

A Chance to Clear the Air

What You Don't See Inside Needn't Hurt You

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Coughing, wheezing, sneezing.

Camille Martone didn't want to hear any of that in the new addition to her house -- particularly when it came to her 11-year-old daughter, who has asthma.

So she used insulation with no harmful airborne particles, paint with low fumes, and chemical-free wood that came from dismantled farmhouses in Maine for floors and kitchen counters.

Air quality "was definitely a consideration," said Martone, an architect and now a stay-home mother of four who lives in American University Park in Northwest Washington.

In a world where factories, cars, buses and planes discharge pollutants every day, many people don't realize that the air inside a home may be two to five times more polluted than the air outside, according to the Environmental Protection Agency.

"The good news is that most indoor air issues in homes are completely preventable and can be remedied with straightforward approaches," said Anna Duncan, associate director of the EPA's indoor environments division.

Some, like Martone, are taking big leaps into the 21st century, using eco-friendly materials that experts say are less likely to trigger physical ailments or, for that matter, long-term chronic disease.

Some people are taking smaller, often less costly steps, such as buying air purifiers and dehumidifiers to reduce allergens and molds and replacing carpet with wood floors to battle the thousands of dust mites that live in more places than we might care to know.

The American Lung Association's nationwide program Health House provides guidelines, conducts inspections, and educates builders and consumers about healthier homes.

Doctor-turned-developer Ernest Coburn is a Health House adherent. Coburn, a nuclear cardiologist and diagnostic radiologist, is developing a 204-home subdivision in Southwest Virginia, in Abingdon off Interstate 81. He plans to build at least half the homes there along Health House guidelines, using many materials similar to those Martone used in the addition to her home in Washington.

He will sell the remaining lots, hoping the buyers also build healthy houses, which could cost 8 to 10 percent more than regular ones.

"Because of my specialty in radiology, I see a lot of lung disease, and that got me interested in trying to improve the indoor quality," he said. "We're getting quite a bit of interest, even from people around the country. People are willing to spend more to have that indoor air quality."

Exactly what lurks inside our homes -- in the carpet, behind the basement wall or in our favorite couch -- may not always be clear.

Yet some things are a given, health experts say.

Daniel Ein, chief of the division of allergy at George Washington University School of Medicine, said microscopic dust mites are in practically every home, feeding off the shedding of human skin. Their feces primarily trigger the allergies, sinus problems and asthma, he said, but so do their bodies after they die.

They burrow in beds, pillows, couches, stuffed animals and carpets. The scary thing? Nearly 100,000 can congregate in one square yard of carpet.

"The bad news is they're really ugly. The good news is you need a microscope to see them," Ein said.

"Carpeting is one of the richest sources," he said. "If you're really suffering from them, pull up the carpet in the bedroom. That's where you spend a third of your time."

Ein also said you can battle the mites by dusting frequently with a damp cloth, cleaning wood floors with a damp mop, vacuuming, keeping humidity low, covering bedding with special anti-allergen covers or, at a minimum, washing sheets and covers in hot water weekly.

"A warm-water cycle is like a shower," he said. "Hot water will kill them."

Clutter in the home -- including bookshelves -- can also attract dust, which can be made up of skin, dander, pollen, dust mites and other materials. A good idea, he said, is to use bookshelves with protective glass.

In some homes, the things we dearly love can trigger adverse physical reactions.

Dogs and cats often top that list, allergy doctors say.

"If you have a child who's cat or dog allergic, the main thing is keeping the door closed in the child's bedroom to keep the allergens out," said Anupama Kewalramani, assistant professor of pediatrics in the division of pulmonology and allergy at the University of

Maryland School of Medicine. "If they do pet the cat or dog, make sure they wash their hands afterwards" to keep from spreading the allergens to their eyes or nose.

Kewalramani said using a stand-alone air cleaner with a HEPA (high-efficiency particulate air) filter "can modestly reduce allergens in the air." But she advises against buying ionic air purifiers, like the ones sold at high-end specialty stores.

