

# Indoor Air Quality in Northwest Schools

***An electronic newsletter for school Indoor Air Quality (IAQ) exclusively for Northwest schools***

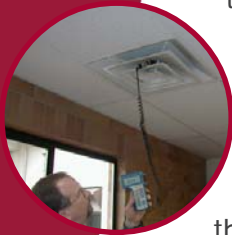
**Winter Quarter 2003**

## **The Mount Vernon School District is on an IAQ Roll**

Administrators recently invited school custodians, teachers, and safety committee members in Mount Vernon, Wash., to attend one of two half-day workshops on indoor air quality. IAQ expert Rich Prill provided the customized in-service training. Prill works for the Washington State University Cooperative Extension Energy Program and is under contract with the Northwest Air Pollution Authority in Mount Vernon. Mount Vernon School District staff who attended an earlier workshop gave such positive feedback to administrators that they were inspired to extend the opportunity to all staff.

It can be tricky freeing staff from normal duties to attend workshops, and it often takes a few workshops to get an entire staff trained. One of the most recent workshops was videotaped and will be made available to other Northwest school districts. Details about how to borrow the videotape will be announced in a future edition of this newsletter.

Mount Vernon School District has already completed IAQ walkthrough evaluations of all school facilities, including follow-up inspections of potential trouble spots. Cycling as many staff members as possible through IAQ training is part of the district's ongoing effort to be proactive. Several staff members have been sent through the excellent Building Operators Certification Program. The next step is to design formal IAQ policies and procedures customized to suit the needs of the school district. Congratulations to Mount Vernon School District for your progress!



### **School Indoor Air Quality Newsletter for Northwest Schools**

A quarterly electronic newsletter exclusively for NW schools.

Please circulate this subscription opportunity throughout the Northwest to those who may be interested.

There are two ways to subscribe:

1) To view the newsletter, click here:

<http://www.energy.wsu.edu/buildings/IAQ.htm>

The newsletter contains a link for subscription information.

2) Or, send a blank email message to: [subscribe-iaq@listserv.energy.wsu.edu](mailto:subscribe-iaq@listserv.energy.wsu.edu)

You will receive a confirmation message. When you reply to that message you will be subscribed and will receive all future postings. You can easily unsubscribe at any time.

This broadcast email list not only provides automatic delivery of the quarterly School IAQ Newsletter, but includes announcements about news of interest, training events, grant opportunities, and other information useful to school districts, agencies, and stakeholders involved in school IAQ and operations and maintenance.

The newsletter is an opportunity for all interested parties to communicate, and add to the collective wisdom.

*"20% of the US population spend their days in elementary and secondary schools . . . yet, half of US schools have problems linked to Indoor Air Quality."*  
*source: EPA*

## Tips for clean schools in the age of shrinking budgets

By Gary Jefferis, director of maintenance and operations Everett School District, Everett, Wash.

School maintenance budgets statewide are impacted by today's state and federal deficits. Therefore, to maintain a healthy school, a change in the approach to maintenance and/or custodial services is required. Basically, this means a redirection or restructuring of the duties and activities in these areas.

The question is "How To" without more funding. Custodial service has a major impact on the health of the indoor environment. There are three primary resources required for the service: labor, supplies and equipment.

Labor is and always has been what dictates how much cleaning can be done during a given shift. The industry standard for years was approximately 24,000 square feet per full-time employee. However, over the last five years, this has risen to approximately 35,000 square feet per full-time employee.

With a larger work area to cover, the jobs have to be prioritized. Sometimes, this does not allow enough time to properly clean. The loss of just two to three minutes in a schedule per classroom can dictate whether the classroom is vacuumed properly or not. This is why today you must manage your labor resource so that contaminants are controlled at the source. The saying, "If you are going to do it, do it well," is very applicable. Instead of trying to do everything, focus on what will really impact the health of your facility.

For example, instead of attempting to vacuum every room every day, focus on the source of dirt. Vacuum classrooms every other day, while focusing on the walk-off areas and hallways daily. By doing this you will control the majority of the particulate at its entry point.

This same principle pertains to dusting, hot-water carpet extraction and other tasks. Of course, there are activities that must be accomplished daily, such as the sanitation of restrooms and food preparation areas.

Another issue that will impact performance is equipment maintenance. This is a must for any cleaning program. Budgets today are a limiting factor in acquiring the latest equipment, but it does not take special or new technology to properly maintain a healthy environment.

