



IAQ Tools for Schools

**SPECIAL SYMPOSIUM
SUPPLEMENT**

A PUBLICATION
OF THE OFFICE
OF RADIATION AND
INDOOR AIR

B U L L E T I N

A Note from the Director

I'm delighted to welcome you to another special supplement of the *Indoor Air Quality Tools for Schools (IAQ TFS)* Bulletin and share the excitement surrounding our 2nd Annual *IAQ TFS* National Symposium. It was a great success and we look forward to seeing you at this year's Symposium.

Mary T. Smith
Director, Indoor Environments Division



2nd Annual Indoor Air Quality Tools for Schools National Symposium

An enthusiastic group of more than 370 people attended the 2nd Annual *IAQ TFS* Symposium held August 9 – 11, 2001, in Washington, DC. Attendance far exceeded our registration goal. Participants included school administrators and officials, financing officers, facility managers, teachers, parents, nurses, and others, who traveled from all parts of North America as well as Europe and Asia.

Through attending sessions and networking with peers and industry experts, those at the symposium discussed a variety of issues related to IAQ in schools and the effects of poor IAQ on the health and performance of our children. Experts presented strategies for identifying IAQ problems, responding to related health complaints, building an IAQ team, advocating good IAQ, managing asthma and asthma triggers, and coping with

mold in the school environment. Presenters also provided valuable guidelines for successfully implementing EPA's *IAQ TFS* Kit and Program. For the first time, we held a finance training session specifically geared toward school chief financial officers and business officials to discuss innovative ways of financing IAQ upgrades—a common hurdle for schools. Other new topics in 2001 included school construction and the effects of IAQ on student performance.

We were especially proud to host an awards reception on the first night of the Symposium to honor 19 schools and school districts with Excellence and Special Achievement Awards for improving the indoor environment in their schools and their commitment to advocating a healthy learning environment in schools nationwide.

INSIDE THIS ISSUE

2 Symposium Sessions
4 Awards Ceremony Highlights

5 Special Recognition Honorees
6 Excellence Awards Recipients

9 Hot Topics in IAQ
10 Award Winner Interview

Session Breakout Sessions

Symposium Highlights

The following paragraphs summarize the Symposium breakout sessions.

Financing IAQ TFS

Each day you wait to improve IAQ in your school is “money out the window.” Delayed action often results in higher costs for remediation as well as increased health risks for students and staff. Presenter Julio Rovi of The Cadmus Group, Inc., led a discussion on financing options for funding building repairs. Financing options discussed included the availability of grants and bonds to pay for education and low-cost repairs and savings associated with installing energy-efficient technologies. Case study speaker Tom Chojnacki, of the Milwaukee Public Schools, shared his firsthand experiences with financing IAQ improvements using returns from energy-efficiency retrofits and utility rebates.

“Each day you wait to improve IAQ is money out the window.”

—Tom Chojnacki, MPS

Funding Mechanisms for School Financing Officers

The role of chief financial officers, business officials, and others working directly with financing in schools is critical to the success of an IAQ program, particularly when facility renovations are necessary. This session, led by Bob Barton of the Catalyst Financial Group, outlined numerous financing options including several federal and state programs. Distinguishing between “soft” (e.g., education and improved daily maintenance practices) solutions and “hard” (e.g., new equipment and financing) solutions is an important step in financial planning. These programs—which provide free services to schools such as asthma education for staff, tips on better management of school health, and grants or bonds for building repairs—often go untapped by schools. Case study speaker Erbert Johnson Jr. of the Cleveland Municipal School District offered participants expert advice based on his experience working with regional organizations such as the American Lung Association and EPA regional offices to secure grants and other support for implementing energy-efficiency projects and the IAQ TFS Program in Cleveland schools.



Erbert Johnson Jr., Chief Financial Officer of the Cleveland Municipal School District, gave a presentation on funding mechanisms for school finance officers.

Asthma and IAQ

Exposure to high concentrations of irritants commonly found in school buildings—such as animal dander, cockroach feces, dust mites, mold, and chemicals—can trigger asthma. Presenters Dr. Lani Wheeler of the Anne Arundel (MD) County Department of Health and Sarah Merkle of the Centers for Disease Control/Division of Adolescent and School Health discussed the importance of environmental asthma management in a comprehensive, school-based asthma program. Actions discussed included proactive maintenance practices—such as keeping temperature and humidity at appropriate levels—to control mold growth and dust mite reproduction, thereby reducing the health risks for students and staff.

