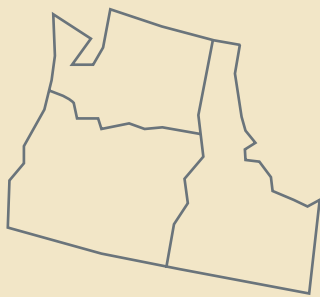




Consider using cleaning products that don't pollute the air or leave a residue behind. We should clean for health, not appearance.

Pat Nicholson
Central Kitsap
School District



An electronic newsletter exclusively for Northwest schools

Understanding Human Comfort... More than Just Temperature and Humidity

Unfortunately, many of us do not truly understand the complexities of comfort, including many school operations and maintenance professionals. It is common for facilities staff to respond to comfort problems by checking the thermostat setting, or – if they are high-tech – they might use a temperature and relative humidity meter.

Most of us understand the impact on comfort from air temperature and relative humidity (Table 1 illustrates this relationship). But, as it turns out, these factors are only two parts of the human comfort equation. Other important comfort factors are clothing, air velocity, activity level, individual metabolism rates, and the temperatures of surrounding surfaces.

Table 1. Impact of Relative Humidity on Sensed Temperature
Source: "Human Comfort: Opportunities to Expand the Impact of Your Infrared Diagnostics," Tom Wilson, Residential Energy Services, Thermal Solutions

Relative Humidity	Air Temperature						
	70°F	75°F	80°F	85°F	90°F	95°F	100°F
0%	64°	69°	73°	78°	83	87°	91°
10%	65°	70°	75°	80°	85°	90°	95°
20%	66°	72°	77°	82°	87°	93°	99°
30%	67°	73°	78°	84°	90°	96°	104°
40%	68°	74°	79°	86°	93°	101°	110°
50%	69°	75°	81°	88°	96°	107°	120°
60%	70°	76°	82°	90°	100°	114°	132°
70%	70°	77°	85°	93°	106°	124°	144°
80%	71°	78°	86°	97°	113°	136°	
90%	71°	79°	88°	102°	122°		
100%	72°	80°	91°	108°			

See **Comfort** on page 4



Table of Contents

Understanding Human Comfort..... 1

Comfort and Student Performance..... 2

Mr. FANG Goes to Washington2

HVAC Basics for Teachers..... 3

Custodian Pat Nicholson Wins First C.L.E.A.N. Award6

Cleaning Schools for Health, Not for Appearance7

Carpet Cleaning Best Practices8

More on Particles 11

Region 9 EPA Schools Address Cleaning Products and Asthma 12

Comfort and Student Performance

Studies of student performance were conducted in the 1960s by David Wyon and colleagues. Some of these studies were performed in climate chambers, and others in actual classrooms. They found reading speed, reading comprehension, and multiplication performance of school children to be poorer with temperatures of 81-86°F, compared to a temperature of 68°F. In one study, the decrements in reading speed and reading comprehension at 81°F (compared to 68°F) were as large as 30 percent.

More recent studies of student performance were performed in a climate-controlled chamber at Kansas State University. Each group of students performed simulated school work with chamber temperatures ranging from 62°F to 92°F. Two performance indicators – error rates and time required to complete assignments – were affected by temperature. The error rate was highest at 62°F and lowest (about 20 percent lower) at 80°F. However, students worked most slowly at 80°F, and fastest (about 10 percent faster) at 68°F.

For more information on this and other impacts of indoor environments on human performance, visit the Lawrence Berkeley National Laboratory’s “Indoor Air Quality Scientific Findings Resource Bank” at <http://www.iaqscience.lbl.gov/overview.html>. 📄

Mr. FANG Goes to Washington

Pat Nicholson, Central Kitsap School District, was a huge hit with attendees at the annual Tools for Schools Symposium in Washington D.C., January 2010. Pat spoke to the national audience of over 500



about his creative approach to school cleaning. Pat has decorated his carpet extractor “FANG” to attract and involve the students on the importance of clean schools.

Pat is not only diligent and a role model, but it is obvious that he is also incredibly creative and knows how to make an impact. While he did not take FANG to Washington (a bit large for carry-on), he had a cardboard cut-out of FANG on stage, and his PowerPoint presentation included many colorful

posters and art work that Pat uses in his school.

