

"Little did I know until I started my research, how dramatically the air can contribute to one's health."

Megan Sarver
South Whidbey High School
Langley, WA

Indoor Air Quality in Northwest Schools

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

Winter 2007

Symposium Links Indoor Air Quality to Health and School Performance

By Jim Terhune

Walk-through building assessments, mold and the latest research connecting school environments to health and learning were among topics covered at the national IAQ Tools for Schools Symposium, sponsored in December by the U.S. Environmental Protection Agency.

The research linking IAQ to health, asthma, attendance and student performance is growing and provides a foundation for schools to get serious about IAQ issues. (See the National Clearinghouse for Educational Facilities publication titled *"Do School Facilities Affect Academic Outcomes,"* by Mark Schneider, www.edfacilities.org/pubs/outcomes.pdf.)

The symposium, held in Washington, D.C., also included information on the Tools for Schools framework, indoor air quality monitoring equipment, "green cleaning," and high performance schools. EPA's Bob Axelrad presented the new and improved Version 2 of the Healthy School Environments Assessment Tool, software designed to identify and address potential problems, track environmental conditions school-by-school and generate customized checklists and internal reports.



Special Achievement Awards went to Bev Stewart of the American Lung Association of Oregon, James Sundell of the Oregon Education Association, and myself. Portland Public Schools received EPA's Excellence Award for improving IAQ.



Other organizations represented at the symposium included the American Association of School Administrators, the American Federation of Teachers, the Association of School Business Officials, the National Association of School Nurses, the National Education Association, the National



Bev Stewart of the American Lung Association of Oregon and Bob Axelrad of the EPA.

Table of Contents

Indoor air quality monitoring stations available.....	4	
Science project targets classroom air quality	4	
<i>In the News:</i>		
Should You Use Microfiber Cleaning Products?	5	
<i>Trainings and Workshops:</i>		
Workshops promote health and safety in schools	6	
Pacific Northwest		
Corner Report.....	7	
Plant Operations Support Consortium		9

School Indoor Air Quality Newsletter for Northwest Schools

A quarterly electronic newsletter exclusively for Northwest 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: www.energy.wsu.edu/projects/building/iaq_nl.cfm

The newsletter contains a link for subscription information.

- 2) Or, send a blank email message to: 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.

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Fiberglass: Two publications discuss the health risks

Glass Fiber and Health Complaints is an eight-page publication by Russ Crutcher of Microlab Northwest, a Redmond-based company that specializes in particle identification and analysis.

Crutcher defines "glass fiber," identifies its many sources and discusses how it can affect building occupants. He describes how glass fiber in the environment can be measured and what is considered "normal exposure." He also outlines ways to reduce glass fiber particles, and reviews research findings on long-term health consequences of exposure.

The article is available at www.microlabnw.com/index/Glass%20Fiber%20and%20Health%20Complaints.pdf

The Washington State Department of Health has also recently published a fact sheet on the short- and long-term effects of exposure to fiberglass. To request a copy of the two-page fact sheet titled *Fiberglass* (Pub No. 334-117) call 1-877-485-7316. The article will soon be online.

Free DVD on residential mold available

Let's face it, school students, staff and faculty spend the majority of their time in their own homes, where they may be exposed to allergens and other indoor air quality problems. It makes sense for schools to help everyone limit exposures in the home. A new video on mold can help.

The Northwest Clean Air Agency, in Mount Vernon, WA, has produced a 12-minute video titled "Mold in Your Home – Causes, Prevention, Cleanup." The video, targeted to the unique climate of the Northwest, covers mold in a residential setting. School occupants may be exposed to mold at home, which can impact their attendance, health, and performance, so this video is timely and useful.



Copies are free, and recipients are encouraged to make additional copies for distribution.

The DVD and additional resources may be downloaded directly to your computer from the Northwest Clean Air Agency (NWCAA) website at www.nwcleanair.org/aqPrograms/indoorAir.htm.

For a free hard copy of the DVD, contact Dave Blake at NWCAA, dave@nwcleanair.org, 360-428-1617 x212.

Symposium

Continued from page 2

Environmental Health Association, and the Council of Educational Facility Planners International.

Oregon representatives included five members of the Oregon Schools Indoor Air Quality Partnership: Bev Stewart, James Sundell, and Michael Screen of the Springfield School District, and Vonnie Good of the Salem-Keizer School District. Other Oregon representatives were: Karyl Gothe of the Oregon Education Association; and Patrick Wolfe, Andy Fridley and Chris Boyce, all of Portland Public Schools.