Asthma Management in Your School

A panel of asthma experts discussed asthma resources and programs available to schools that want to educate staff on the relationship between IAQ and asthma, emergency response techniques during asthma attacks, and how to track health complaints and concerns. EPA's Tracey Mitchell and a panel of experts discussed specific strategies for combining IAQ TFS with asthma education programs to comprehensively address asthma in schools. In addition, this session provided guidance on effectively delivering asthma management programs in schools by taking advantage of, and fostering partnerships with, local or regional community organizations that offer such assistance.

Advocating Good IAQ: Marketing for Success

Gaining the support of decision makers is a key challenge for school staff when taking action to improve IAQ. Presenters Jeanette Donald and Greg White of the American Lung Association offered valuable tips on how to apply basic marketing techniques to present IAQ TFS to key stakeholders in the school and community. Examples included using local media to post public service announcements (PSAs) and promoting the importance of good IAQ to improve student performance at staff and community meetings. Strategic use of local and regional media can help schools effectively convey the importance of indoor air quality and gain recognition for their successes with IAQ TFS.

Building an IAQ Team and Communicating Your Success

Presenters Michele Hodak and Jennie Young of the National Education Association - Health Information Network discussed successful strategies for building an IAQ team. Key to a team's function is the IAQ Coordinator, who acts as both the visionary leader and organizational manager. Case study speakers Barry Hemler of the Montgomery County (MD) Public Schools and Phil Apruzesse of the Connecticut Education Association highlighted the importance of encouraging participation and cooperation of school staff with the IAQ



team to raise awareness of IAQ issues. Additionally, it is vital to foster good communication with stakeholders (e.g., parents, media) and school administrators in order to gain their support.

Mold: A Manageable School Issue

Molds are not only unsightly, they can impact your health. Case study speaker Beth Roueche of the Greenville County School District, in South Carolina, described her experiences with the *IAQ TJS* Program and her work with teachers and students to detect the spread of the toxic mold, *Stachybotrys chartarum*, in areas of an elementary school and a high school. Mold contamination caused symptoms that included nose bleeds, chest pains, and headaches—all of which were experienced by children and

Molds are not only unsightly, they can impact your health.

others in these schools. Amid extensive attention from local media and stories posted in *USA Weekend*, the elementary school was closed for building renovations. Repairs for the high school included a new roof and the replacement of ceiling and floor tiles. Since the repairs, students and staff have experienced fewer respiratory-related health problems. Presenter Dr. John Martyny of the National Jewish Medical and Research Center emphasized that schools must respond to water intrusion within the first 24 – 48 hours of detection to prevent mold growth. Necessary measures include controlling moisture and

humidity levels and fixing water leaks in order to prevent the spread of mold to other areas of the school building. Laura Kolb of EPA recommended the EPA publication, *Mold Remediation in Schools and Commercial Buildings*, as a valuable resource for managing mold.

Pest Patrol: The Ins and Outs of an Effective Integrated Pest Management Program

Did you know that the presence of insects can be a health hazard? So can many chemicals used to get rid of them. Schools can significantly decrease risks to students, faculty, and staff from pests and pesticides by implementing an integrated pest management (IPM) program. Dr. Marc Lame of Indiana University outlined the standards for implementing an effective IPM Program. The IPM approach can be successful and cost effective because it can be incorporated into existing custodial and maintenance activities, such as sanitation, energy conservation, building security, and infrastructure maintenance. A successful IPM strategy includes proactive management and an educational program to teach staff and teachers how to monitor their working environment. Copies of the presentations are available at www.epa.gov/iaq/schools/symposium_materials.html. In addition, Lee Setter, of Minneapolis Public Schools, presented that district's approach to IPM. Through IPM measures, costing no more than traditional pest control methods, the district has drastically reduced pesticide use.

EPA Honors Achievements in

On the first night of the Symposium, EPA hosted the 2nd Annual *IAQ TFS* Awards Ceremony. Ramona Trovato, Director of EPA's Office of Children's Health Protection, presented the awards.

Schools and districts submitted award applications in which they described their IAQ program and attached promotional materials, announcements, and news articles published by local or national media recognizing their efforts to improve indoor air quality. Two categories of awards—Special Achievement and Excellence—were presented to those that had commendable indoor air quality programs. In all, EPA honored 19 schools and school teams for their accomplishments and their commitment to advocating healthy indoor environments in schools nationwide. Below are descriptions of each award winner and their experiences with the *IAQ TFS* Program.

2001 Special Achievement Awards

Founded in 1999 by the Connecticut Department of Public Health and the Connecticut Council for Occupational Safety and Health, the **Connecticut School Indoor Environment Resource Team** is a statewide network of IAQ specialists, trainers, and health experts. To date, they have helped 43 schools in 18 districts implement the *IAQ TFS* Program.

