

CT Foundation for Environmentally Safe Schools

A nonprofit organization dedicated to promoting policies, practices and resources that protect school occupants from environmental health hazards

www.pollutionfreeschools.org

888-420-5526

Green Cleaning In Schools Can Protect Human Health and the Environment

Problem:

Twenty-five percent of cleaning chemicals used in schools are toxic and contribute to poor indoor air quality.

School buildings are one of the most densely occupied indoor spaces. Four times as many occupants per square foot are found in schools compared to office spaces. Children make up the majority of school occupants. By virtue of their size, increased metabolic rates and developing organ systems children are much more vulnerable to exposures to toxic cleaning chemicals.

Many Connecticut schools continue to use toxic cleaning chemicals even as safer, effective and affordable alternatives are now readily available. Some CT school districts claiming to use green cleaning are not using products certified by an independent third party and have not established best cleaning practices advocated by experts and scientific research.

Products that have not been certified by an independent third party contain chemicals of concern such as phthalates, glycol ethers, ethanolamines, quarternary ammonium compounds, volatile organic compounds, formaldehyde and benzene.

Toxic cleaning chemicals used in schools can contribute to indoor air pollution because many contain volatile organic compounds (VOCs) that evaporate into the air school children and personnel breathe. Such VOC laden fumes can remain in the air for hours, days and weeks irritating the eyes, nose, throat and lungs of school occupants. Such an exposure can make it difficult to breathe or induce coughing especially if someone has asthma or another respiratory condition. Breathing a lot of these vapors can also bring on vomiting, cramping or diarrhea.

If a school is not well ventilated these chemicals can become more heavily concentrated and potentially dangerous.

Whether inhaled, absorbed through the skin or ingested, toxic cleaning chemicals increase the risk for short and long-term health consequences. Short-term symptoms may include rashes, headaches and dizziness. Research demonstrates long-term problems resulting from toxic cleaning chemical exposures include the onset of cancer, reproductive disorders and major organ damage: i.e. liver, kidney and eyes.

According to the National Institute for Occupational Safety and Health (NIOSH), 12% of occupational asthma cases can be directly attributed to exposure to cleaning chemicals. Numerous studies show a link between indoor air pollution caused by cleaning products in schools with elevated asthma rates

found among teachers, teacher's aides and custodians (American Journal of Industrial Medicine (2007): Work-Related Asthma in the Educational Services Industry).

A single custodian uses, on average, 194 pounds of chemicals per year. Twenty-five percent are hazardous substances. Six percent of custodians are injured annually. Of these injuries twenty percent are caused by serious burns to eyes or skin and twelve percent are the result of inhaling chemical vapors.

Solution:

Developing and implementing school green cleaning programs does not have to be overwhelming or expensive. In the long run, money can be saved and the lifespan of facilities extended while protecting human health and the environment.

Effective school green cleaning programs should encompass three essential steps:

1. Switching to independent, third party certified cleaning products. Many new products are both cost-competitive and effective. They are biodegradable and have little or no volatile organic compounds (VOC's) that can significantly contribute to indoor air pollution.

Green Seal is an independent third party certification organization that uses a fully disclosed standard to evaluate products and verifies that they have minimal impacts on human health and the environment. Green Seal certified products do not contain reproductive toxins, carcinogens or skins sensitizers. They use recyclable packaging and ingredients less harmful to organisms living in water systems, rivers and streams.

2. Using 21st century equipment. For example, HEPA filter vacuum cleaners with an air flow greater than 90 CFM can capture 96% of particulates .3 microns in size. Use of such equipment prevents damage to human lungs and sensitive electronics equipment.

3. Implementing simple, state of the art green cleaning procedures. For example, placing multi-level walk off mats at entrances can reduce the amount of tracked in dirt and particulates by 70%. Using color coded microfiber mops and cloths can prevent cross contamination and reduce the amount of water and chemicals needed for cleaning.

Transitioning to a green cleaning program should occur as a part of a school's indoor air quality (IAQ) program. Connecticut schools have been required to adopt and implement an IAQ program since 2003 when An Act Concerning Indoor Air Quality in Schools was enacted. School districts that have successfully integrated some green cleaning practices into their Tools for Schools, indoor air quality management plans are profiled on the CT Foundation for Environmentally Safe School's website (www.pollutionfreeschools.org).

Incorporating a green clean program into an indoor air quality committee's management plan encourages a sense of shared responsibility throughout the school community for making sure a school is a greener, cleaner and healthier place to learn and work.