Pat has also been recognized by the National Education Association (NEA) for his efforts (see two related articles by NEA in this issue of *IAQ News*). 📄

© 2010 Washington State University Extension Energy Program.

This publication contains material written and produced for public distribution. You may reprint this written material, provided you do not use it to endorse a commercial product. Please reference by title and credit the Washington State University Extension Energy Program.

HVAC Basics for Teachers

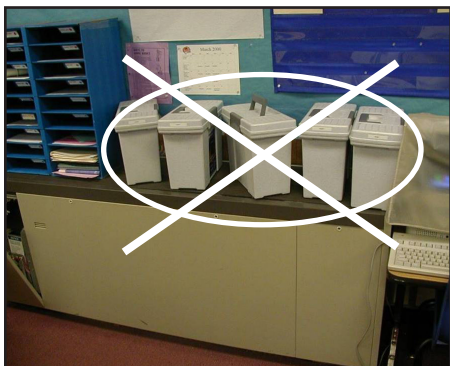
Dave DeLong and Tim Hardin with the Tacoma/Pierce County Health Department created this excellent guide for teachers so they can understand and help operate their ventilation equipment properly.

Schools are ventilated with mechanical systems. This process requires pushing air through the space by means of fans. It is an effective way to provide ample air to the occupants and a comfortable environment that is also healthy. Under-ventilated spaces present an increased risk of disease transmission. These spaces may also accumulate allergens, irritants and dust, which may exacerbate asthma and allergies.

Air moving through these systems can be divided into three categories:

- Outside or fresh air;
- Return air (brought into the system from the occupied space);
- Supply air (the mix of outside and return air that is delivered to the space).

The state requires that 15 cubic feet per minute (cfm) of fresh air



These file cases are blocking off the ventilation system – contributing to bad air flow.

be delivered to the classroom for each occupant. In a classroom of 25 this would mean that 375 cfm of fresh air be brought into the space every minute. We produce

carbon dioxide (CO₂) as a byproduct of metabolism. We can assess the ventilation rate by measuring the levels of CO₂ in the space. In general, we want class spaces to remain below 1,100 parts per million (PPM) of CO₂.

While the systems that provide this air vary, they all rely on similar means to provide this dilution ventilation. There are several common system types:

- Univents are large machines located under the windows in classrooms. These self-contained units bring fresh air from the outside into the machine, where it is mixed with recycled air from the room and delivered as supply air;
- Constant air volume systems are zonal systems that handle large areas of the building. These units provide constant air movement and ventilation;
- Variable air volume systems are zonal systems, which cycle off and on as temperature needs vary. This can result in uneven ventilation and pollutant build up. The good news is that most of these systems can be adjusted to run continuously during the time the space is occupied;
- Heat pumps are systems that provide heating or cooling but rely on

terminal fans to provide dilution ventilation;

- Hydronic loops and steam heat are similar to heat pumps, which provide heating but rely on fans placed in the system to move air into and out of the space;
- Hybrids: As most schools are not new, they have a mix of systems that vary both by age and effectiveness.

HVAC controls vary, as do the systems they control. Most new systems will rely on direct digital controls (DDC). This control method operates from a centrally located computer that allows the operator to modify system parameters from a terminal. This means of control is fairly easy to modify. If you have issues discuss them with your maintenance staff.

Thermostats may be located in the space. These units allow temporary adjustments in the default settings and both temperature and fan speed can be modified. It is important to remember that if the fan is not “on” there is no air moving in the system and no dilution ventilation is being provided. Your fan setting should always be in the “on” position during the times you are in the classroom and students are present. This is especially true in portables. We have documented CO₂ levels in classrooms with the