Little Harbour School, Portsmouth, New Hampshire, adopted the *IAQ TFS* Program after years of complaints about chronic bronchitis and sinusitis, as well as new diagnoses of asthma. The school used a team approach to overcome skepticism that an IAQ program was workable or even necessary. Its IAQ committee included members from across the school community and outside experts. By identifying ventilation problems and setting short- and long-term goals, the school steadily improved IAQ and won people's confidence.

Chicopee Public Schools, Chicopee, Massachusetts, received the *IAQ TFS* materials in 1996 and was the first district in the nation to provide all of its buildings with an *IAQ TFS* Kit. The IAQ team represents a cross-section of school personnel, including trade union representatives, a teacher, a nurse, and a parent. Solutions included establishing written procedures for the use of pesticides and chemicals and better communication between teachers and custodial and maintenance personnel.

West Virginia Department of Education, Charleston, West Virginia, staff members completed IAQ facility reviews, identified problems, provided technical assistance to schools, and made recommendations for resolving problems. They also conducted outreach and education to the public, school personnel, and county officials in cooperation with the West Virginia Department of Health. The *IAQ TFS* Program will also assist school

personnel as they repair and rebuild flood-damaged schools.

The IAQ team at **Hillsborough County Public Schools District** in Tampa, Florida, credits its *IAQ TFS*-based program with saving thousands of dollars and creating a greater understanding of IAQ issues among staff. Since the IAQ program began in 1998, the district reports having spent only \$400 of public funds on IAQ consultants, compared to an estimated \$250,000 before 1997.

Although **Educational Service District 101** in Spokane, Washington, had distributed the *IAQ TFS* Kits for several years, not many schools had established IAQ management plans. So the district opened its doors to experts from the Washington State University Cooperative Extension Energy Office, which assists with implementation of *IAQ TFS* through an EPA grant. The experts conducted walk-throughs in more than 50 of the district's 242 schools, discovering small IAQ problems as well as more serious concerns that were then corrected.



Addressing IAQ Problems

IAQ TFS Special Recognition Honorees

EPA recognized the following individuals for their strong advocacy of the *IAQ TFS* Program.

Tom Vasek of the Bensalem Township (PA) School District—winner of a 2000 *IAQ TFS* Excellence Award—travels to many other schools to talk about the benefits of *IAQ TFS*. He often takes Bensalem's award with him to show that the benefits of good IAQ can go beyond healthier schools.

Dr. Barbara Sattler, PH, RN, of the University of Maryland School of Nursing in Baltimore has been involved with *IAQ TFS* since the Program's beginning and is an ardent supporter of nurses' roles in the cause of good IAQ. Because school nurses are trusted sources of information about health and health risks, she believes they can be influential in gaining school board or administrative buy-in for IAQ programs in a school or across a school district. School nurses can also play an important role by monitoring and tracking IAQ-related health effects.

After her school, Saugus Union School District in Santa Clarita, California, won an *IAQ TFS* Excellence Award in 2000, **Adina Neale** was recruited by several organizations and health departments in the western United States to talk about her school's compelling story and her experience as an IAQ Coordinator, as well as to

promote the *IAQ TFS* Kit. Ms. Neale was a keynote presenter at this year's Symposium. (See below for more details.)

Florida's high humidity and mold growth go hand-in-hand. As Program Director of Facilities and IAQ Coordinator for the Okaloosa County School System in Fort Walton Beach, Florida, **Dr. Bill Smith** implemented a successful district-wide IAQ program to solve this dilemma. The district's efforts earned it an *IAQ TFS* Excellence Award in 2000. Since then, Dr. Smith has spoken about his IAQ program and experiences at numerous conferences.

With 800,000 students, the **Los Angeles Unified School District** in 2001 became the largest district in the United States to commit to implementing *IAQ TFS*. One of the greatest achievements for the IAQ program was a resolution passed by the Board of Education in January 2001 that declared "every child has a right to a safe and healthy learning environment, and the maintenance of this environment is essential to learning and a goal of the LAUSD." With the support of the board for the *IAQ TFS* Program as the way to ensure a safe environment, district administrators were better equipped to detect problems and obtain funding for necessary building repairs.

Fast Facts

During the 1999 – 2000 school year, 46,857,321 students were enrolled in the nation's 16,793 school districts.¹

Maintenance costs account for 10 percent of all school expenditures.²

¹ *Digest of Education Statistics: 2000*. US Department of Education. National Center for Education Statistics.

² *Indoor Environmental Quality in California's Schools: Critical Needs*. Berkeley, CA: Environmental Health Laboratory Branch, CA Department of Health Services, 1998.

