



Sick Buildings, Sick Students

Poor air quality and other environmental irritants can lead to health concerns for your students and staff

Bruce Buchanan

Seven years ago, teacher Carol O'Brien was concerned about the indoor air quality at her school, King-Murphy Elementary in Evergreen, Colo.

"Our school sits on a steep hillside and the buses delivered kids below the school. Air currents being what they are, the exhaust traveled up the hill and into the school," O'Brien says. In addition, she saw furnace filters in her classroom "dripping with dust" and realized that mold and other airborne contaminants were circulating through the air.

So she decided to do something about it. With assistance from the staff at the Environmental Protection Agency (EPA), she and other educators got King-Murphy cleaned up to the point it was recognized by the federal agency as an award-winning clean and healthy school. Dampers were placed on the school's ventilation system, which were closed at bus arrival time, preventing noxious fumes from floating into the school. Air filters were changed more frequently than the previous once-a-year schedule.

"The difference took us from an environment that caused you to choke each time you

inhaled to easy breathing," O'Brien says. "There was an incredible improvement."

The problems King-Murphy experienced are hardly uncommon. Thousands of American schools deal with environmental and indoor air quality problems every day. But unlike at King-Murphy, these problems often go undiagnosed, leading to unhealthy conditions for students and employees.

AN INVISIBLE THREAT

The link between a student's physical well-being and his or her academic performance

is well documented and most educators agree that a healthy environment is a key component to successful schools.

But too often, "sick schools"—those with everyday environmental problems that affect student health—are overlooked.

Sick school culprits include mold, mildew, paint fumes, cleaning chemicals, and even pet dander from classroom pets. These environmental irritants can cause symptoms similar to those caused by allergies and asthma, including sneezing and coughing; eye, nose, and throat irritation; congestion; fatigue; shortness of breath; and headaches. In extreme cases, indoor pollutants in schools can cause such life-threatening conditions as Legionnaires' disease, carbon monoxide poisoning, and severe asthma attacks.

How widespread is the problem? According to the U.S. Government Accountability Office, more than half of U.S. schools have indoor air quality problems in at least some part of their campuses. Asthma is the top chronic disease for causing

student absenteeism, with more than 14 million school days missed annually due to asthma attacks.

Student illness can have an adverse effect on academic performance. Missed days in the classroom translate into missed opportunities for learning. Also, students aren't as able to concentrate if they don't feel well.

Environmental hazards and air quality problems open a school board up to potential legal liability from angry parents and teachers' unions. And the public is increasingly becoming aware of these threats, meaning there's more pressure than ever for school boards to address these issues directly.

America's aging schools are partly to blame for the sick school syndrome. According to the EPA, 75 percent of U.S. schools were built before 1970, and the average age of a school is 42 years.

Many of these older schools haven't been properly maintained throughout the years, as preventive maintenance often is the first thing cut during budget shortfalls. That neglect, in turn, leads to problems with indoor air quality.

However, indoor air problems aren't limited to older schools. A cleanup dispute at a brand-new school meant years of legal wrangling—and hundreds of thousands of dollars spent—for a Florida school board before a resolution was reached.

In 1997, dozens of students and teachers at the Denham Oaks Elementary School fell ill just weeks after the school opened. All complained of the same basic allergy-like symptoms.

After an extensive investigation, environmental experts found that dust left over from the school's construction was to blame for the air quality problems. The Pasco County School District spent \$661,000 to clean up the problem. The district ultimately recovered all of that money from the builder and architect.

DEALING WITH MOLD

Mold is the most common source of indoor air problems on school campuses. Because mold can hide in air ducts, above ceiling tiles,

and beneath carpets, school officials too often can overlook the problem unless they know the signs and symptoms. Left undetected, mold can create severe—and expensive—problems for schools.

In April 2004, Samuel Coleridge-Taylor Elementary School in Baltimore closed for several days due to severe mold and mildew problems. The problems stemmed from a leaky roof, which allowed rain to pour into the elementary school for months. The school's library was in particularly bad shape, with crumbling ceiling tiles, visible mold on the walls, rotted carpet, and a strong stench of mildew in the air. Baltimore City Councilman Keiffer Mitchell described the smell as "unbearable" after touring the school.

In addition to embarrassing publicity, the incident also led to considerable anger from local lawmakers against the Baltimore City school system's central office. Mayor Martin O'Malley criticized the school district's administration for its lack of response to school-level complaints.

A combination of hot summer temperatures and unseasonably rainy weather in August 2003 led a number of Massachusetts schools to delay the start of the 2003-04 school year due to mold problems.

In Pembroke, Mass., for example, classes at Hobomock Elementary School were delayed by more than a week as work crews cleaned up mold in 23 classrooms. The total cost of the cleanup was nearly \$200,000.

In the nearby Silver Lake school system, mold concerns forced students out of a five-month-old elementary school. District officials blamed a defective ventilation system. Meanwhile, roughly 500 students at Silver Lake Regional High School had to be temporarily relocated to portable classrooms while mold was cleaned up.

And in Middleborough, Mass., all four elementary schools started the school year a few days late due to mold. Mold damage at one Middleborough school totaled \$16,000.

CHEMICAL REACTIONS

While mold is the most common environmental problem for schools, it is far from the only one. Chemicals are a widespread problem that can present serious health risks in schools.

"Generally, schools do have chemicals—and not just in chemistry labs," says Priscilla Halloran of EPA's Office of Solid Waste. These chemicals can be found in a variety of forms: cleaning solutions, art supplies, and pesticides, as well as substances used in science classes.