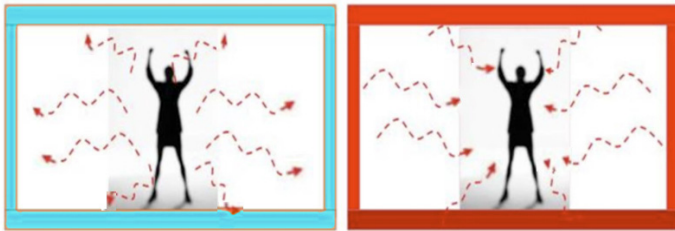
*See **HVAC** on page 10*

Comfort

Continued from page 1

With the growing popularity of thermal imaging equipment, more and more schools are beginning to gain a further understanding of comfort dynamics in their buildings. By using thermal imaging equipment, facilities staff can quickly and accurately assess the temperatures of surrounding surfaces and estimate the “Mean Radiant Temperature” (MRT). The MRT is critical to human comfort because our bodies radiate our heat out toward cold surrounding surfaces and receive heat from hot surrounding surfaces (see Figure 1).

Figure 1.
Heat Radiation Toward and From Surrounding Surfaces



Let’s take a simple example of a room with various surface temperatures ranging from 70°F down to 45°F.

Surface Temperatures (°F):

- Ceiling.....70°
- Floor.....65°
- Wall #1.....65°
- Wall #2.....68°
- Wall #3.....45°
- Wall #4.....55°
- TOTAL..... 368

Now divide this total by the 6 surfaces = 61.3 °F (MRT). Most of us would not be comfortable in a space with a temperature of 61.3°F.

In order to create an environment with an “effective comfort temperature” of 70°F, for every one degree

Fahrenheit that the average surface temperature is below 70°, we will need to raise the air temperature 1.4°F to compensate for the radiant cooling of those cooler surfaces. Similarly, for every degree above 70°F in MRT, we could reduce the air temperature by 1.4°F to arrive at the effective comfort temperature of 70°F.

Using the chart in Figure 2, our example room would need an air temperature of around 80°F to provide an equivalent comfort range of 70°F.

The following thermal and visible light images (see Figures 3-6) illustrate how the infrared equipment can help identify not only comfort issues, but energy-related problems simultaneously. Thermal imaging is an essential tool for quality assurance during and after construction to make sure buildings perform.

In addition to preventing and solving comfort problems, thermal imaging can identify energy waste and moisture problems in buildings. For more information on thermography, you may wish to start by visiting The Snell Group website <http://www.thesnellgroup.com/>. Other infrared (IR) training providers and equipment manufacturers/suppliers have excellent information as well.

We find that schools and other organizations purchase IR equipment for a specific task or two, but then use the tool for many more purposes than they had originally thought possible. A common statement is “How did we get by without this? It has paid for itself over and over again in time and money.”

Formal training and certifications are not required to use thermal imaging instruments. However, it is highly recommended that users understand the limitations of this technology through a combination of hands-on experience and classroom training.

Continues on next page

Figure 2.
MRT and Air Temperatures for a Comfort Level of 70°F

Equivalent MRT and Air Temperature for a feeling of 70 F												
MRT	50	55	60	65	68	69	70	71	72	70	75	80
Air Temp	98	91	84	77	72.8	71.4	70	70	68.6	67.2	63	56

Figure 3.

This room has thermal bridging and air leakage on the exterior wall. Note the 25°F temperature differential between the coolest surface area (blue) and the warmest spot (yellow/red).

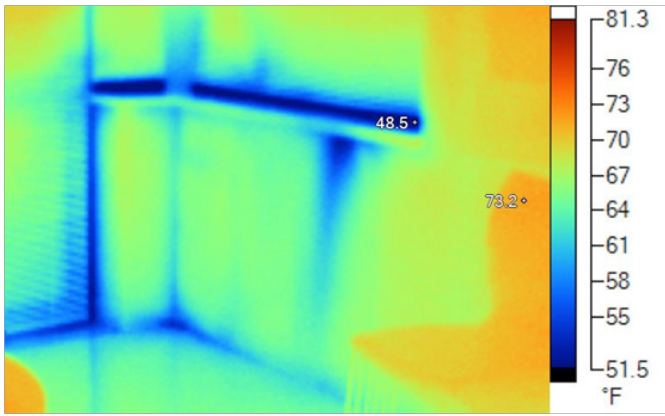


Figure 4.

Images from interior wall in a school. Note the 9°F temperature differential. Cool surfaces near top of wall suggest major air leakage, creating heat loss and cold surfaces. Cold surroundings = cold occupants.