Keynote Address

Adina Neale, Saugus Union School District—Case Study

The story of Saugus Union School District in Santa Clarita, California—told during a breakout session of the 2000 Symposium—is so compelling that we asked Saugus IAQ Coordinator Adina Neale to give a keynote address at the 2001 Symposium. Saugus's IAQ experience began in February 1999 when the principal of Rio Vista Elementary School received a doctor's note about a student who had been experiencing upper respiratory problems, allergies, and headaches. The doctor reported that, due to poor indoor air in the school, the child had formaldehyde poisoning and had tested positive for benzene, arsenic, phenols, and the toxic mold *Stachybotrys chartarum*. Taking the matter very seriously, the assistant superintendent contacted EPA immediately to learn about IAQ and form a plan to assess the situation. However, in a miscalculation that was to have long-term consequences, the district did not publicly confront the issue as it worked on the IAQ problem in March and April. Rumors spread and allegations of a cover-up appeared in the local press even as Rio Vista was tested for toxins and independent tests revealed no evidence of exposure to mold and the other substances that had triggered alarm. In May, the district finally acted to reassure the community when it held a public meeting to report on the findings and the repair work that had been done to resolve minor IAQ problems. The damage was done, though. Despite the presence of seven local television stations, CNN, three newspapers, and various local radio stations, it took 15 months before negative press coverage subsided. Eventually, by continuing to be open and proactive, Saugus was able to win the support and confidence of the community and an Excellence Award from EPA for its efforts to effectively address and prevent IAQ problems. It was a hard lesson in public relations. The moral of the story: quickly notify parents and teachers of the issue at hand and work proactively with the media to keep open lines of communication and gain public trust.

2001 Excellence Awards

North Country Union High School, **Newport, VT** (EPA Region 1)

Nashua School District 42, **Nashua, NH** (EPA Region 1)

West Windsor-Plainsboro Regional School District, **Princeton Junction, NJ** (EPA Region 2)

Montgomery County Public Schools, **Rockville, MD** (EPA Region 3)

Savannah-Chatham County Public Schools, **Savannah, GA** (EPA Region 4)

Naperville Community Unit School District 203, **Naperville, IL** (EPA Region 5)

St. Cloud Area School District #742, **St. Cloud, MN** (EPA Region 5)

Fort Bend Independent School District, **Sugar Land, TX** (EPA Region 6)

Scott Middle School, **Lincoln, NE** (EPA Region 7)

St. Mary's Central High School, **Bismarck, ND** (EPA Region 8)

Jefferson County R-1 School District, **Golden, CO** (EPA Region 8)

Visalia Unified School District, **Visalia, CA** (EPA Region 9)

Everett School District #2, **Everett, WA** (EPA Region 10)

2001 Special Achievement Awards

Connecticut School Indoor Environment Resource Team, **Hartford, CT**

Little Harbour School, **Portsmouth, NH**

Chicopee Public Schools, **Chicopee, MA**

West Virginia Department of Education, **Charleston, WV**

Hillsborough County Public Schools District, **Tampa, FL**

Educational Service District 101, **Spokane, WA**

2001 Excellence Awards

North Country Union High School, Newport, Vermont (EPA Region 1)

Complaints of headaches, nausea, and sinus infections were commonplace at North Country Union HS. Two employees even filed lawsuits against the school district. An ad hoc IAQ committee identified trouble spots—such as fumes entering the school's air intake from idling delivery trucks—and recommended a radical upgrade of the entire ventilation system to ensure sufficient fresh air in every room. School board members successfully campaigned for a bond issue and approved a budget to finance the renovation.

Nashua School District 42, Nashua, New Hampshire (EPA Region 1)

Musty, stale air—the result of poor ventilation—prompted the district to become one of the first in New Hampshire to use the *IAQ TFS* Kit. Nashua instituted annual inspections of all facilities, set new standards for building maintenance, and provided better equipment and chemical-use training for janitors. Nashua continues to adapt the *IAQ TFS* Kit to the needs of individual schools and mentors other school districts by hosting IAQ training sessions and conferences.

West Windsor-Plainsboro Regional School District, Princeton Junction, New Jersey (EPA Region 2)

The school district implemented the *IAQ TFS* Program in all 10 of its schools since adopting the program in 1997. Emphasizing teamwork (including district officials and teachers) and communication, the district ensured that IAQ became an issue for everyone, not just facilities personnel. The IAQ team tackled a range of environmental concerns, including pest management. Assistant IAQ Coordinator Robert Austin now teaches audiences nationwide about *IAQ TFS*.

Montgomery County Public Schools, Rockville, Maryland (EPA Region 3)

School officials, working with county health officials, parents, employee groups, and the Montgomery County Asthma Improvement Resources Coalition, took the message of *IAQ TFS* into the school community and beyond.

The school system is also participating in an in-depth IAQ study by the HP-Woods Research Institute of Virginia to determine the effect of IAQ upgrades on student performance. An excellent example of teamwork and community cooperation, Montgomery County Public Schools has achieved much and aims to establish an IAQ program in all of its 200-plus schools by the end of FY2004.