Fumes from these chemicals can cause breathing problems for students and staff. Many of the same chemicals are fire hazards as well. A big part of the problem, Halloran says, is that school officials and teachers often aren't exactly sure what chemicals are on campus.

"It's not unusual to go into stockrooms and find chemicals that have been there for 50 to 60 years," Halloran says.

Left unchecked, stored chemicals can be a dangerous—and expensive—problem for schools.

A 2003 mercury spill at Ballou High School in Washington, D.C., led to the school being closed for an entire month. The Ballou cleanup effort cost the district nearly \$1 million. Three students admitted to stealing the mercury from an unused chemical lab and spreading it throughout the school.

Two years later, another District of Columbia campus, Cardozo Senior High School, had a mercury scare after students again intentionally spread the poisonous heavy metal element throughout the campus. The students said they got the substance from a school lab. An EPA investigation found the school still was storing it on campus, despite a district-level edict to remove all mercury following the crisis at Ballou.

The EPA recently launched a "School Clean-Out Campaign" to raise awareness of chemicals in schools and help schools deal with them. Halloran says the program aims to work with suppliers and other private contractors to reduce the additional burden on school staff and to provide the expert handling that

these hazardous chemicals demand.

“Teachers and principals shouldn’t go around cleaning these chemicals up,” she says.

FINDING CLEAN SCHOOL SOLUTIONS

School systems often have trouble dealing with environmental and indoor air quality issues. Budgets are tight and so is time: Teachers, principals, and central office administrators have plenty of other duties besides worrying about indoor air quality.

However, some school districts have made real strides in this field, taking remarkable steps to improve the quality of air students and faculty breathe. One of those is the Ben-

salem Township (Pa.) School District.

As the environmental/indoor air quality coordinator for the school district, Tom Vasek’s job is to make sure the district’s students breathe clean air in schools. Armed with three different certifications to help him do his job, Vasek is the district’s troubleshooter if there are any indoor air problems.

Lately, he hasn’t been getting many phone calls, at least not to complain. Which is precisely the point, he says.

Back in 1999, Vasek and Bensalem piloted EPA’s Tools for Schools indoor air quality program. Eight years later, that program is still going strong and has expanded to all of Bensalem’s schools. Issues that can lead to

mold problems have long since been addressed, and maintenance efforts are in place to make sure they don’t return.

Not that the Bensalem schools never have mold or other indoor air problems—Vasek says it is impossible to completely eliminate all pollutants. But districts can have proactive programs in place to prevent as many problems as possible and quickly address those that crop up.

For example, he says, simply replacing a moldy ceiling tile isn’t enough. School maintenance crews must look beyond the obvious and fix the leaky roof or dripping pipe that caused the mold in the first place.

“I’ll still talk to people in other districts and they’ll say, ‘We don’t have any environmental problems,’” Vasek says. “You have to take your head out of the sand.”

In the beginning, Vasek says, some Bensalem teachers were skeptical of his efforts. Even justifying a central office position devoted to environmental and air quality issues raised some eyebrows. Vasek still is part of a rare but growing group of central office employees across the country whose main duties include indoor air quality management.

But after eight years of Tools for Schools, Vasek says every school has bought into the program. He said a lot of people were sold after seeing how many of the changes were low cost or no cost. Vasek also says many people mistakenly think of the EPA as solely a regulatory agency that punishes schools and businesses for violations. He says the EPA is an ally to help schools clean up and prevent environmental hazards.

Teachers in some schools ripped up carpet at Vasek’s suggestion. The local Home Depot donated carpet squares for the students to sit on during reading lessons, and the floors are now much easier to clean and don’t harbor mold and mildew.

“It’s not all big-ticket items,” Vasek says. “There’s a lot you can do no matter the size of your budget.” ■

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What schools can do

Thankfully, there are inexpensive, relatively simple steps school officials can take to reduce environmental threats in schools.

- **Implement an indoor air quality program.** The EPA’s *Tools for Schools* kit offers a comprehensive, user-friendly plan to help improve air quality in school buildings. Learn more at www.epa.gov/iaq/schools.

- **Monitor use of pesticides on school property.** Try to minimize their use whenever possible. Try to schedule pesticide treatments during times when students aren’t in school.

- **Likewise, don’t paint or apply flooring finishes during school hours,** as these products generate fumes that can cause health problems. Make sure the school is properly ventilated during and after painting and refinishing.

- **Repair water leaks promptly, as they can lead to mold problems.** Any moldy ceiling tiles or carpets should be discarded and replaced immediately.

- **Inspect your school for any signs of problems.** These include musty odors, dirty carpets, leaky water pipes, or water damage. Once detected, these problems should be addressed promptly.

- **Practice preventive maintenance.** The best way to avoid problems is to keep them from happening in the first place. Heating and air conditioning units should be serviced on a regular schedule.

- **Don’t allow school buses to idle near school buildings,** as carbon monoxide fumes can accumulate quickly inside the building. Keep the school doors closed when buses are running.

- **Parents should monitor their children for typical signs of “sick school syndrome,”** including sneezing, coughing, wheezing, runny noses, itchy eyes, headaches, and fatigue. If a child exhibits these symptoms at school, parents should get a pediatric evaluation. If other possible causes are ruled out, the parent should then work with the child’s teacher and principal to remove the possible sources of irritation.

Source: Environmental Protection Agency