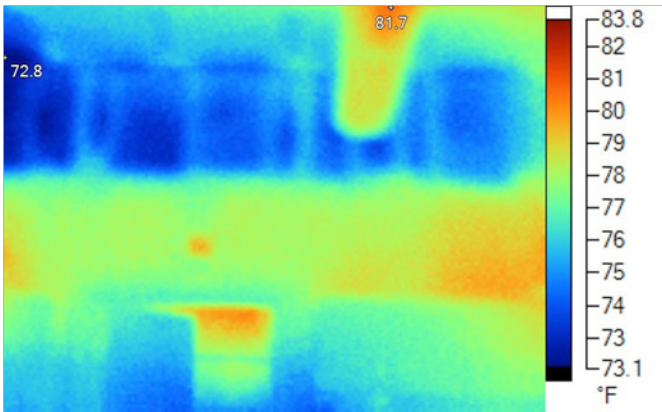
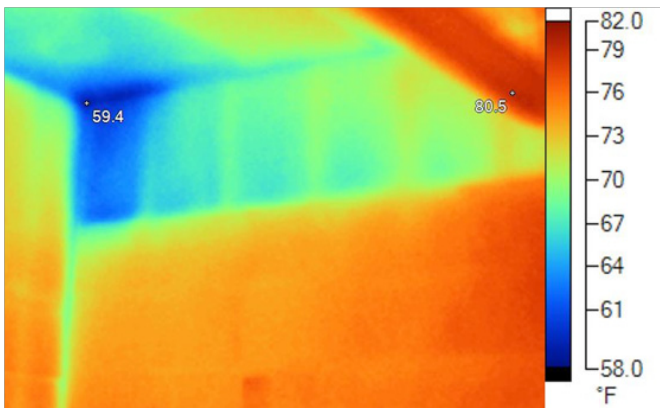


Figure 5.

Interior wall with obvious thermal problems.



Custodian Pat Nicholson of Washington State Wins First C.L.E.A.N. Award

Just after Pat Nicholson from the state of Washington and Brownsville Elementary School was named the first recipient of the National C.L.E.A.N. Award, he witnessed a change of behavior at school he didn't expect.

"Because of the award, we now consider Brownsville to be the cleanest school in America," says Nicholson, who received the award at the recent NEA Education Support Professional National Conference



Pat Nicholson
Central Kitsap School District

in Orlando, Florida. "The students are showing a lot more pride in the school, picking up after themselves better, and showing more interest in indoor environmental quality." Not that they weren't already. Nicholson is known at school and around the state for promoting the use of non-toxic, "green" cleaning products,

maintaining high air quality control standards, and educating staff and students about the evils of sofas and bean bags, which he says are "asthma trigger reservoirs" that harbor dust mites, molds, pet dander, and other pathogens.

"Custodians are the first line of defense of public health in our schools," he says. "They should consider using cleaning products that don't pollute

the air or leave a residue behind. We should clean for health, not appearance."

The C.L.E.A.N. (Custodial Leaders for Environmental Advocacy Nationwide) Award recognizes the contributions that custodians make to public health in their schools, communities, and their profession. Applicants must provide information on their cleaning responsibilities, how they are leaders in school cleanliness, and how they enhance the image of custodians. Applications are evaluated on originality, creativity, ability to sustain results, evidence of teamwork, and program impact.

In addition to \$5,000 cash, the prize includes boxes and boxes of cleaning products and supplies for the school, which Nicholson says got everyone excited and resulted in the declaration of Brownsville being the cleanest school in America.

"The fire in my gut is burning hotter now," says Nicholson, who remains as alert as ever to new cleaning methods and products on the market that promote a healthier, "greener" school environment.

Nicholson wrote much of the custodial training material for the local school district. His "cleaning for health" practices contributed to lower absentee rates at Brownsville, located in Bremerton, than at neighboring schools, especially during flu season. Nicholson is also the author of a recent article on carpet cleaning that he wrote for the WSU Winter 2009 *Indoor Air Quality News*, an online education magazine. (Read this article at http://www.energy.wsu.edu/documents/building/iaq/nl/09_wtr_iaq_nl.pdf.)

