and air out the carpet before it's installed And ask your installer to follow CRI's guidelines.

If you're not going to change all your floors to hardwood, tile or linoleum, vacuum your carpeting at least once a week, using a good-quality vacuum with a high-efficiency particulate (HEPA) filter and a power beater brush. But anyone with allergies should wear a particulate mask, or just go out for coffee while the cleaning's being done, because all that vacuuming stirs up dust. An alternative is to install a central vac unit that is vented to the exterior. "I have one by Beam in my house," says Seville, "and it's more powerful than any portable unit and keeps the air very clean."

As far as deep-cleaning carpets, Clark says, "Steam cleaning is best. Use a company that uses as little water as possible and don't go for the added chemicals." She also suggests that you have your carpet cleaned when you can open your windows to dry it out. Remember what moisture breeds...

Thinking of airflow and dirt, what about cleaning your air ducts? According to the American Lung Association, "Duct cleaning has not been shown to prevent health problems, nor is scientific evidence currently available to conclusively demonstrate that particle (e.g., dust) levels in homes increase because of dirty air ducts." And the EPA doesn't recommend that air ducts be cleaned routinely, but only as needed. Seville is a proponent of properly sealing duct systems right from the outset. "Duct systems can be thirty to fifty percent leaky. We strive for 5% or less leakage," he says. And, contrary to what the name would have you believe, don't use duct tape to seal ducts, use mastic.

The EPA's third strategy for reducing indoor air pollutants is air cleaning. This is a supplemental strategy, however, since air cleaning alone cannot be expected to adequately remove all the typical pollutants. There are three general types of air cleaners: mechanical filters (your furnace filter, for example), electronic air cleaners and ion generators. Air cleaners can be in-duct units or stand-alone portable models. Seville believes you should invest in a high-quality furnace filter. "Most people use a three-quarter-inch fiberglass filter," he says. "That'll keep out small animals, but not the stuff that bothers you. Get a good six-inch media filter. Aprilaire make a good one called Space-Gard. You only have to change it twice a year, and it filters out everything just short of viruses."

"I suggest choosing a reliable, high quality air purifier with a HEPA filter, especially if you have a family member with allergies or asthma," says Clark. "I have a Blueair Model 501 that cleans down to a .1 micron particulate, which is a particle small enough to get caught in your lungs. And, it's one of the quietest air purifiers on the market." Clark recommends spending a bit more to get a good air cleaner. Mid- to upper-level models have costs ranging from \$250 to over \$1000, depending on the type of filtration and the amount of area you want to cover. You'll want to really do your homework, though. There's controversy about the effectiveness of air cleaners in reducing allergic reactions, as they can't clean the particulates out of the air if the pollen, dust, mold and pet dander

has already settled on surfaces. And the American Lung Association suggests that ozone generators not be used.

A healthy home means a healthier you. You may not show any immediate effects from indoor air pollution. But some of the more serious consequences only show up after long or repeated periods of exposure. Why take a chance? Start now to make your home a healthy haven. Sleep tight, and don't let the dust mites bite!

Breathe Easier

Here's what to consider in choosing an air cleaner, according to Karen Clark, CEO of allersphere

1. Filter efficiency: HEPA filters catch 99.9% of particles 0.3 microns or larger.
2. Room capacity: how large is your room and can it handle the total volume of air in the room.
3. Health concerns: there are three categories of airborne particulate: small 0.1-0.3 microns, mid-range 0.3-0.9 and large 1.0 or larger
4. Indoor environmental factors: activated carbon filters help neutralize VOCs
5. Noise level: is noise a factor in where you'll place your air cleaner? Levels range from almost silent, to a slight hum on low, to being quite noisy on high
6. Operating costs: how many watts does it take to operate? How often do you have to change the filters?
7. Ease of use: how difficult is it to clean or change the filter?

Read up on air cleaners at www.epa.gov

Good Health is Priceless

Here are some approximate prices and/or price ranges of various healthy home products:

Vacuums

- Miele S-148 Upright HEPA vacuum--\$379
- Miele Red Star (canister) with HEPA filter--\$668.95
- Eureka (with HEPA filter)--\$150-\$180

Air Cleaners

- Austin Air Healthmate --\$400
 - HM400 Filter (white)--\$150
- Austin Air Heathmate Plus--\$500
 - HMP filter (black)--\$250
- Blueair 601 Purifier--\$600
 - Smokestop Filter Kit--\$147 (set of 3)
 - Particle Filter Kit--\$79 (set of 3)

Furnace filters

- Aprilaire/Space-Gard High Efficiency Filtering Media

\$42-\$57 (2-pack)
\$209-265 (10-pack)

HEPA duct covers: \$10 a pack
(place on heating vents to capture small particles that may pass through your furnace filter)

Anti-Allergen encasements (dust-mite protection)
Standard pillow--\$10-\$20
Mattress cover--\$84-\$154 (depends on size)
Box Spring cover--\$46-\$75 (depends on size)

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American Academy of Allergy Asthma & Immunology <http://aai.org>

American Lung Association www.lungusa.org

Carpet and Rug Institute www.carpet-health.org

U.S. Environmental Protection Agency www.epa.gov

U.S. Department of Energy www.doe.gov

Get more links at Environmental Health Watch www.ehw.org

www.care2.com

www.southface.org

allersphere www.allersphere.com

Austin Air www.austinair.com

Blueair www.blueair.com

Healthy Home www.healthyhome.com