I firmly believe our Oregon School Indoor Air Quality Partnership has been effective because we sought out and included a varied group of willing and highly skilled professionals, multiple organizations, and IAQ Tools for Schools specialists. Everyone had a voice, and everyone contributed to the multiple strategies implemented. There was a lot of give and take and cooperation.

Jim Terhune is an education specialist with the Oregon Department of Education's Asthma Friendly Schools Project. For more information, contact him at 503-947-5782, or jim.terhune@state.or.us.



Elizabeth Cotsworth of the U.S. Environmental Protection Agency (center) presented the IAQ Tools for Schools Excellence Award to (left to right) Chris Boyce, Patrick Wolfe, and Andy Fridley, all of Portland Public Schools.



(Left to Right): Michelle Curren from the EPA headquarters and Jim Terhune, Oregon Department of Education.



(Left to Right): Some of the Washington state attendees at the national conference were Mike Anderson of the Bellingham School District and Dave Blake of the Northwest Clean Air Agency, Mount Vernon.



School Walk-through DVD Available

"The Virtual School Walk-through: Identifying and Solving Common Indoor Air Quality Problems," is a 62-minute presentation by Rich Prill of the Washington State University Extension Energy Program, and Dave Blake of the Northwest Clean Air Agency. The presentation, in DVD format, is aimed at promoting IAQ program development in schools nationwide.

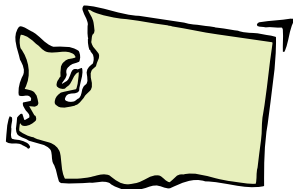
Prill and Blake gave the original presentation at the U.S. Environmental Protection Agency's 2007 IAQ Tools for Schools Symposium in Washington, D.C., in January, where it received only positive evaluations. Funded by the Washington Department of Health, the DVD is available free in Washington. (Out-of-state residents may be asked to pay a nominal fee.)

To order, contact Dave Blake at dave@nwcleanair.org, or 360-428-1617 x212.

Indoor air quality monitoring stations available

Five schools are now using indoor air quality monitoring stations provided by the Washington State Department of Health.

The mobile stations are outfitted with two high-quality meters: a multi-function meter and a particle counter. The multi-function meter records carbon monoxide, carbon dioxide, temperature, and relative humidity. The particle counter records six size ranges of airborne particles. The stations also include an information rack with handouts explaining the measurements and general school IAQ, as well as information about resources such as the U.S. Environmental Protection Agency's Tools for Schools kit.

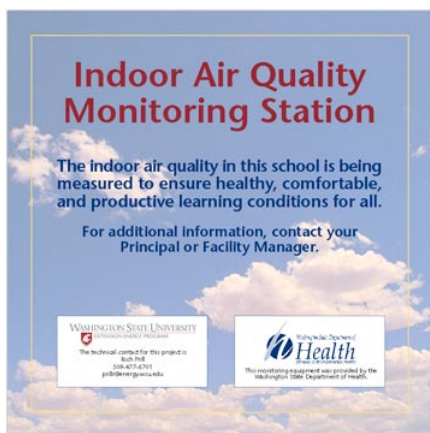


Laptop computers and a user's guide for downloading and analysis of the data are included with the stations – the five schools with the stations are helping to streamline the setup and collection of data.

There is already a waiting list for these stations. Contact Rich Prill at the Washington State University Extension Energy Program to reserve a station for your district, prillr@energy.wsu.edu.



(Left to Right) Susanne Reister and JoEllen Colson, both of the North Central Educational Service District, with an indoor air quality cart.



This poster is on the side of the indoor air quality cart.

Science project targets classroom air quality

By Megan Sarver

I am a student at South Whidbey High School in Langley, WA, where I am testing and monitoring classroom air quality for an independent study environmental science class.

The indoor air quality monitoring station provided by the Washington State Department of Health allows me to measure carbon monoxide, carbon dioxide, temperature, relative humidity, and a wide range of sizes of particles. I am assisted in this project by Rich Prill of the Washington State University Extension Energy Program, in Spokane, WA, and Dave Blake, an IAQ specialist with Northwest Clean Air Agency in Mount Vernon, WA.

See Science Project on page 10

Should You Use Microfiber Cleaning Products?

By Chapin Henry, Microfiber Products



Indoor air quality has become a primary concern to our schools. The use of Microfiber products greatly ensures better air quality because these fibers are able to accumulate and absorb more particles of dirt and bacteria than any other known product. The dirt particles are stored in the towel or mop pad until it is washed.