Above most everything else, Nicholson is also known as the owner of FANG, a custom-painted floor scrubber that looks like a gentle tiger with prominent white fangs and bright orange stripes. After WEA members learned of Nicholson's award, they created T-shirts with a picture of Fang and Nicholson.

Excerpted from the *National Education Association* website <http://www.nea.org/home/31610.htm>.

See **CLEAN Award** on page 9

The Perfect Mantra

Cleaning Schools for Health, Not for Appearance

Custodians learn to adapt in a world of budget cuts, green cleaning, and those ubiquitous germs. By John Rosales, National Education Association

After 24 years as a school custodian, Pat Nicholson believes he's finally identified the perfect mantra for his job: "clean for health, not appearance."

In practice, this means that Nicholson now spends more time vacuuming carpets instead of buffing tile floors and wiping human touch points, such as door handles, instead of trying to attain a perfect mirror shine on every classroom window.

"Schools are different places today than they were 20 years ago," says Nicholson, who works at Brownsville Elementary School in Bremerton, Washington. "Floors have gone from mostly tile to mostly carpet, student asthma rates have doubled, and custodial budgets have almost universally been cut."

The current school environment demands adjustment from the way custodians do business, says Nicholson, a member of the Central Kitsap ESPs, and an ESP Member at Large Board Director with the Washington Education Association.

They should use non-toxic cleaning products, "instead of the more harmful chemicals that many custodians are still using," and switch from regular cloth cleaning rags to microfiber cloths, which can increase the amount of dirt and germs gathered.

"Custodians are the first line of defense of public health in our schools," he says. "The way we clean can largely determine the level of health for students."

According to NEA research, about 85 percent of school custodians work in campus buildings. Others work in district office buildings and other locations. Custodians make up about 16 percent of the total U.S. K-12 school support workforce.

Research shows they are a vital link between clean school buildings, healthy students, and productive staff. A healthy school environment can result in lower absentee rates among students and staff, Nicholson says.

"Lower absentee rates and increased indoor environmental quality also increases student achievement and raises test scores," he says. "Custodians are an integral part of not only a healthy school, but also the academic success of students."

Cleaning for health instead of appearance is most critical to the nearly one in 13 children of school-age who have asthma, the leading cause of school absentee-

ism due to chronic illness. Sofas, bean bags, and rugs are what Nicholson calls "asthma trigger reservoirs," which harbor dust mites, pet dander, molds, and other pathogens.

"Most likely, there are one or more students with asthma in a classroom," he says. "Get rid of the sofa."

Pollutant sources also can be found in some classroom supplies, including those for art and science, vocational arts, and home economic classes.



*Who says cleaning has to be dull? Custodian Pat Nicholson and his tricked out floor scrubber battle germs in school.
Photo: Rick Ballesteros*

The Future of Carpet Care: Here's What Pat Recommends:

Carpet Cleaning Best Practices

Vacuuming – The better you vacuum a carpet, the more deeply you can extract a carpet.

Pre-treat – For best results pre-treat carpets with a nonphosphate carpet-approved cleaner such as Procyon or Extraction Pro. Be sure to spray the entire carpet evenly with a fine mist, 1 quart of solution per 1000 sq. feet (or 1 gallon for about 4 classrooms) is enough.

Why bonnet? – It is a proven fact that pre-treating a carpet and using a good carpet extractor eliminates the need to loosen embedded dirt by carpet bonnetting. Bonnetting takes a lot of time and effort – time and effort

that can be used to extract more dirt out of the carpet.



Extraction – In most cases, extract with clear water only. The newer extractors agitate carpet fibers better and have a higher rate of water extraction than the older machines, leaving the carpet cleaner and dryer. For deep cleaning, extraction must be slow and measured. Also, it is best to overlap the carpet you have just cleaned by at least 6 inches on each pass.



Spotting – Summer carpet spotting can be done as you are using the wand to extract corners and other areas of carpet that you cannot reach with an extractor. Good extraction will eliminate the need for heavy spotting. Don't waste a lot of time on ink and other stains that won't come out. Though unsightly, ink stains do not harm indoor environmental quality as much as a dirty carpet. You will do more to improve indoor air quality by spending more time extracting carpets and less time working on an ink stain that you will never completely get rid of anyway.

