Healthy From the Ground Up

Home Healthiness Starts in the Design-Build Process



The design stage is the most advantageous time to set the conditions for environmental healthiness performance. ANTHONY SHKRABA PHOTO

BY RICK BAYLESS

n recent decades, our increased focus on sustainability has led to the creation of advanced house and commercial designs that are indeed very energy efficient, thanks in part to organizations such as Green Built Alliance, U.S. Green Building Council and their related certification programs leading the way.

But, outdoor weather patterns, house tightness, and occupant health needs are at a point now where our indoor environments can slip into sickness, also known as "Sick House Syndrome." Though most people assume this is something found only in older homes, it is a real concern especially for environmentally sensitive individuals.

As a board-certified Indoor Environmental Consultant, I've been called in often to examine recently built homes where the new owners are having adverse health symptoms within less than a year of moving into the home. By understanding what could be causing people to develop health issues in new homes, we can adjust our building practices to deliver a sustainable balance between energy efficiency and healthiness.

The house as an organism

Think of a house as a living thing.

No, not like something out of a horror movie where we keep yelling at the screen, "Don't go into the basement!" but as a functioning system.

There's a brain in the home's energy systems; a central nervous system made up of components, cables and wiring; a respiratory system inhaling and exhaling via the HVAC/AC/furnace; the metabolic system found in the plumbing, pipes and sewer; and the kitchen, of course, is the heart, but I digress.

The point is, the home is a system that can be operating at its maximum healthiness or one that could be sick.

Great strides have been made with programs such as Green Gauge, a building science-based analysis of an existing home's energy characteristics and efficiency. Along with the priority of increasing a home's energy efficiency, more consideration needs to be given to improving a home's healthiness.



Air filter showing MERV. SCOTT PARKER PHOTO

The design stage is the most advantageous time to set the conditions for environmental healthiness performance, taking a holistic approach to control issues such as wetness, dampness, temperature regulation, air particulate control and exchange capabilities.

Common areas of concern

Just as individuals are informed on certain symptoms to watch for within their physical wellbeing, so too can homeowners benefit from education on common systemic sources of home healthiness concerns.

For example, a homeowner turns off the ventilating system (energy recovery ventilator, or ERV), thinking they can save money or energy. Carbon dioxide levels increase, which leads to healthiness issues. Dust levels go up, odors go up, chemical pollutants go nowhere.

However, using the ERV could increase humidity levels. So, what should the homeowner do? First, they should monitor indoor humidity with hygrometers in living areas and the basement where mold can be an issue. Then, if there are dampness issues, either install a whole-house dehumidifier or purchase a free-standing dehumidifier if they have a limited budget. And, turn off a wholehouse humidifier if one exists.

Another simple thing that often causes issues is related to MERV, or the Minimum Efficiency Reporting Value developed by the American Society of Heating, Refrigeration and Air Conditioner Engineers. A higher MERV value denotes a filter that is more efficient at trapping airborne particles.



Green building in process. PIXELBAY PHOTO

Millions of folks get sick from being inside their tight, enclosed homes because they haven't been educated about MVOCs, otherwise known as microbial volatile organic compounds created by fungi and bacteria. However, it is imperative to help homeowners understand the maximum filter that can be used with the system installed. People will often say "higher is better," when we know from the field that the wrong size filter can do just as much harm as a dirty one.

Millions of folks get sick from being inside their tight, enclosed homes because they haven't been educated about MVOCs, otherwise known as microbial volatile organic compounds created by fungi and bacteria. That musty smell may be the result of MVOCs, which can be dangerous and even toxic.

People often need to be reminded that although they have invested in a green house, they still need to maintain home health with ongoing measures like controlling humidity at 45 percent and scheduling a professional HVAC system and air duct cleaning to ensure they'll be breathing easy for years to come.

A home-health punch list

The green-building industry recognizes many components of healthier home environments as they are part of the EPA's Indoor airPLUS program. The EPA's protocol is getting there, but leaves room for improvement.

Just as selecting finishes for countertops and stainless-steel appliances are part of the designbuild stage, there should also be a punch list for environmental healthy home performance. It is prudent to strengthen these systems early in the design process, or to at least make adjustments that allow for easier implementation of healthiness measures by the building owner through the coming seasons.

These considerations are becoming a matter of necessity to those with chronic conditions who are more vulnerable to downturns in health as adverse environmental conditions intensify along with the impacts of climate change.

As the costs of new-home construction continue to creep higher, it's worth acknowledging that these components and adjustments will impact the homeowner's budget. But, this commitment to keeping the home "alive and healthy" from the beginning will pay off in the long run.

When the design-build team is not actively involved in the conversation on healthy-home performance from the ground floor, it can create the conditions in which issues are more difficult to address and often ignored by the homeowner moving forward.

It can be much more satisfying for the contractors and homeowners alike if the build team as the experts sets the stage for healthiness protocols with everyone from the beginning, on the same blueprint.

Rick Bayless is founder and owner of A Healthier Home LLC. Board-certified as an indoor environmental consultant (Indoor Air Quality Association) and as a Healthy Homes Specialist (National Environmental Health Association), Rick offers expert, unbiased evaluations and services regarding a home's environmental and wellness status including Sick House Syndrome. Connect with Rick at ahealthierhomenc.com.