Microfiber is a man-made product that is best used in cleaning applications by combining the basic fibers – polyester and polyamide. It attracts dirt and dust and can absorb up to seven times its weight. Ordinary cotton towels only move or push the dust back into the environment. Cleaning with Microfiber can be a one-step process as opposed to the very time consuming, labor intensive vacuuming, sweeping and then putting down disinfectant. This process again puts dust back into the air.

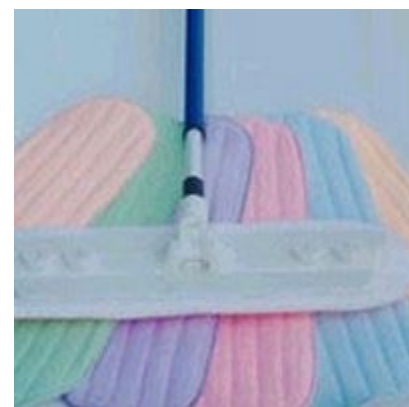
To promote acceptance of Microfiber, place articles in school publications. Informed employees will be more likely to support the program. Identify the right person to start phasing in this new system. Work with an employee who sincerely is interested, outspoken and a leader among the frontline staff. Explain the program in detail, introduce them to the towels and the looped dust mop that fits the 5-inch wire frame they have used for many years.

Explain that Microfiber pad mopping significantly reduces heavy lifting and awkward postures that contribute to back and musculoskeletal injuries. This is mainly because Microfiber mops avoid the need for large buckets of water, eliminate repeated fillings, lifting and dumping. Show your staff that mopping with Microfiber is less tiring, and requires no rinsing or wringing of heavy mops.

Microfiber flat mops and looped mops, compared to cotton looped mops, pick up the dust and dirt and

hold it so it is not redistributed into the air. When the towels and mops become soiled, they can be washed many times in a washing machine with a mild soap.

The correct procedure for using Microfiber wet mops is to take a clean pad from a clean bucket of diluted cleaning solution and wring out the excess solution back into the clean bucket. Place the pad on the lightweight mop frame and begin mopping the floor area. When finished, place the soiled pad in a linen bag for laundering. If more mops are needed, simply place them into the remaining clean solution. The advantage of this procedure is that it reduces the amount



Microfiber wet mops

of cleaning solution and water. The mop water only has to be prepared once. The mop water will remain clean for use on each new mop pad. This procedure will eliminate any cross contamination. For this reason, Microfiber has been well received in hospitals.

Both Microfiber towels and mops have many features and benefits:

- They are hypoallergenic so they don't create problems for those suffering from allergies, asthma or other diseases of the respiratory system.
- They are non-electrostatic.
- They are super absorbent, soaking up more than seven times their weight in water; and they dry in a third the time of ordinary towels.
- They are environmentally friendly, requiring no soap or chemicals of any kind – again providing for better indoor air quality.

See Microfiber on page 10

Trainings and Workshops

Workshops promote health and safety in schools

By Nancy Bernard

The Washington State Department of Health offered eight school environmental health and safety workshops between November 28 and December 12, 2006. Workshops took place in Vancouver, Olympia, Bremerton, Wenatchee, Pasco, Spokane, Renton, and Yakima. A Mount Vernon workshop was cancelled due to snow and has been rescheduled for March 2, 2007, at the Public Utility District.