Drying – Even in the summer, drying carpets can be a real challenge. And even using extractors with a high water recovery rate, carpets will not dry quickly and completely without some help. High volume drying fans with open windows and doors is one

method. If you can smell wet carpet the day after you have cleaned it, you have not properly dried the carpet. A good rule is the two hour rule, give freshly-extracted carpets at least two hours (preferably more) of carpet fan time. This means rotating fans to freshly cleaned carpets every two hours. This also means that you should stop extracting carpets two hours before the end of shift. Follow these rules and you will have much less of a wet carpet smell in your school the next morning.

Equipment Cleanup and Maintenance – After you have finished cleaning carpet for the day, you must clean all carpet equipment. Extractors simply do not work well when jets are plugged, when water is left in the solution tank, and when waste tanks, hoses, wands and vacuum shoes are not cleaned. There is nothing more frustrating than trying to start extracting the first thing on a summer morning and having to stop and clean jets or a dirty and badly maintained carpet extractor. If equipment is cleaned properly after it is used, you will

See **Carpet** on page 9

CLEAN Award

Continued from page 6

FANG is only one example of Nicholson's innovative spirit. When he is unable to find the right tool or product for a certain job, he develops his own cleaning procedures, then shares the information at workshops, through print publications, and online.

"It's not enough to design new ways of cleaning for health," he says. "You must also share this information with other custodians."

Since receiving the C.L.E.A.N. award, Nicholson says he's "found it easier to speak about the challenges that custodians are facing in schools. I especially enjoy correcting misconceptions that some have regarding custodial work and custodians."



When challenging the status quo, Nicholson is encouraged by members of the Central Kitsap ESP, and from the Washington Education Association (WEA). He serves on the board of both organizations. Association President Mary Lindquist is such an admirer of Nicholson that she arranged to be at the conference in Florida in support.

"I was truly overwhelmed by the support from all ESPs and NEA, and especially the enthusiastic Washington state delegation," he says. "The ceremony in Orlando blew me away and showed that school custodians are deserving of special recognition

and honor for the role that they play as vital partners at schools."

For more information about NEA ESPs working in custodial and maintenance services, visit <http://www.nea.org/home/18978.htm>. 🚗

Carpet

Continued from page 8

never have that problem. One good thing about finishing extracting carpets two hours before the end of shift is that you have plenty of time to clean equipment. Be sure to use a de-foamer in the waste tank.

Other Carpet Tips, From The Future!

Drain the Tank! As part of equipment cleanup, always drain the solution tank. It is better to start extracting with a fresh tank of water than water that has been sitting in the tank stagnating for who knows how long. Better yet,

go with a tank-less extractor that pulls fresh water from a tap and drains to a sink.

Carpets like it HOT! Fill your solution tank with hot water, a natural degreaser. You will pull out more oily dirt with hot water and the carpet dries quicker too.

Go Slow, Clean Low! For deep cleaning with a self-propelled extractor, always operate in the "Turtle" speed range.

Carpet cleaning is nice, even better if done twice! If you can

avoid the need to bonnet, the time saved can be used to extract heavily soiled classroom carpets twice. You will often find nearly as much dirt extracted on the second pass as you did on the first.

The future of carpet care is all about keeping the dirt level in carpets low. The proven best practice is frequent and thorough vacuuming, and regular, deep carpet extraction.

Contact Pat Nicholson at patn@cksd.wednet.edu. 🚗

HVAC

Continued from page 3

fan “off” at 3,400 PPM. These rooms feel stuffy, smell stale and do not provide the healthy spaces students need to excel.

Filtration is accomplished as the air moves through the air-handling unit. Filters are now rated in minimum efficiency reporting value (MERV), and the 30 percent efficient filters are equivalent to a MERV 8 rating. These filters provide good filtration of particulates and these should be the preferred form of filtration for the school environment. Stand-alone filters work to provide filtration for a very limited area and are not encouraged.