The standard commercial vacuum, which has been properly maintained and utilizes disposable bags, can provide appropriate deep cleaning. However, the units

must be maintained by changing the bags daily, cleaning dust out of the vacuum, maintaining the belts, and other routine upkeep. By doing these small tasks, you will ensure that the equipment always functions at its peak.

On other units such as carpet extractors, read the owners manual and provide the recommended maintenance. By dedicating 10 to 20 minutes a day to equipment maintenance, you will save 30 minutes to an hour a day in cleaning time, because the vacuum will be more efficient on a single pass.

The third area to consider is cleaning materials. As budgets dwindled, maintenance staff looked for ways to reduce cleaning time. One answer has been to utilize stronger cleaning solutions. These cleaners reduce penetration time and the amount of scrubbing required. However, they account for numerous airborne volatile organic compounds, of which many are either irritants and/or odorants. The presence of these compounds in the environment can result in complaints from building occupants.

Although these compounds can result from a variety of indoor products, cleaning processes have been identified as frequent sources in schools. These pollutants can be controlled by using low-emitting products and ensuring adequate ventilation during application. Ventilation will assist in diluting and flushing out the chemicals.

In many schools, cleaning materials are used at times when the ventilation is turned off. This can result in higher levels of volatile organic compounds in the building and allows for the secondary contamination of other materials. Materials like carpets, ceiling tiles and insulation all absorb these compounds.

In conclusion, schools are in a time of tight and dwindling budgets. To economically maintain a healthy environment, the following three rules are essential:

First, have the crew clean at the sources. Second, maintain the equipment so that crew time is not wasted. And third, use low-emitting products. Remember, source control, source control and source control.

## Rehab the lab

By Dave Waddell

On Oct. 4, 1957, the Soviet Union launched Sputnik I, the world's first artificial satellite. The United States panicked and, in response, the National Defense Education Act of 1960 granted billions of dollars to schools for science education. High school chemistry teachers purchased equipment and laboratory chemicals to prepare American students for the space race. In King County, Wash., many of those chemicals are still sitting on the shelves of secondary schools.

There are several reasons we should be concerned about this situation:

- Many chemicals and their containers degrade over time.
- Many of these chemicals pose risks to teachers, students and the environment.

In 1998, representatives of a local high school asked King County's Local Hazardous Waste Management Program to look at their old chemicals and help them properly dispose of them. Among the containers of lab chemicals was an unlabeled gas cylinder, which later was found to contain poisonous chlorine gas. The school agreed that many of their hazardous chemicals needed disposal, but they lacked the budget to pay the high disposal costs.

"Rehab the Lab," an effort to improve chemical management in King County schools, resulted from this and other visits to schools. Hazardous waste management staff from King County's Department of Natural Resources, and Public Health officials from Seattle and King County inspected secondary schools and met with science teachers.

There were six primary project objectives:

- Protect kids, teachers and the environment;
- Work with the whole school, not just the science labs;
- Eliminate old chemical stockpiles;
- Reduce hazardous waste generation;
- Improve chemical storage practices;
- Help schools incorporate long-term pollution prevention strategies.

The LHWMP covered 100 percent of disposal costs. Trained hazardous waste investigators conducted on-site audits of science lab stockrooms to help teachers identify hazardous compounds and ensure they were marked for disposal.

During the visits, investigators found serious environmental health and safety issues. Improper disposal of hazardous waste down the drain or in the trash was common, as was storage of incompatible hazardous chemicals side-by-side. More than 2,000 deteriorating chemical containers were found in each school lab.

Every school was required to sign a pollution prevention pledge, promising to safely store hazardous chemicals and properly dispose of hazardous wastes in the future. Once the pledge was signed, King County agreed to cover disposal costs for the old chemicals.

Potentially unstable, highly reactive chemicals were found at 44 schools. These required stabilization by chemical explosive specialists. Findings included: 8,625 pounds of high-risk compounds, including 690 pounds of toxic mercury compounds, as well as explosives, carcinogens and poisonous gases. Teachers were often unaware of the hazards posed by these nearby chemicals, many of which were older than they were.

Numerous containers were mislabeled. A container labeled "Sugar," actually contained water-reactive metallic sodium. When the science teacher rinsed it out with water, the bottle exploded, injuring the teacher and releasing corrosive fumes.

