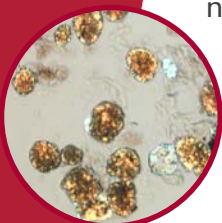
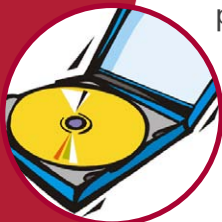


"Indoor environments give rise to a variety of health complaints. Some are well-defined and may even be medically diagnosed."

Russell Crutcher,  
Microlab Northwest



# Indoor Air Quality in Northwest Schools

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

Spring 2006

## Control Facilities Maintenance Costs

By Cynthia Putnam,  
Putnam Price Group, Inc., Seattle

Facilities are one of the largest costs to school districts. Yet, maintenance and operations departments have the opportunity to turn some of those costs into revenue. With proper maintenance and management, your facilities can run more efficiently, providing an extra source of revenue for your operations and increased comfort for teachers and students.

Get started by learning more about the Building Operator Certification (BOC) program. BOC is a leading provider of education and awareness programs for school maintenance and operations staff interested in controlling costs. BOC training is offered throughout Washington in locations convenient to large and small districts. BOC's educational partnership with the Washington Association of Maintenance and Operations Administrators (WAMOA) offers discounted tuition for member schools to participate in BOC training.

Over 25 school districts (K-12) in Washington have BOC certified maintenance and operations staff. BOC graduates are saving money for their districts by implementing energy efficient operational measures in lighting and heating, ventilation and air-conditioning. Visit [www.theBOC.info](http://www.theBOC.info) for testimonials and case studies on graduates who have used BOC training to help their schools save money. It really works!

BOC classes are being offered in Spokane, Everett and Renton in 2006. Call: 206-292-4793 Ext. 2, or e-mail: [admin@theBOC.info](mailto:admin@theBOC.info)

## 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](http://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](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.

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## Mold DVD Now Available

By Dave Blake, Northwest Clean Air Agency

The Northwest Clean Air Agency's baby step into the world of video production is turning into a giant stride toward dissemination of mold information. The DVD, titled "**Mold in Your Home: Causes, Prevention, Cleanup,**" was designed to help me get off the phone.

We get many hundreds of phone calls from citizens with mold concerns, each of whom gets personal training and advice that can take up to a half an hour or more. The DVD, admittedly not perfect, has received consistently good reviews from public health experts. It contains practical information, delivered in a concise format with no hype.

We are also pleased to report that the Board of the Oregon Society of Allergy, Asthma, and Immunology has approved the content and facilitated its distribution to Pacific Northwest allergists for their patients' use. The DVD is not intended for use in hot and humid climates.

This 12-minute video has been used in high school classrooms. It is high school students who take off for college and end up in a little apartment with too many people, too many showers, and not enough ventilation or knowledge to combat the inevitable moisture and mold.

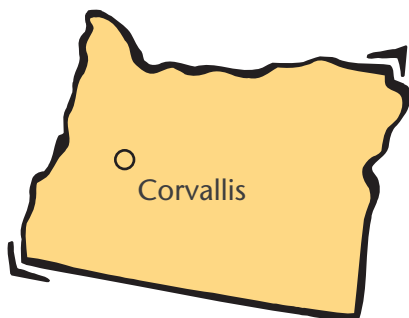
View and download the DVD at [www.nwcleanair.org/aqPrograms/indoorAir.htm](http://www.nwcleanair.org/aqPrograms/indoorAir.htm). Please help us get the word out by sharing this link.

If you want hard copies of the DVD for your local library or to submit to local government television channels, just ask. We have not been turned down by a government-run channel yet. Stay tuned for our next production: "**Asthma Trigger Control in Your Home.**" Coming soon.

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WSUEEP-06-004

May 2006



## Teachers Invited to Summer Institute

High school teachers are invited to attend the Environmental Health Sciences Summer Institute 2006, at Oregon State University in Corvallis. The four-day sessions are free and \$300 stipends are available to cover travel, lodging and food.