Teachers may ensure a healthy learning environment by:

- Reporting HVAC system problems;
- Not modifying the system controls;



- Not blocking or obstructing grills or vents from the HVAC system;
- Maintaining an animal- and clutter-free class space, and;
- Instituting “custodially friendly” classroom practices.

Under-ventilated school areas contribute to lower performance and increased risk of disease transmission. These areas may also contribute to an increase in asthma and allergy symptoms. Under-ventilation may be the most likely cause of complaints in

See **HVAC** on page 11

Schools

Continued from page 7

“Art and science and other projects can cause spills,” says Nicholson. “These projects should be located in a single area to minimize the mess.”

He also suggests laying down a tarp, especially on carpet and when working with paint. Thick tarps are also handy for those (primarily) elementary school classrooms that act as cafeterias during lunch period.

“With the current low level of custodial staffing in most schools, it is impossible to schedule the kind of cleaning program needed when students are eating in the classroom,” Nicholson says, adding that a good way to battle bacteria and budget cuts is “creating awareness about what each of us can do to keep schools healthy.” 🚗

Comfort

Continued from page 5

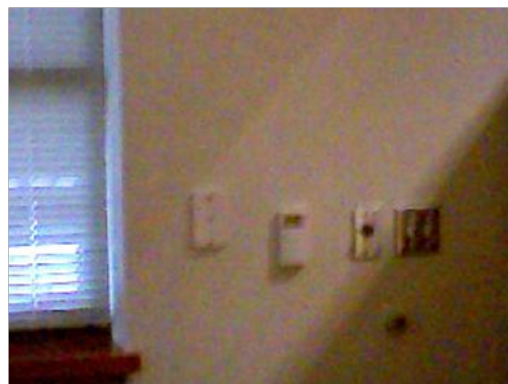
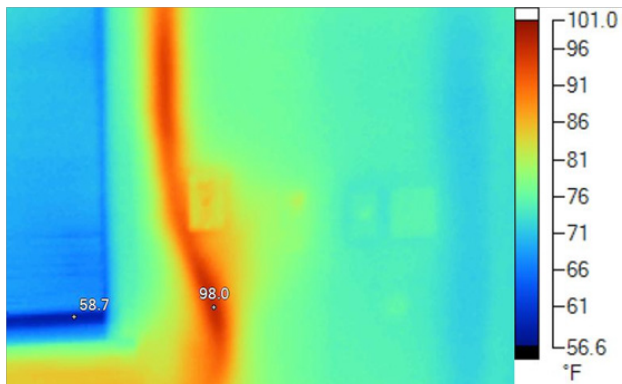
In February 2010 the WSU Extension Energy Program

sponsored Level 1 thermography workshops conducted by nationally recognized experts with The Snell Group (see “Infrared is Hot,” *IAQ News*, Fall 2009). To be noti-

fied of upcoming IR workshops, contact Rich Prill at 509-477-6701 or prillr@energy.wsu.edu/. 🚗

Figure 6.

These images clearly identify problems. Note the 98°F heat source inside the wall – a possible safety hazard. And, since the thermostat is located on the same wall, it is no wonder this room was always cold.



More on Particles

No amount of carpet cleaning or custodial efforts can totally eliminate particulate exposure in schools. Awareness on all levels is important.

By Dave DeLong and Tim Hardin, Tacoma/Pierce County Health Department

Many of the products we use contribute to the particulate load in schools. Dust settles on tabletops, computers and shelves. For most of us, it has always been considered an issue of aesthetics, but now we realize it is more. Dust contains many components, which may be allergenic or even toxic. It may include inorganic materials such as:

- Tire fragments
- Soot
- Fiberglass
- Clothing fibers
- Paper dust
- Pesticide residue
- Heavy metals (lead and arsenic)

Dust may also contain organic materials such as:

- Animal dander

- Skin scales
- Pollen
- Mold spores
- Feather barbules
- Dust mites and their fecal pellets
- Bacteria and viruses

While it may be difficult to determine what health effects are associated with a given dust sample, it is possible to control and minimize dust and the health problems it can cause. Control dust by:

- Using walk-off mats or wiping feet at doorways
- Damp mopping tiled or hard surface floors
- Keeping rooms clutter free (“custodially friendly”)
- Wet wiping horizontal

surfaces such as desks and countertops

- Storing materials in easy-to-clean plastic containers
- Not keeping animals in the classroom
- Removing plush furniture
- Not placing rugs over carpet

Keeping schools clean and free of dust will contribute to the overall health and performance of students and their teachers.