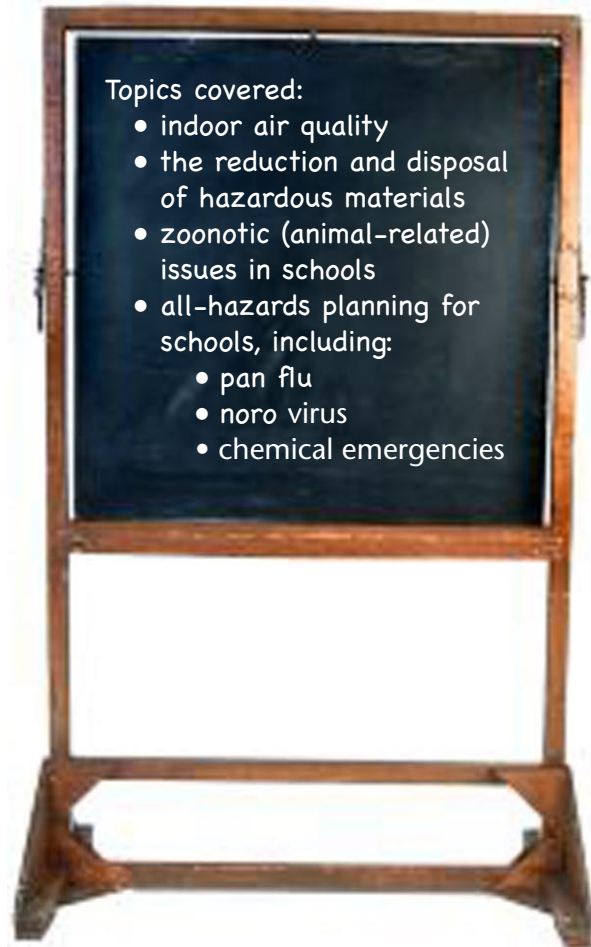
Deadline Alert

About 300 attended the workshops from public and private schools. They included risk managers, administrators, custodial, maintenance and facilities staff, school nurses, teachers, and environmental health specialists from local health jurisdictions.

Topics covered at the workshops included indoor air quality, the reduction and disposal of hazardous materials, zoonotic (animal-related) issues in schools, all-hazards planning for schools, including specifics on pan flu, noro virus and chemical emergencies. There was also an update on current issues in school environmental health and safety, and on the revision of the State Board of Health School Rule (Washington Administrative Code 246-366).

The IAQ presentation was a school walk-through DVD by Dave Blake of the Northwest Clean Air Agency and Rich Prill of the Washington State University Extension Energy Program. The DVD was very well received by workshop participants. We are now looking for funding to reproduce the DVD and make it available to schools and health departments. Audience members frequently commented that it was an excellent training tool. At 62 minutes in length, it will be useful for staff meetings. We are working on developing a handout to accompany the DVD with basic IAQ tips, references and resources.

The workshops were very well received, thanks to the efforts of many people, including the department's Zoonotics Program staff, the local hazardous waste



management specialist, the Education Service Districts and Local Health Jurisdictions, the Public Health Emergency Preparedness and Response programs, Blake, Prill, Lars Kongshaug of VID-SMITH digital video productions, and Dave Waddell of the King County Technical Assistance and Pollution Prevention Team.

We are beginning to plan for the fall 2007 workshops, and are interested in suggestions. Please contact me at nancy.bernard@doh.wa.gov.

Nancy Bernard is with the School Health and Safety Program in the state Department of Health's Office of Environmental Health and Safety, in Olympia.
www.doh.wa.gov/ehp/ts/school/default.htm

Pacific Northwest Corner Report

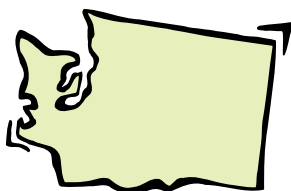
By Jeanne Bartlett and Carolyn Smith-Evans

Washington and Oregon have made great strides in bringing indoor environmental quality to the forefront as a serious issue for schools across both states.

WASHINGTON

The Washington Education Association passed several IEQ 'new business' items at the Representative Assembly – most notably one for \$820,000 to be used for IEQ issues.

Volunteer members of the association's IEQ task force ran a booth at the State Representative Assembly, which offered information, literature and environmentally healthy products to delegates from all public school districts in the state. At the booth, delegates also could sign up to join the national and state Healthy Schools caucuses.



Many association members, including IEQ task force members, have attended the annual U.S. Environmental Protection Agency's IAQ Symposium in Washington, D.C., always returning with cutting-edge information and ideas for improving indoor environmental quality in Washington State schools.

The following organizations offered trainings and presentations to association members in 2006:

The Washington Education Association Leadership Academy had IEQ presentations for New Building and Advanced Building representatives, and elected officers, so that the association's local leadership would be prepared to address IEQ issues. Gary Arthur and Jeanne Bartlett conducted the presentations.

Spokane Regional Area had an IEQ presentation, led by Vicki Gardner, which provided members with a wealth of information and contacts for help with IEQ issues.

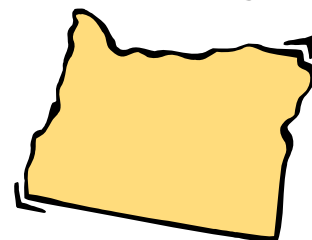
Fourth Corner and Pilchuck Uniserv Councils received training on how to assess building IEQ needs through a "virtual walk-through" presentation by Rich Prill of the Washington State University Extension Energy Program. Due to the overwhelmingly positive response, the two councils hope to have Prill back for more in-depth training. Additional trainings are in the works for 2007, funded by an EPA grant.