Participants will learn about the problem-based Hydroville curriculum projects. The session title "Indoor Air Quality Curriculum" is set for July 25-28, and the session titled "Pesticide Spill Curriculum" takes place August 8-11. Each session is limited to 30 participants. Online applications are due **May 12**.

**Deadline  
Alert**

The sessions provide an opportunity to network with other teachers and the university's research scientists, while earning Continuing Professional Development Units or graduate credits. For more information about the Hydroville curriculum projects see the Winter 2006 edition of this newsletter at [www.energy.wsu.edu/ftp-ep/pubs/building/iaq/nl/06\\_wtr\\_iaq\\_nl.pdf](http://www.energy.wsu.edu/ftp-ep/pubs/building/iaq/nl/06_wtr_iaq_nl.pdf).

Apply for the Summer Institute sessions online at [www.hydroville.org](http://www.hydroville.org). For more information contact Sue Helback, Hydroville Project Coordinator, at 541-737-8891 or [sue.helback@oregonstate.edu](mailto:sue.helback@oregonstate.edu).

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## EPA Releases New Mold Course Online

The U.S. Environmental Protection Agency's web course, called "*Introduction to Mold and Mold Remediation for Environmental and Public Health Professionals*", includes nine chapters, each divided into lessons and followed by a quiz.

The course covers:

- Mold Basics;
- Mold Growth;
- Finding Mold;
- Remediation;
- Containment;
- Evaluation;
- Communication; and
- Prevention.



*Mold surrounding air conditioning vent in ceiling due to water leak. (EPA photo, John Martyny, Ph.D.)*

To assess your current mold knowledge, begin with the pre-test. See the mold course at [www.epa.gov/mold/moldcourse/index.html](http://www.epa.gov/mold/moldcourse/index.html). Other EPA resources on mold, including brochures in Spanish, are at [www.epa.gov/iaq/molds/](http://www.epa.gov/iaq/molds/).

## Health and Indoor Environments: Complaints and Their Causes

By Russell Crutcher, Microlab Northwest

Indoor environments give rise to a variety of health complaints. Some are well-defined and may even be medically diagnosed. Others are more difficult to characterize and subjective in their interpretation. Not everyone in the environment may be affected. The agent may affect only a few or even one person in that environment. An alphabetical list of common complaints is provided below:

- Allergy
- Anxiety
- Asthma
- Bloody Nasal Discharges
- Chest Tightness
- Dry Itchy Eyes
- Fatigue
- Flu
- "Foggy-Headedness"
- Frequent Illness
- Headache
- Malodor
- Metallic Taste
- Nausea
- Rashes
- Sinus Congestion
- Soiling
- Stuffy Air

Complaints are the result of a perception of diminished physical, emotional, social, or mental capacity, or the observation of an abnormal process within the environment. That's a bit to bend one's mind around but it does cover the wide variety of perceptions that cause complaints. These perceptions include the symptoms, but the symptoms may be mixed in a way that can be difficult to interpret. Particles coming from a ventilation diffuser may be recognized as an abnormal process. The complaint may be those particles (soiling) that the complainant is blaming for the sinus congestion and headaches not mentioned. It's important to identify the symptoms. The symptoms have causes.

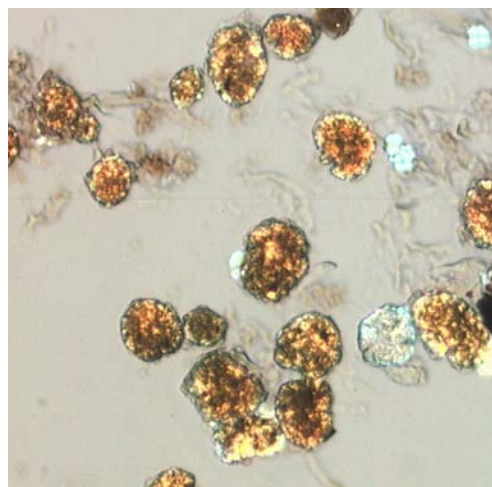
A given cause can have a variety of symptoms and symptoms can have a variety of causes. People may report symptoms in a variety of ways. Some may experience sinus congestions and report it as an allergic response. Others may report it as a headache, asthma, or even sinus congestion. The initial complaint may be vague. It is up to the investigator to determine as closely as possible the nature of the symptoms being experienced, carefully trying not to suggest symptoms.

