Builder

SPECIAL REPORT

Indoor Air Quality: Healthy vs. Green?

Do all green homes have great indoor air quality (IAQ)? And is a healthy home automatically green? The answer in both cases seems to be "not necessarily," at least for the time being.

A lot of green builders also brand their homes as healthy, but they understand that each label comes with its own set of requirements. "It doesn't matter how green your home is if it kills you," says Peter Donovan of Healthy Home Builders in Scarsdale, N.Y.

For instance, builders that prioritize health point out that mechanical ventilation is key to good indoor air quality, and that ventilation may not always be sufficient in a green home.

"Energy use arguably causes the most damage to the environment as a whole, so I think of a green home primarily as one that uses very little energy over its life span," says Brian Knight of Springtime Homes in Asheville, N.C. "You can build a home that uses very little energy because it is very tight, but if it only has the minimum ventilation requirement it may not be very healthy." On the other hand, he points out, it's also possible to have a well-ventilated home with great indoor air quality that's an energy hog.

Knight, who installs heat recovery ventilators in all of his homes, likes to cite a National Institute for Occupational Safety and Health study that reveals building materials account for just 4% of indoor air quality problems, while 53% of those problems can be traced to poor ventilation. While the study looked at commercial buildings, Knight believes the percentages are similar for residential construction. "Supplying fresh outdoor air to the home is more important than using eco-friendly building materials," he insists.

Donovan also stresses the need for good mechanical ventilation. "You do need to supply fresh air to the home with a good whole-house ventilation system," he says. In fact the system he likes to install in his homes is zoned and includes HEPA quality filtration to keep pollens and other outdoor pollutants out of the house. However, he also insists that good product choice is an essential part of building a healthy home. "There are a lot of beautiful to look at doors and cabinets with particleboard or MDF cores that can formaldehyde off gas for up to seven years."

Of course the manufacture of toxic building materials tends to be a hazard for the environment, so a preference for non-toxic materials is one of the places where green and healthy construction overlap. Another is durability. A truly green home will be durable over time, which requires, among other things, good exterior detailing against leaks. A healthy home will also include these details, since soaked insulation and rotted

framing have consequences beyond the obvious. "A leaky roof is going to cause mold growth that affects the home's indoor air quality," Donovan says.

Finding the right balance in sometimes competing requirements for green homes and healthy homes is key to creating the optimum living space.

Representatives at the American Lung Association's Health House Builder program acknowledge the similarities and differences between green and healthy. The similarities they list include air sealing and ventilation requirements, as well as a requirement for sealed combustion appliances.

But they are also clear that the requirements can diverge in some places. "Green building programs focus on the environment, while we focus on the people living in the home," said Abby Hahne with the program's Upper Midwest office in Springfield, Ill. These differences can disqualify some otherwise green products, according to Paul Simon of Michael F. Simon Builders in Waunakee, Wis., whose homes are certified by Green Built Home, Wisconsin Energy Star Home, and the American Lung Association program. Floor carpet is a good example: Even a natural, eco-friendly carpet could contribute to poor indoor air quality. "The Lung Association would rather you not use any type of carpet because it can hold dust mites and other contaminants," he says. "Green Built doesn't care if you use tile, wood, or carpet on your floors."

Whatever their views on the importance of material choice, all healthy builders agree that ventilation is crucial for keeping air in the home clean. Knight points out that the 2012 International Residential Code eliminates the question of whether to install ventilation in jurisdictions that fully adopt the code. That's because the code includes a requirement for mechanical ventilation.

"All homes will have to be proven airtight with a blower door test and will have to include mechanical ventilation," he points out. "Because of this, homes built to 2012 code should be more energy efficient and healthier."