Savannah-Chatham County Public Schools, Savannah, Georgia (EPA Region 4)

School nurses implemented the *IAQ TFS* Program as part of an asthma management plan while sharing information with parents and school staff. In addition, the schools' risk manager provided IAQ training for maintenance and custodial staff. These efforts, along with use of the Kit's checklists, helped principals in the district understand their schools' heating, ventilation, and air conditioning systems and helped teachers diagnose IAQ problems. Along with the county health department, the school system now cooperates with community groups and government agencies to promote improved IAQ in homes.

Naperville Community Unit School District 203, Naperville, Illinois (EPA Region 5)

Flu-like symptoms among students and employees were attributed to sick-building syndrome. Although independent testing did not reveal elevated levels of indoor pollutants, the district implemented the *IAQ TFS* Program to resolve and prevent IAQ problems. Using the Kit as a starting point, the district added a teacher survey, developed a flow chart to organize complaint procedures, and regularly reported to the school board.

St. Cloud Area School District #742, St. Cloud, Minnesota (EPA Region 5)

As diagnoses of asthma and allergies increased and absenteeism climbed in the school district, officials suspected a link between these trends and teachers' complaints about stuffy classrooms. The district turned to the *IAQ TFS* Kit for help. Volunteers put together an IAQ management plan and building engineers conducted walk-throughs of every building, during which it became clear that some

schools were infested with mold. Thousands of dollars went into school repairs. The Kit has since been implemented in all 18 schools, and the district has adopted an Integrated Pest Management program.

Fort Bend Independent School District, Sugar Land, Texas (EPA Region 6)

The district worked hard to overcome problems with communication and to gain buy-in across the school community for the *IAQ TFS* Program. Each school sent an IAQ fact sheet (in English and Spanish) to parents, made IAQ information pamphlets available, and enabled teachers to complete IAQ checklists online. Two district coordinators now manage *IAQ TFS* efforts in each school. Today, Fort Bend has become a mentor to other districts and provides advice on how to communicate IAQ issues.

Scott Middle School, Lincoln, Nebraska (EPA Region 7)

Twice a year, teachers at the school use checklists to identify IAQ problems. Their thoroughness led to many improvements. High levels of formaldehyde were eradicated by bringing in more fresh air. School personnel also detected outside air pollutants wafting into the building from a trash fire at a nearby construction site—a problem that was fixed. Before implementing *IAQ TFS*, several children were diagnosed with respiratory symptoms of poor IAQ. The school's health office has reported no further problems since introducing the program.

St. Mary's Central High School, Bismarck, North Dakota (EPA Region 8)

In October 2000, St. Mary's used the *IAQ TFS* Kit to identify IAQ concerns and set priorities. Volunteers discovered that the ventilation system was inadequate and that the foundation surrounding a basement-level music room had settled and cracked, letting water seep through. The school also carried out repairs and upgrades to the kitchen and dining areas based on evidence collected through the *IAQ TFS* checklists. St. Mary's made significant progress in a

short time and is sharing its experiences with other schools.

Jefferson County R-1 School District, Golden, Colorado (EPA Region 8)

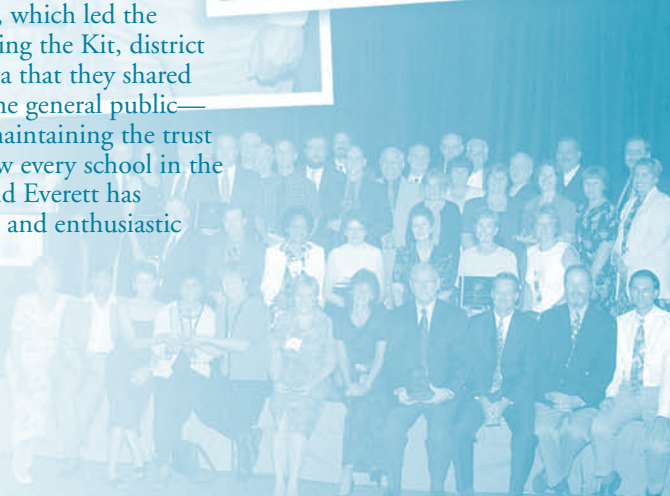
The district developed a pilot program that began with training sessions for facility and maintenance personnel and energy managers. Staff then assessed the condition of the ventilation system and identified IAQ problems. The next step was to prioritize repairs and renovations. The Jefferson County program emphasizes the role maintenance personnel can play in improving IAQ. Plans are underway to apply the program throughout the district.