The causes of symptoms can be broken down into a few general categories. Each of these categories can then be broken down into specific agents that may be causing the symptoms in a specific environment. The

general categories are listed below:

- Allergens
- Gas Phase Contaminants
- Irritants
- Infestations
- Mental Anguish (Fears)
- Infectious Agents

Each of these categories has hundreds of individual members. Most are identifiable particles (pollens, spores, combustion products, glass fibers, insect parts, chemicals, etc.) or are associated with identifiable particles. About 92 percent of all complaints are attributable to particles in the environment. The photograph below shows a *tape lift* sample from a home where individuals were having a problem with allergies. The



Mite fecal pellets

little brown, oval particles are mite fecal pellets. These also show up in schools and offices. They may be carried there on clothing.

An analysis of particles in the environment can lead to the solution

of most indoor health complaints. Future articles will consider individual categories or subgroups of those categories, the symptoms they cause, how to sample the environment, how to have the samples analyzed, and how to address the solution to the complaint. The mite fecal pellets are an example of one of the seven major subgroups of allergens. The "mite" subgroup includes 125 common indoor mite species and their debris. It's a lot more than dust mites.

*Microlab Northwest specializes in the identification of particles and their sources. The Redmond, Washington-based company provides indoor environmental quality analysis to assess the source of contaminants, the likelihood of health complaints and the role of the environment. Visit their website at [www.microlabnw.com](http://www.microlabnw.com).*



The following item appeared in *Energy Newsbriefs*, a weekly news alert service provided by the Washington State University Extension Energy Program Library. Current and past issues are available at [www.energy.wsu.edu/library/newsbriefs.cfm](http://www.energy.wsu.edu/library/newsbriefs.cfm).

**"Improving Ventilation and Saving Energy,"** by Michael G. Apte, Ph.D., Lawrence Berkeley National Lab, is an in-progress study from the

lab. The aim of the study is to develop and evaluate an HVAC (heating, ventilating, and air conditioning) system for portable classrooms that successfully addresses the need for better energy efficiency and improved air ventilation for student, teacher, and staff comfort. The preliminary testing results of a newly-developed HVAC system are quite promising. Reported in *FacilityWise Newsletter*, April 12, 2006, at [www.schoolfacilities.com/\\_coreModules/content/contentDisplay.aspx?contentID=2276](http://www.schoolfacilities.com/_coreModules/content/contentDisplay.aspx?contentID=2276).

### **Report looks at school environment and student performance**

The National Research Council has released an interim report on the connections between the indoor environment and student health and achievement. The 80-page report spells out the challenges of defining and locating "green schools," and addresses five issues: building envelope, ventilation, lighting, acoustics, and building condition. The final report will also look at issues related to heating, ventilation, and air-conditioning.

While the committee found it difficult to quantify the impact of various aspects of green schools, it concluded: "There is value in attempting to identify design features and building processes and practices that may lead to improvements in learning, health, and productivity for students, teachers, and other school staff, even if empirical results are less than robust."

**"Review and Assessment of the Health and Productivity Benefits of Green Schools: An Interim Report,"** is now available online. See the executive summary at [http://fermat.nap.edu/execsumm\\_pdf/11574.pdf](http://fermat.nap.edu/execsumm_pdf/11574.pdf). The final report is expected in late April. The National Research Council is part of the National Academies, private, nonprofit institutions that provide science, technology and health policy advice under a congressional charter.