"The problem is they actually produce ozone," she said. "They can trigger the allergies."

The Sharper Image, a chain that sells a popular ionic air purifier, said last week that the product was effective and safe and met the government's safety standards.

Experts say air conditioning and filters in the heating and cooling system can also tamp down allergens in the air, as long as the windows stay shut to keep out pollen and other unwanted materials.

But health experts say filters, which need to be changed regularly, don't address some problems, such as carbon dioxide and radon, two odorless, colorless gases with serious health implications.

Carbon monoxide, which can kill quickly, can build from poorly working fuel-fired appliances such as stoves, leaky chimneys and furnaces, and car exhaust from attached garages.

Radon, a naturally occurring radioactive element, is common outdoors, but there it is diluted to harmless levels, according to the American Lung Association. In confined spaces, it can reach dangerous levels. It often seeps into the house through cracks in the foundation, unsealed pipes, sumps, drains, walls and crawl spaces. Radon is considered the second-leading cause of lung cancer.

Home experts recommend installing radon and carbon dioxide detectors, having proper ventilation, and hiring a professional to address the problem if necessary.

Health experts also say humidifiers can actually promote mold and help dust mites flourish if the humidity gets too high.

They recommend keeping humidity down year-round and using a hygrometer, which can be purchased at a local hardware store, to measure humidity.

"Dust mites can be controlled by keeping the humidity down to 50 percent," said Janice Nolen, assistant vice president of national policy and advocacy for the American Lung Association in Washington. "It's also important to have the humidity below 50 percent to control mold, but you also have to make sure you fix leaks and have the house well ventilated, particularly the bathroom and kitchen and places like that."

Dehumidifiers can be especially helpful in the warmer months and in damp basements where mold can fester and trigger allergies, asthma and other respiratory problems.

The mention of asbestos in homes often conjures fear. It's found mostly in older homes, in tiles or insulation. The EPA says there's actually no need to do anything if the material remains intact. If it begins to crumble, the agency advises getting an expert to figure out if it needs to be removed.

The same can be said for leaded paint. Experts say it can pose a threat if the particles become airborne during construction or if a child eats the paint. Otherwise, if it's not peeling, they recommend leaving it alone or painting over it.

Martone, who recently added about 1,900 square feet to her Dutch Colonial house, replaced her kitchen; expanded her basement and attic; and added a new bedroom, a den and an enclosed back porch. Her husband is a contractor. She is an architect by trade. Together, they were the general contractors.

For paint, she said, she used a water-based product with low volatile organic compounds.

"I didn't want the fumes from the paint," she said.

She used the chemical-free farmhouse wood for the new floors in the kitchen, den and upstairs bedroom; the kitchen counter; and the open kitchen shelves. She treated the wood with a water-based stain and a water-based polyurethane finish.

Additionally, she said, "Our kitchen cabinets are solid wood. They contain no formaldehyde. Formaldehyde has been known to be harmful to your health."

For insulation, she used a foam called Icynene, which is considered environmentally friendly and effective in saving heat.

"It doesn't have the fiberglass, it doesn't have the airborne particles," Martone said.

Still, Martone uses some old reliables, including a HEPA filter the doctor recommended for her daughter's room upstairs.

"She's allergic to dust mites. Anything that encourages dust is bad for her."

Sinsi Hernandez-Cancio, 37, a health policy analyst, is also allergic to dust mites and has an immune deficiency.

Three years ago, she bought a house in Springfield with thick wall-to-wall carpet.

"We spent thousands of dollars to rip out the carpeting," she said. She and her husband installed wood floors in one bedroom, the dining and living rooms, and the hallway. Two of the other bedrooms already had wood parquet floors underneath the carpet.

She also installed a special filter in her heating and cooling system and put a stand-alone air purifier in her bedroom.

Has all that helped?

"It helps incredibly," she said.