The project ran from September 1998 through December 2002. County staff conducted 577 site visits to 297 schools. Of the high-risk chemicals found, 7,150 pounds (83 percent) were shipped for disposal, including 600 pounds of mercury compounds. Overall, "Rehab the Lab" arranged for disposal of 35.5 tons of hazardous chemicals. Over 200 teachers attended 11 "Rehab the Lab" workshops. As a result of its efforts, "Rehab the Lab" won the 2001 Governor's Award for Pollution Prevention and Sustainable Practices.

Washington State is now moving forward on establishing a statewide "Rehab the Lab" project. Grants from the Washington Department of Ecology are currently available to counties and education service districts to offset costs for school lab assessments, disposal of old chemicals and training of teachers and county staff on this issue. For more information, contact the department's Steve Loftness at (360) 407-6020. Grants will be issued on a first come, first served basis.

King County "Rehab the Lab" staff are still available to answer chemical management questions from schools. For more information about King County "Rehab the Lab," visit the web site <http://www.metrokc.gov/hazwaste/rehab/index.htm> or contact Dave Waddell at (206) 263-3069, or [dave.waddell@metrokc.gov](mailto:dave.waddell@metrokc.gov).



## Your Mother Was Right

By Elisabeth Overholt

Did you have a mother who greeted you each morning with “breaths of fresh air” by opening the doors and windows of your home regardless of the weather outside, and who insisted that you leave your footwear outside the door where the bugs could find a snug place to reside? Did your bathroom towels disappear into the washing machine along with your favorite socks before they were hardly used because your mother said they felt damp? And did your weekly chores consist of vacuuming and dusting inside the house and sweeping the porch when you couldn't see much to vacuum and dust and sweep? Was there a place for everything and everything in its place, preferably in a closet? According to Stephen Ashkin of the consulting firm Healthy Housekeeping Solutions, your mother's vendetta on dirt and clutter and her fresh air policy was just what is needed to provide a healthier environment and therefore a healthier you.

Ashkin's article titled “Cleaning Practices for the Home and Workplace” is a well-written, easy-to-comprehend document that outlines the steps that can be taken to make indoor living healthier. Although he focuses on home and on commercial/institutional environments, teachers can adapt the information and apply it in their classrooms. An example of Ashkin's advice is the suggestion to minimize clutter. So often teachers feel they must provide a “warm, cozy” environment complete with paper decorations hanging from the ceiling, plastic floral arrangements, dozens of musty secondhand books, and student artwork plastered all over the walls and on flat surfaces such as shelves and window ledges. Although this may look nice, these items provide places for dust, dirt and bugs to collect and make weekly dusting and cleaning impossible. When students are recruited to help take decorations down to allow for a remodel, they may be breathing in the disturbed collection of dust and environmental particles that can cause difficulties, especially for the asthmatic student. Ashkin states, “Reducing clutter makes cleaning easier and faster. Plus by reducing the clutter you can reduce dust and hiding places for cockroaches and pests.” Although some administrators may feel that the busier the classroom looks, the more learning is occurring, the opposite may be true. Adjusting to a less decorated and cluttered classroom will have its rewards if students feel better, stay healthier and have fewer absences. In other words, less is best.

Many schools are carpeted in hallways and classrooms. Ashkin states that although carpeting “is a wonderful floor covering with many benefits . . . if it is not maintained correctly, the contaminants in the carpets can lead to health problems.” Students in the younger grades are usually required to spend some part of their day “on the rug” where they can be exposed to dirt, dust, carpet mites, pests, molds and chemical cleaners. To help keep carpets and other types of flooring in optimal condition, Mr. Ashkin recommends the use of entrance mats both outside and inside doorways to provide a surface where soil and dust can be deposited from shoes before it is tracked into a room. If a teacher's school does not provide “walk off mats” in each classroom for exterior doors, these can be purchased for a reasonable price at hardware stores and in office supply catalogs. With regular vacuuming and cleaning, these mats can help provide a cleaner environment in the classroom all year long. Providing a space located near the doorway where students can remove and store their shoes before entering the room will also help keep classrooms clean. One teacher introduced this idea by teaching a segment on Japan. Students were more than happy to practice Japanese cultural behaviors. In fact, they enjoyed walking around the classroom in their stocking feet so much they continued to be shoeless indoors for the entire year. Janitors reported this classroom was the cleanest in the entire school and that the amount of time required for floor care was reduced substantially.