For more information, contact Dave DeLong, 253-798-6499, ddelong@tpchd.org, or Tim Hardin, 253-798-6466, thardin@tpchd.org, or visit the Tacoma/Pierce County Health Department’s School Safety website at <http://www.tpchd.org/page.php?id=82>. 📧



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 *IAQ News*, click here: www.energy.wsu.edu/pubs/default.cfm#iaq_schools
- 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 *IAQ News*, 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.

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

HVAC

Continued from page 10

a school setting.

For additional information, contact Dave DeLong, 253-798-6499, ddelong@tpchd.org, or Tim Hardin, 253-798-6466, thardin@tpchd.org, both of the Tacoma/Pierce County Health Department.

Also check out the publications listed at the WSU Extension Energy Program's IAQ website, including "Why Measure Carbon Dioxide in Buildings", at <http://www.energy.wsu.edu/projects/building/iaq.cfm>



Region 9 EPA Schools Address Cleaning Products and Asthma

California's "Cleaning for Asthma-Safe Schools" (CLASS) program is a joint partnership between the Work-Related Asthma Prevention Program in the California Department of Public Health (CDPH) and the Green Schools Initiative. CLASS helps California schools adopt safer cleaning methods to protect worker and student health.

CLASS works with school districts in California to pilot green cleaning products and methods. Districts were chosen via a competitive application process. They were selected for their high asthma rates, diversity of students, regional spread, variety of district size, and capacity to benefit from and put into practice the CLASS training program. CLASS is working with the following school sites: Alameda Unified School District; California Conservation Corps John Muir Charter School (CCC) selected three of their sites: Placer, San Luis Obispo, Camarillo; Long Beach Unified School District; and Manteca Unified School District.

Participants are learning about methods for purchasing safer cleaning products, and receive help to reduce exposures to harmful chemicals among cleaning staff, school personnel, and students. They selected schools and a team of custodians to participate in testing and evaluating safer cleaning products. For participating in the program, they will

receive various forms of recognition for the district's successes, as well as a small stipend to support healthier cleaning practices in schools. CLASS also offers limited technical assistance to implement asthma-safe cleaning to schools statewide, including informational webinars.

Rationale for Project

Statewide data show that work-related asthma associated with cleaning products is an important problem among school staff, including custodians and teachers. More than 1 million children in California suffer from asthma, and exposure to chemicals in cleaning products can cause or trigger asthma.

Resources

"How to pilot a green cleaning program in your school district," a webinar conducted by CLASS. It can be accessed from this website: http://www.californiabreathing.org/index.php?option=com_content&task=view&id=42&Itemid=56

"Cleaning for Asthma Safe Schools" http://www.californiabreathing.org/images/stories/publications/cash_newsletter_class.pdf

"Tracking Work-Related Asthma," Work-Related Asthma Prevention Program <http://www.cdph.ca.gov/programs/ohsep/Pages/Asthma.aspx>


Strategic Plan for Asthma in California 2008-2012: <http://www.californiabreathing.org/images/stories/publications/asthmastrategicplan.5-5-08.pdf>

Greenseal: http://www.greenseal.org/certification/g37_iicleaners.cfm

"Environmentally Preferable Purchasing (EPP): Cleaning," U.S. Environmental Protection Agency: <http://www.epa.gov/epp/pubs/products/cleaning.htm>

INFORM Fact Sheets on Toxic Chemicals and Human Health: http://www.informinc.org/summaries_chem.php

"New research links school air quality to school cleaning supplies," Environmental Working Group report: <http://www.ewg.org/schoolcleaningsupplies/fullreport>

Green Schools Initiative is a non-profit organization that works to improve the environmental health and sustainability of K-12 schools across California. <http://www.greenschools.net/> 

Excerpted from the California Breathing website (a program of the California Department of Public Health): http://www.californiabreathing.org/index.php?option=com_content&task=view&id=42&Itemid=56