# Trainings and Workshops

## Workshop on Indoor Air Quality Principles

The Northwest Clean Air Agency is sponsoring a free workshop titled “**Indoor Air Quality Fundamentals for Schools, Residential, and Commercial (Office) Buildings: An Introduction to Indoor Air Quality Principles,**” from 8 a.m. to 3 p.m., **June 14**, in Mount Vernon, Washington.

Rich Prill of the Washington State University Extension Energy Program will lead the workshop with an emphasis is on how buildings work, active maintenance, and pollutant source control. Participants will learn how to:

- Improve comfort, productivity and morale;
- Reduce health effects and absenteeism;
- Recognize and fix moisture problems before mold takes hold;
- Find practical do-it-yourself solutions to IAQ problems, and;
- Prevent potential legal problems with tenants or staff.

Who should attend? Facility managers and maintenance staff; multi-unit apartment complex owners, managers, and maintenance staff; loss control specialists; homeowners; Realtors; builders; public and private building inspectors; health professionals; and others.

Space is limited to 30 participants. For more information, contact Dave Blake at: 800-622-4627, Ext. 212; 360-428-1617, Ext. 212; or [dave@nwcleanair.org](mailto:dave@nwcleanair.org). The Northwest Clean Air Agency is at 1600 South Second St. in Mount Vernon.



# Trainings and Workshops

## Tools for Schools Training

"Accelerating Progress, Reducing Risk," a free Indoor Air Quality Tools for Schools training, is set for 10 a.m. to 3 p.m., **May 11**, at Lane Community College in Eugene, Oregon.

**Deadline  
Alert**

The session is sponsored by the U.S. Environmental Protection Agency Indoor Air Quality Tools for Schools Program, The Oregon Department of Education, the Washington State University Extension Energy Program, and Oregon State University-Environmental Health Sciences Center. The training is designed for school administrators, facility managers, teachers, nurses, principals, community leaders, parents, and others.

Register at [https://surveys.bus.oregonstate.edu/BsgSurvey2\\_0/main.aspx?SurveyID=1300](https://surveys.bus.oregonstate.edu/BsgSurvey2_0/main.aspx?SurveyID=1300). For more information contact Sue Helbeck at Oregon State University, (541) 737-8891, or [sue.helbeck@oregonstate.edu](mailto:sue.helbeck@oregonstate.edu).

### Agenda:

- |                  |  |
|------------------|--|
| 9:30 – 10:00 AM  | Registration and Continental Breakfast   |
| 10:00 – 10:10 AM | Welcome<br>School Awards and Recognition   |
| 10:10 – 10:30 AM | Engaging in Bold, Collaborative Goals to Improve IAQ<br>Merrick Hoben - Community Leadership Training  |
| 10:30 – 11:00 AM | Understanding IAQ in Schools and its Impact on Student<br>and Teacher Health<br>Beverly Stewart – American Lung Association of OR  |
| 11:00 – 12:00 PM | Developing a Dynamic Program/Virtual Walk-thru<br>Rich Prill – Washington State University   |
| 12:00 – 12:30 PM | Box Lunch Served   |
| 12:30 – 1:30 PM  | Creating Lasting Leadership through Community Involvement<br>Merrick Hoben – Community Leadership Training   |
| 1:30 – 2:00 PM   | Benefits of Effective Cleaning and Maintenance<br>Chip Halverson – Portland Public Schools   |
| 2:00 – 2:15 PM   | Networking Break   |
| 2:15 – 3:00 PM   | Panel: A Case Study Focusing on Reducing IAQ Risk<br>Michael Screen – Risk Manager – Springfield SD<br>Don Haldey – Workman's Comp. – SAFE<br>Tim Capley – OSHA<br>Moderator – Merrick Hoben |
| 3:00 – 3:30      | Closing Remarks & Call to Action   |