If your mother insisted that you eat your meals and snacks at the kitchen table, she had a good reason for this discipline. In our present culture where the television is a prominent member of the family requiring copious amounts of viewing time, children and teenagers have in many cases been taught that it is acceptable to eat in front of the television screen or anywhere else in the house. Many teachers allow students to eat at their desks. However, as Ashkin points out, “Crumbs attract cockroaches and other pests.” Pests deposit waste matter in carpets and in other parts of the room, and can carry diseases. A classroom invaded by pests may then need to be treated with chemical pesticides that are not terribly healthy for humans. Teachers can avoid pest infestations by providing a snack time outside on the playground or by simply not allowing food and beverage consumption in the classroom.

In his article, Ashkin discusses cleaning products, pets, house plants and many other topics and provides advice for minimizing indoor contaminants. He states that, “. . . Indoor air can be two to five times as

polluted as outdoor air and that indoor air quality is one of the top five environmental problems in which we need to be concerned." If you are concerned about the quality of your environment either at home or in the classroom, this is the article for you. To obtain a copy, contact Dave Blake, Environmental Specialist, at Northwest Air Pollution Authority, 1600 South Second St., Mount Vernon, Wash. 98273, or call (360) 428-1617 Ext 212.



**Valuable Indoor Air Quality Workshop information on back page!**

**Sponsored by:**

**Northwest Air Quality Control Authority, Environmental Protection Agency and the American Lung Association.**

**Healthy High Performance Cleaning for Schools**

More information about Indoor Air Quality is available on the Internet:

**U.S. Environmental Protection Agency**

<http://www.epa.gov/>

**Washington State Department of Health**

<http://www.doh.wa.gov/>

**Office of Superintendent of Public Instruction**

<http://www.k12.wa.us/>

**Northwest Air Pollution Authority**

<http://www.nwair.org/>

**Washington State Cooperative Extension Energy Program**

<http://www.energy.wsu.edu>

**Support for this newsletter is provided by the U.S. Environmental Protection Agency, Region 10**

# INDOOR AIR QUALITY IN NORTHWEST SCHOOLS

## Healthy High Performance Cleaning for Schools

### Problem

Recent air quality issues in many schools across our state have created a need for us to be further educated about keeping school buildings clean.

### Purpose

Educators now make a direct connection between a healthy and safe high-performance learning environment and excellence in education.

### Objectives

1. Defining High Performance Cleaning
2. Selecting High Performance Products
3. How to Implement a High Performance Cleaning Program
4. Training Requirements & Procedures
5. Communications

**All this while staying within your current cleaning budget**

### Workshops

For Superintendents, Principals, Building and Finance Managers

For Custodial Supervisors and Custodial Staff

ESD 101 Spokane	Mon. March 24
ESD 112 Vancouver, Wash.	Tue. March 25
ESD 121 Burien	Wed. March 26
ESD 189 Mt. Vernon	Thurs. March 27

ESD 101 Spokane	Tue. April 22
ESD 189 Mt. Vernon	Wed. April 23
ESD 121 Burien	Thurs. April 24
ESD 112 Vancouver, WA	Fri. April 25

**ALL WORKSHOPS ARE FREE AND LUNCH IS PROVIDED**

### Registration Information

Name: \_\_\_\_\_

School Address: \_\_\_\_\_

Street Address \_\_\_\_\_ City \_\_\_\_\_ Zip \_\_\_\_\_

Phone: \_\_\_\_\_ E-mail: \_\_\_\_\_

Date and Location of Training you would like to attend: \_\_\_\_\_

Please **fax** to: (509)323-5380

Or **mail** to:

American Lung Association of Washington  
124 E. Augusta #200  
Spokane, WA 99207

**Questions: Cindy Thompson**  
American Lung Association of Washington  
(509)325-6516  
cthompson@alaw.org



### About the Speaker

**Mr. Stephen Ashkin** is president of Healthy Housekeeping Solutions, a consulting firm focused on creating healthier and more productive indoor environments through "greening" the cleaning processes and products. In the new book "Environmentalism Unbound" he is described as the "leading advocate for a stronger environmental profile among cleaning product manufacturers and suppliers" and "the most visible industry figure advancing the cause of environmentally preferable products." Mr. Ashkin sits on the schools working group of the U.S. Environmental Protection Agency's Office Of Children's Health in Washington, DC.