Pilchuck also received an IEQ information presentation from Jeanne Bartlett and will be reaching out to help local school districts with "National Healthy Schools Day" activities. (See the National Education Association Health Information Network website at www.neahealthinfo.org.)

Work with state officials to improve regulations and guidelines for school IEQ continues. Chip Halverson received awards from both NEA's Health Information Network and the Washington State Education Association IEQ Task Force, which Halverson chaired for several years. He has returned to school to study naturopathy, but plans to remain active and continue to collaborate with regional and national advocates on IEQ issues.

OREGON

Due to the efforts of a number of people, Oregon is a leader in IAQ/IEQ advocacy. A number of Oregonians have attended the EPA Tools for Schools symposiums over the last six years. They include: school and union employees, representatives from the Oregon Department of Education, and others from agencies such as the American Lung Association and asthma groups. Oregonian Carolyn Smith-Evans helped found the NEA Healthy Schools Caucus and continues to work to establish coalitions to educate and provide training for those working in and supporting healthy schools.



See Report on page 8

Report

Continued from page 7

James Sundell, an Oregon Education Association Uniserv director, Bev Stewart from the Oregon chapter of the American Lung Association, and Jim Terhune, of the Oregon Department of Education, were instrumental in bringing together a group to provide a one-day training on IEQ/IAQ last May in Eugene. Federal and regional EPA staff, the American Lung Association and OEA members were supporters and presenters. These three individuals received national awards at the 7th Annual Tools for Schools Symposium.

Sundell has been instrumental in involving Oregon districts in IAQ walk-throughs, helping many schools evaluate and bring additional resources to address problems in Oregon schools. These walk-throughs are conducted by WSU's Rich Prill at no cost to schools due to an EPA grant. Watch for news of a 2007 training in Oregon that may be in the offing.

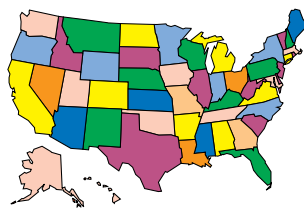
The Healthy Schools Caucus is planning a booth at the Oregon Education Association's annual state meeting in late April. The NEA Caucus is looking for OEA members to become involved in this issue and to support an Oregon chapter of the Healthy Schools Caucus. If you are interested, please contact Carolyn Smith-Evans at csmith_evans@hotmail.com.

At the December Tools for Schools Symposium in Washington, D.C., James Sundell, Jim Terhune and Bev Stewart were recipients of an EPA award for coordinating statewide Oregon IEQ efforts. Portland Public Schools also received an award for improvements in IEQ/IAQ.

NATIONAL

The National Education Association Healthy Schools Caucus works as a member-supported grassroots advocacy group on IAQ and environmental issues.

As the result of caucus efforts at the last NEA annual meeting in Florida, information will be provided to members on green cleaning and particulates (especially fiberglass particulates), addressing testing



issues and health concerns from particulate exposure. Funding (\$50,000) was secured for NEA members to attend the EPA's Tools for Schools Symposium, held in December 2006 in Washington, D.C.

Great news for NEA members! As a result of a Healthy Schools Caucus 'new business' item, there will be a one-day training on IEQ/IAQ open to all NEA members. This new training will take place just before the July 2007 NEA national meeting in Philadelphia. Slots for 125 NEA members will be allocated on a first come, first served basis. The projected date is June 29, 2007.

Mark Your Calendar

NEA members in the Pacific Region, please watch your association publications for information and training opportunities.

For more Healthy Schools information see the National Education Association Health Information Network website at www.neahealthinfo.org, especially the IEQ Technical Quickie fact sheets by Adrienne Markowitz, technical consultant for HIN. Markowitz is a Certified Industrial Hygienist

The NEA's Health Information Network will be providing information to NEA members on the "National Healthy Schools Day," scheduled for April 30, 2007, so that local and state education associations can participate in the celebration and raise awareness on the importance of IEQ issues.

Mark Your Calendar

Jeanne Bartlett is secretary of the National Healthy Schools Caucus, and chairs the Washington State Healthy Schools Caucus. Carolyn Smith-Evans chairs the National Healthy Schools Caucus.

Plant Operations Support Consortium (Plant Ops): Services and tools that work!

By Phil Partington, Washington State Department of General Administration

Public facilities professionals often face similar challenges, like waste, redundancies and inefficiencies, not knowing where to go for answers, finding needed resources within limited budget or available time, in their day-to-day grind.

