



altro



The VOC epidemic in schools

Volatile Organic Compounds (VOCs) are found in almost everything. On tables, chairs, flooring, adhesives, even that “new car smell”. Virtually everything in the built environment.

The United States Environmental Protection Agency (EPA) has found concentrations of VOCs in indoor air to be as much as 5 times greater than in outdoor air and sometimes far greater. During certain activities indoor levels of VOCs may reach 1,000 times that of the outside air. New buildings especially,

contribute to the highest level of VOC off-gassing in an indoor environment because of the abundant new materials generating VOC particles simultaneously in a short time period.

Because of this, new schools can become a hot bed of airborne toxins. In fact studies show that the air is unfit to breathe in nearly 15,000 schools. This is largely because schools aren't built for health and comfort but rather are designed to achieve a basic level of performance at the lowest cost.

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Children are the **most** at risk

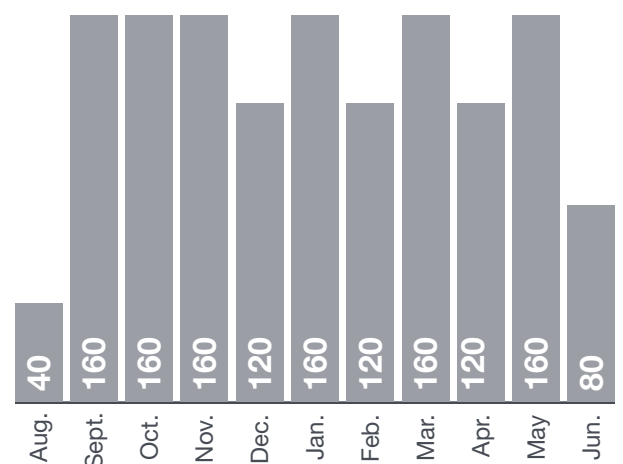


VOCs are found to contribute to a number of health problems in adults but are particularly harmful to children. Children have higher metabolic rates than adults, so they breathe more air per pound of body weight than adults do. They also tend to engage in more physical activity. This increases their exposure to air particulates like VOCs.

One common and growing ailment in children that is exacerbated by VOCs is asthma. Asthma is the most common chronic disorder in childhood, currently affecting an estimated 6.2 million children under 18 years of age. Asthma is the leading cause of absenteeism, responsible for more than 20 million missed school days per year.

Add to this that children spend between 35-40 hours per week for 9-10 months of the year in schools. This means they are spending as much as three years during the most developmental parts of their lives in schools, exposed to chemicals.

Annual hours spent in school



A recent review by Carnegie Mellon of five separate studies evaluating the impact of improved indoor air quality on asthma found an average reduction of 38.5% in asthma in buildings with improved air quality. By limiting the amount of VOCs children are exposed to, we can help improve the indoor air quality of schools.

There are some strategies that we can employ when choosing flooring that can reduce the amount of VOCs in schools...

Low-emitting flooring

1

One easy way we can help reduce exposure is by only using flooring that is independently certified for low VOC emissions.

Products should meet one of these standards:

- a. FloorScore
- b. CA 01350 Standard

Effectively they are the same thing and are recognized by LEED as a means of contributing to low emitting material credits. Both methods are widely accepted in North America as well as Europe and other parts of the world.

The test methods measure air concentration of materials in controlled environments and look to detect and measure known VOCs as well as TVOCs (total volatile organic compounds). Products meeting these certifications are known to off gas at safe levels.

Tips 2 + 3 on next page!

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LEED, or Leadership in Energy and Environmental Design, is the most widely used, independent, green building rating system in the world.



CERTIFIED BY
SCS Global Services

FloorScore tests and certifies flooring products and adhesives for compliance with indoor air quality emission requirements adopted nationwide.

3 strategies to
reduce
exposure

Low emitting adhesives

2

Just as we should use only low VOC emitting flooring, it's equally important to install it with low VOC emitting adhesives or products that don't use adhesives (loose lay, floating floors).

The CHPS Best Practices Manual recommends only the least toxic/lowest VOC product suitable for the application be used. Facilities should require the installer to use the smallest amount of adhesive necessary to fulfill the manufacturer's performance specifications for that product.

Adhesives should meet the standards set by the SCAQMD rule 1168 (South Coast Air Quality Management District) and FloorScore. This standard defines limits for safe VOC levels in adhesives. Products that have been independently tested to this standard are preferred.

Solvent-free adhesives are preferred as they have 99% less hazardous emissions than solvent adhesives, even though their emissions last much longer.

Low maintenance = low VOCs

3

Maintenance products also are significant sources of indoor air pollution. Avoid products that require frequent waxing, stripping, and other harsh chemicals to maintain as these chemicals off-gas as much or more than the floor itself.

Flooring with "low-maintenance" options should be preferred, not only to reduce VOCs but also to lower maintenance costs. It is important to ask manufacturers what chemicals are recommended to maintain their floors and at what frequency. These chemicals should be evaluated just as much as the flooring itself.



Green buildings

As schools are built to be more energy efficient the amount of air circulating through the building naturally (through leaks) is significantly less. This means that good ventilation is essential to maintaining a healthy and comfortable indoor environment.

For this reason the importance of using low emitting materials is even greater in new green buildings than it is in renovations. Finishes that meet and exceed emissions standards and use low VOC cleaning regimes are greatly preferred in these projects.

Sources

1 Government Accountability Office (GOA) report 1995, USGBC 2013

2 The Third Teacher, by Inc. OWP/P Cannon Design & David W. Orr 2010.