Visalia Unified School District, Visalia, California (EPA Region 9)

The agricultural community of the San Joaquin Valley has one of the highest rates of childhood asthma in the United States. Given the growing awareness of the impact poor IAQ can have on health, district officials turned to the *IAQ TFS* Program and established a management team and site coordinators in all 32 schools. The teams are cataloging concerns such as the many classrooms that have inadequate ventilation. Visalia is taking significant steps to improve the health of its community.

Everett School District #2, Everett, Washington (EPA Region 10)

A middle school was closed when district officials suspected an IAQ problem was causing student health problems, including watery eyes and nausea, in a particular classroom. Everett formed an Indoor Environment Program, which led the district to *IAQ TFS*. Using the Kit, district personnel collected data that they shared with school staff and the general public—an important step in maintaining the trust of the community. Now every school in the district uses the Kit, and Everett has emerged as an effective and enthusiastic supporter of *IAQ TFS*.



Symposium Makes Headlines



On the Saturday of the Symposium, August 11, 2001, CNN ran—at 6, 8, and 10 p.m.—a two and a half minute report about *IAQ TFS* and the Symposium. Barry Hemler of the Excellence Award-winning **Montgomery County Public Schools** and school nurse Becky Hudlow of **Eden Prairie School District** in Minnesota appeared in the report.

The Awards for the New England schools were the impetus for a back-to-school story on www.weather.com (Weather Channel) highlighting the health effects of poor IAQ.

On September 4, 2001, the *Vermont News Guide* (circulation 16,000) ran an article about **North Country Union High School** implementing the *IAQ TFS* Program because of bus fumes entering the school's air intake. The story struck a chord outside the state because it was picked up by 23 newspapers in the Chicago area as well as CNN.com.

Articles about **Naperville Community Unit School District 203** appeared in both the *Chicago Daily Herald* (circulation 137,254) and the *Chicago Tribune* (circulation 654,000) on August 22 and 31, 2001, respectively.

Conus Communications distributed a report (nearly 2 minutes in length) about poor IAQ in schools on one of its daily news feeds to television stations that subscribe to its service. About one-half of US households watch these stations.

Fort Bend Public School District was spotlighted in an article in the *Houston Chronicle* (circulation 551,000) on September 17, 2001, for its Excellence Award.

The *Lincoln Journal Star* (circulation 74,841) ran an article on **Scott Middle School** on September 16, 2001, in recognition of its Excellence Award. The school's award ceremony was also broadcast on the local access Channel 21, during which Robert Dye of EPA Region 7

re-presented the award to Principal Annie Scott, who helped start an IAQ committee at the school in 1997.

A story about **Nashua School District** aired on WMUR-TV, Channel 9, during the 5:30 p.m. news on August 13, 2001. Jeannette Kotopoulos, the district's Assistant Director of Plant Operations, was interviewed about the *IAQ TFS* Program.

Jefferson County R-1 School District's Excellence Award-winning accomplishments were featured in a *Metro North News* (circulation 20,000) story.

Articles on **Little Harbour School** appeared in the *Portsmouth Herald* (circulation 15,000) and *Foster's Daily Democrat* (circulation 26,000) about its IAQ concerns relating to the ventilation system. Before resolving the problem, the IAQ team discovered that one-quarter of the school's classrooms had no air circulation.

The *St. Cloud Times* (circulation 28,210) ran an editorial highlighting **St. Cloud Area School District**

#742's IAQ efforts and the importance of healthy schools.

Visalia Unified School District fought its mold problems openly and effectively with the help of the *IAQ TFS* Program. In recognition of this achievement, the *Visalia Times Delta* reported on the district's success.

An article about **West Windsor-Plainsboro Regional School District** and its accomplishments appeared in the *Princeton Packet* (circulation 14,000) on August 24, 2001. Although none of the schools in West Windsor-Plainsboro has had problems with IAQ, District Director of Buildings and Grounds, Robert Austin, said he saw the EPA's creation of the *IAQ TFS* Program five years ago as an opportunity to implement preventive measures.

The Symposium and the accomplishments of the Excellence and Special Achievement Award winners attracted plenty of attention from the news media around the country, including local newspapers, television, and radio coverage. Sometimes the benefits of good IAQ go beyond healthy schools and healthy children!

Hot Topics...