A Washington state program called the Plant Operations Support Consortium has had the remedy for such challenges since 1995. Operating within the Washington Department of General Administration, the Plant Operations Support Consortium has 135 members, including school districts, colleges, ports, cities, utilities and counties in Washington, Alaska and British Columbia.

The Consortium provides a wide range of services to Consortium member organizations to improve maintenance practices, plant operations, and solve systematic facility problems:

- A No-Fault Effectiveness Assessment may be just what an organization needs to identify plant operations strengths and weaknesses in a non-threatening, unobtrusive way. Assessments range from focused reviews of specific trades or functional areas, to in-depth, integrated analyses of systemic, complex plant operations.
- Research Assistance - If you're researching an issue, we can do it faster and allow you to remain focused on your primary mission. If we can't find an item or service, it probably doesn't exist. Looking for industry standards, benchmarking, best practices, or innovative solutions? Want to know what professional development opportunities are available?

We'll partner with your staff and save you time and money in the bargain!

- Construction Management - Tired of doing business as usual and need that extra touch of construction management professionalism, technical competence and operational savvy? Consortium staff can work with you to identify cost-effective options for demolitions and large or small construction projects.



- Linking Professionals – One of the many advantages of joining the Consortium is the opportunity to communicate with professionals across the spectrum of facilities. We accomplish this through quarterly *Shop Talk* publications (www.ga.wa.gov/Plant/plantops.htm); the Consortium Listserv; professional development opportunities, including the biennial Energy/Facilities Connections Conference; and more.

- Sustainable Operations – Have something hanging around the facility that's too good to throw away that you just don't need anymore? Spending countless hours looking for used-but-useful equipment? POS can help you find or broker salvage items quickly and easily.

For additional information, contact Phil Partington, Plant Operations Support, at (360) 902-7277, or email him at ppartin@ga.wa.gov. The Plant Operations Support Consortium web page can be found at www.ga.wa.gov/plant.

Science project

Continued from page 4

I decided to do this project because the quality of our environment affects each and every one of us. Little did I know until I started my research, how dramatically the air can contribute to one's health. It's amazing at the same time because of the unexpected response I have been getting from staff and students. Teachers have asked if I have time to test their classrooms. I also had a teacher ask me to identify some mold found on the school grounds to see if it was harmful.

Before I was able to start testing in each classroom I had to introduce my project. The first step was to write an email to every teacher and the office staff saying who I was, what I wanted to do, why, and which rooms I wanted to test. I received some emails from interested teachers telling me about problems with their classrooms. I then made a calendar to schedule the testing.

Due to bad weather, the power went out during two different testing periods. Another problem I encountered, although minor, was working around each teacher's schedule. For most of the tests, I rolled in the equipment in the morning before school, let it run for about two days, and then downloaded the data. I then did an outside test to be used as a control before moving to the next test, which would begin later in the afternoon.



(Left to right) Standing behind the South Whidbey High School air quality monitoring cart are Dave Blake of the Northwest Clean Air Agency; Megan Sarver, student; Jay Freundlich (SWHS science teacher and Megan's advisor); and Rich Prill, WSU Extension Energy Program. Photo by Sahara Coleman, South Whidbey High School.

So far, I have made a spreadsheet comparing each classroom's average results for both the IAQ calculation (CO₂, CO, temperature, humidity), and the particle counter. I am hoping these results can easily be improved by keeping up on cleaning and perhaps updating some equipment. With the instruments provided by WSU and the Health Department, not only has this been a learning experience, but also an exciting project for me to undertake, which I have enjoyed doing.

Microfiber

Continued from page 5

- They are four times more effective than cotton towels and will clean virtually any stain from any surface.
- They are lint free and nonabrasive, with more than 200,000 fibers per square inch.

Once the decision is made to adopt a Microfiber mopping program, a cost benefit analysis should be completed. The mopping system dramatically reduces the amount of water and disinfectant cleaning solutions needed. Towels and mops can be washed a minimum of 500 times – far outlasting cotton mops and towels. There is no need to mechanically dry them, which results in energy and cost savings.

Additionally, there is a decreased risk of back and shoulder problems and a reduced chance of spills and chemical related accidents.

The state requires that 15 cubic feet per minute of fresh air be delivered to the classroom for each student. Facilities employees will learn that by cleaning with Microfiber daily, they will significantly improve indoor air quality.

This article was supplied by Microfiber Products and is printed here only for informational purposes. The information does not in any respect constitute an endorsement of the products or services discussed herein. This information also does not constitute a guaranty or warranty of any kind that the products or services described herein will perform as described.