

# Are Greener Spaces Healthier Places?

IAQ EXPERTS AGREE THAT MORE NEEDS TO BE DONE TO ENSURE HEALTHY AIR IN GREEN BUILDINGS.

By Maria Rutland

**T**he impact of the built environment on the planet is undeniable. Fortunately, over the last decade, manufacturers have made significant progress in developing greener building products and materials to reduce their carbon footprint and conserve the Earth's natural resources. But it may surprise you to learn that many sustainable building practices and products do not necessarily lead to the creation of healthier spaces for us to live, work and play. In fact, IAQ experts agree that more needs to be done to ensure healthy air in green buildings.

"Alarmingly, of the three LEED pre-occupancy air tests I have conducted, none of them have met the LEED criteria for total volatile organic compounds upon initial testing," says Dale Walsh CIH, CSP, LEED AP, and occupant air quality team leader within the American Industrial Hygiene Association's Green Building Working Group. "Health and well-being should be a top priority in green buildings. Unfortunately, design and construction methods and materials that help provide for good IAQ often seem to be poorly understood and play second fiddle to energy savings and aesthetics."

Now, more than ever, architects and designers are called upon to understand trade-offs in green building and to implement holistic strategies that make health a top priority. The following are some common pitfalls of sustainable materials selection.

## Less Energy, More Pollutants

Since energy conservation cuts down on both pollution and cost, energy efficiency is typically a key attribute in sustainable building. To achieve it, buildings are tightly insulated and sealed practically airtight. While this ensures high performance, it can also have a hidden trade-off: It prevents ventilation with fresh air while sealing in volatile organic compounds (VOCs) and other airborne pollutants.

Pollutant source control is therefore especially important in tightly insulated spaces to help ensure that dangerous levels of VOCs aren't present. Specifying low-emitting products that have been certified by a third-party, such as the GREENGUARD Environmental Institute, is an easy way for architects and designers to achieve energy-efficient, high-performance buildings while also considering the health of the people who occupy the spaces they design.

Consider also the compact florescent light (CFL) bulb. Many laud CFL bulbs for reducing energy consumption. However, they contain small amounts of mercury, a highly toxic heavy metal. Even this small amount of mercury could contribute to health risks if the bulb breaks in an indoor environment or if it is disposed of improperly. When using such materials, education of operations and maintenance personnel is critical to avoid potential health hazards.

## Green Materials, Hidden Chemicals

Repurposing post-consumer materials, such as car tires and newspapers, for use in building products is a rapidly growing trend. However, many of these products contain potentially harmful chemical additives and/or residual chemicals that are left over from the product's original use.

Consider this: Though insulation made from recycled newspapers gives new life to old news, chemicals from the inks used in newsprint contribute to poor indoor air quality. Another example is flooring made from recycled car tires — another popular "green" product. Recycled car tires are not well suited for use in indoor environments because they can contain heavy metals and carcinogens. The rubber from car tires is also known to emit potentially harmful VOCs. When used in a home, school or



office, this material can pose a health risk to building occupants.

Though efforts to find new uses for discarded materials are commendable, it's important to remember that, to be truly sustainable, products must also help create healthier buildings.

## VOC Content versus VOC Emissions

When selecting low-emitting materials, specifiers must be certain that the correct product attribute is evaluated. For example, many paints claim to be low-VOC or VOC-free. However, it is important to understand that these claims relate to the VOC content of the paint, not its potential to emit VOCs into the air, which is then breathed by building occupants.

Studies have shown that paint with low-VOC content can still have high VOC emissions. This means that those seeking to specify low-emitting materials based on VOC content are often considering an improper metric for product evaluation. Since paint can off-gas for several years after it is applied, specifiers should opt for products that have been evaluated and certified specifically for VOC emissions.

According to Federal Trade Commission guidelines, manufacturers may claim a product is VOC-free if it contains less than 5g/L of VOCs before pigments are added. VOC levels typically increase 10g/L or more upon the addition of colorants. This means that even "VOC-free" paints contain VOCs.

## Health Is Top Priority

The pursuit of sustainability is a complex endeavor involving trade-offs that can be difficult to evaluate at first glance. Many architects and designers face prioritizing these attributes during project planning. In this evaluation, health should never be an afterthought. Rather, health must be at the core of the mission of sustainable building, which is a pledge to create buildings that contribute to healthier people and a healthier planet. [ed+c](#)



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