Law and Order

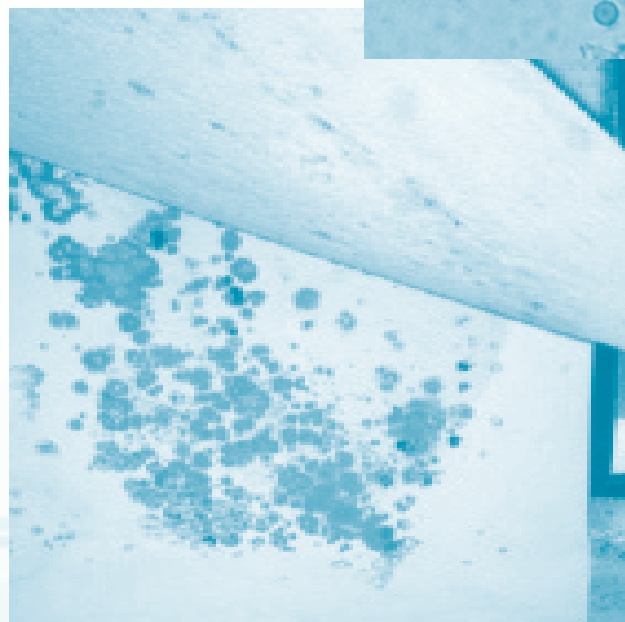
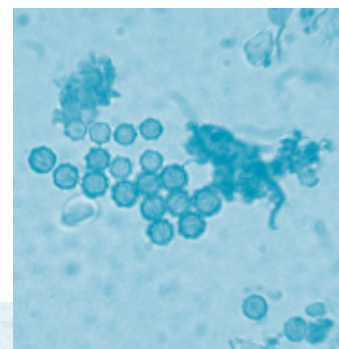
In “Healthier Schools: A Review of State Policies for Improving Indoor Air Quality” (January 2002), the Environmental Law Institute summarizes recent state regulations for IAQ in schools. California, Florida, Maine, Minnesota, New Jersey, New York, and West Virginia all have passed legislation regarding school maintenance practices. Maine, for example, requires schools to “establish maintenance plans based on [a] state created model.” And New York and Minnesota specifically mention IAQ in their laws to ensure health and safety. New Jersey and California approach the issue from the standpoint of labor regulations relating to maintenance requirements for mechanical systems, although New Jersey lawmakers also specify rules for mold eradication. For a copy of the report, go to www.eli.org/pdf/rr02healthierschools.pdf.

A Material World

IAQ should be factored in when constructing new facilities because the choice and installation of materials can affect IAQ not only when the school is new, but also over the life of the school. The selection of everything that goes into a building—including all structural and finish materials, furniture, and equipment—must carefully balance three criteria: product performance, economics, and health impacts. The goal of the design team should be to choose materials that not only benefit IAQ, but are also practical in terms of their cost and long-term performance. If the number and variety make selecting materials seem overwhelming, the design team can narrow the focus to those with the greatest potential for impacting IAQ: paints and coatings, adhesives, concrete sealers, sealants, wall and ceiling materials, pressed wood products, and furnishings. To minimize potential problems, allow time for off-gassing and/or install materials that emit high amounts of indoor air pollutants early in the construction phase so that the emission rates have decreased to an acceptable level before the school is occupied. For links to resources, check the National Clearinghouse for Education Facilities – Indoor Air Quality at www.edfacilities.org/rl/iaq.cfm. Also, check EPA’s Web site for guidance on IAQ in renovations and new construction, scheduled for later this year.

Got Mold?

The key to mold control is moisture control. It is important to dry water-damaged areas and items within 24 – 48 hours to prevent mold growth. If mold is a problem in your school, clean up the mold and get rid of the excess water or moisture. Fix leaky plumbing or other sources of water. Wash mold off hard surfaces with detergent and water, and dry completely. Absorbent materials (such as ceiling tiles and carpet) that become moldy may have to be replaced. For more information call the IAQ Clearinghouse at 800-438-4318 or visit our Web site at www.epa.gov/iaq/pubs/moldresources.html.



Photos by: Daniel J. Friedman



How One School Handled IAQ

Playing a central role in coordinating Montgomery County (MD) Public Schools' Excellence Award winning IAQ efforts was Barry Hemler, head of the district's IAQ/Preventive Maintenance Team. During an interview appearing on CNN (see page 8), Mr. Hemler spoke briefly about an IAQ-related health risk at Kensington Parkwood Elementary School where several classroom ventilation units had to be replaced due to poor performance. Later, in an interview with us, Mr. Hemler shared in greater detail MCPS's actions in implementing a countywide IAQ program.

Question: How did MCPS become involved in the IAQ Tfs Program?

Answer: We had two major incidents come up at Belmont and Kensington Parkwood Elementary Schools, but we did not have a coordinated response for environmental issues. At Belmont, there were ventilation deficiencies in the gymnasium and a potentially hazardous odor coming from the newly installed flooring. At Kensington Parkwood, there were issues of mold growth and the ventilation system bringing sufficient outside air into the school. After these occurrences, one of the associate superintendents put together a process action team to evaluate how MCPS was dealing with the current IAQ issues, make recommendations on how to address environmental concerns, and improve the process. This is about the time *Indoor Air Quality Tools for Schools* came out. He later came to us and said, "Hey, EPA has this great program and we should look into implementing it."

Now that you have begun implementing the IAQ Tfs Program in schools, how do you feel that MCPS is better equipped to address these types of incidents?

Answer: We have an oversight committee, chaired by the county health officer, to keep an eye on the program, identify emerging trends, and to be a forum for anything that may come up to improve IAQ. We feel that we can handle incidents much better and at a higher level of success now that we have a proactive program.

How did you select the schools where the IAQ Program would be implemented first?

Answer: Schools that were identified for the program were schools that we were working with to address IAQ issues as well as schools with high percentages of asthma. The Montgomery County Department of Health and Human Services used zip codes to identify regions of the county with high levels of asthma. MCPS targeted schools within these zip codes to ensure that their facilities were meeting our standard level of care that we would like to see all of our schools meet.

How are you funding the IAQ Program?

Answer: The IAQ/Preventive Maintenance Team has an operating budget of \$800,000 and a capital budget of \$1.2 million for 190 schools. First, it enabled us to hire specialists

that make up the team. It has also given us the resources to make the necessary improvements to school facilities. Plus, we are able to hire outside specialists and consultants to make recommendations for procedures and equipment that may go beyond the scope of our specialists. For example, if we found that an exhaust system was not balanced or thought we could get better ventilation flow if we improved the exhaust system, I may hire an engineer to evaluate the school's intake system and give us recommendations for capital improvements.

From your experience, what do you believe was the biggest challenge in implementing an IAQ program countywide?

Answer: The biggest challenge we found was getting schools to break away from old habits and adopt the new culture of the county. We found that schools with sub-par maintenance operations were the most reluctant to change.

How do you address this issue?

Answer: One week prior to intervention, the IAQ/Preventive Maintenance Team conducts a pre-assessment review to identify potential IAQ problems based on data collected from interviews, checklists, and maintenance records. Additionally, the team performs a two-hour walk-through with the building service manager and staff to evaluate the HVAC system and overall indoor air quality. Most importantly, the team drafts a building maintenance plan for the school based on the information presented in the pre-assessment findings. During the week of intervention, the IAQ/PM Team implements the building maintenance plan by familiarizing the staff with routine and non-routine maintenance tasks including repairs, inspections of HVAC equipment, determining cleaning schedules, and conducting training for all building service staff. To ensure that all IAQ-related issues outlined in the building maintenance plan are addressed, the IAQ/PM Team conducts follow-up interviews and walk-throughs.



Barry Hemler, Montgomery County (MD) Public Schools.

Did you receive community support? If so, how?

Answer: Many parents and community members participated in the initial discussions to form an IAQ program. The community was concerned that the county was not going to follow through on addressing the IAQ concerns, but once we had a program developed, it set the skeptical community members' minds at ease. When those community members who have been involved with every step of the program saw improvement, it gave them further assurance that MCPS was on the right track.

“Hey, EPA has this great program and we should look into implementing it.”

—Barry Hemler, MCPS

How did earning an IAQ TFS Excellence Award help promote your efforts to county officials?

Answer: The award helped us on many different fronts. It is one thing to work on IAQ and show graphs and numbers, but it is another thing to receive outside recognition from a federal agency, such as EPA, that says, “Yes, we are doing the right thing and moving in the right direction.” It is looked highly upon in a county council or another government-type setting. For those of us who have been fighting so long, it was good to have something that we could see and hold onto that demonstrated that, “We made it!” We have gone past the hurdle of solving the crisis issue and now we are at a point of refining a quality program.

EPA and Associations: Partnering for Success

EPA would like to thank the following organizations for participating on the planning committee for the 2001 Symposium: Allergy and Asthma Network Mothers of Asthmatics, American Association of School Administrators, American Lung Association, Asthma and Allergy Foundation of America, National Association of Counties, National Association of County and City Health Officials, National Association of School Nurses, National Environmental Health Association, National Education Association Health Information Network, and National Organization of Black County Officials.

Information Resources

We'd Like to Hear from You!

In future editions of the *IAQ Tools for Schools* Bulletin, we would like to share some of your experiences with indoor air quality issues, successes, and challenges. Whether you use the guidance in our Kit, or another means of improving the air quality in schools, we would like to hear from you.

Send Bulletin submissions to:
Guarneiri.Michele@epa.gov

Indoor Air Quality Tools for Schools Kit:

To order the Kit free of charge, call the EPA IAQ Hotline or download a text-only version from our Web site.

EPA Indoor Air Quality Hotline:
800-438-4318.

EPA Product Number
EPA 402-F-02-027

EPA *Indoor Air Quality Tools for Schools* Web site:
www.epa.gov/iaq/schools.

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