

**Web Conference Summary**  
**Riding the Wave of Enthusiasm after the Symposium:**  
**How to Maintain Your IAQ Momentum**

**February 9, 2005**

**PARTICIPANTS**

Linda	Allaway	Asthma and Allergy Foundation
Winston	Anderson	Charlotte County Health Department
Ray	Ashley	Pueblo of Jemez
Joanie	Austin	Orleans Central Supervisory Union
Kristen	Bertram	National Association of Counties
Sally	Billado	BFA Fairfax
Michael	Bologna	East Valley School District #361
Pam	Boyer-Pfersdorf	World Care
Steve	Brueck	DeKalb County School System
Art	Busch	Washington Education Association MidState
Clatie	Campbell	Allergy and Asthma Network Mothers of Asthmatics
Claudius	Carnegie	Miami Dade County Public Schools
John	Carr	Dayton Public Schools
Peggy	Caruso	Katy ISD
Mary	Clark	ALA of Rhode Island
Jan	Cortez	American Lung Association
Greg	Crable	U.S. EPA Region 7
Robert	Day	DC Air Quality Division
Raymond	Deibert	Siemens Building Technologies, Inc.
Nick	Denman	Eden Prairie School District
Lynn	Devine	ALA of California
Bobbie	Duncan	Texas State Teachers Association
Diane	Eckles	Arizona Dept. of Health Services
William	Faulkner	Anacortes School District
Jim	Foxx	Cypress-Fairbanks Independent School District
Steven	Gertel	Orange County Public Schools
Lishua	Gishie	Native American Community Health Center, Inc.
Jennifer	Gundrum	National Association of School Nurses
Sandra	Handon	DC Air Quality Division
Alison	Howells	New Brunswick Lung Association
Susan	Jerles	National Environmental Health Association
Keith	Keemer	DC Department of Health
Tiffany	Klebe	The Cadmus Group, Inc.
Larainne	Koehler	U.S. EPA Region 2
Robert	Krickovich	Broward County Schools
Susan	LaCombe	Los Angeles Unified School District
Jane	Laping	Mothers for Clean Air
Jack	Levine	North Haven Public Schools
Janine	Mauche DuMond	Mt. Mansfield Union High School
Nicole	McPhee	Association of School Business Officials
Maria	Miller	South Riverdale Community Health Centre
Lamar	Modert	Greendale School District
Don	Molstad	Rapid City Area School District

Jeff	Moquin	School Board of Broward County
Lisa	Morgan	Chatham County Environmental Health
Sandy	Neville	Building Connections
John	Nwoke	DC Department of Health
Pat	O'Donnell	Milwaukee Public Schools
Sarah	Olbrich	American Lung Association
Todd	Page	Louisiana Office of Public Health
Joseph	Ponessa	Rutgers University -- Eastern Reg. RN Training Center
Evangeline	Reaves	DeKalb County Board of Health
Lisa	Reaves	Katy ISD
Shelly	Rosenblum	U.S. EPA Region 9
Mathew T.	Sam	Detroit Public Schools
Emily	Smathers	NC DENR
Mazie	Smith	Wake Co. Public School System
Gregg	Smith	Salt Lake City School District
Doug	Snyder	Falkanger Snyder Martineau & Yates Architects & Engineers, Inc.
Karen	Stolz	ALA of Oklahoma
James	Sundell	Oregon Education Association
Raymond	Tate	BBJ Environmental Solutions, Inc.
Michelle	Walker	American Lung Association of North Dakota
Tracy	Washington Enger	U.S. EPA, Indoor Environments Division
Dan	Wellington	City of Bangor, Maine

## AGENDA

- Welcome and Introductions – Tracy Washington Enger, U.S. EPA
- Presentations
  - Jim Foxx, Director of Operations and IAQ Coordinator, Cypress-Fairbanks Independent School District, Houston, Texas
  - Jack Levine, Director of Business and Operations and IAQ Coordinator, North Haven Public Schools, North Haven, Connecticut
  - Jeff Moquin, Director of the Risk Management Department, School Board of Broward County, Fort Lauderdale, Florida
- General Question and Answer Period – All presenters
- Closing Remarks – Tracy Washington Enger, U.S. EPA

## WELCOME AND INTRODUCTIONS

Tracy Enger welcomed participants to the call and expressed EPA's excitement for the level of interest shown by participants in the topic of the Web conference. This Web conference was held to discuss methods for maintaining the enthusiasm generated at the annual *Indoor Air Quality Tools for Schools (IAQ TfS)* Symposium. The Symposium was first held in 2000, as a large training event for partners who work with EPA to implement *IAQ TfS*. Since then, it has evolved into a networking and educational event that has garnered interest from EPA's partner organizations as well as from different independent stakeholders in the school community. Attendance has risen dramatically over the years, from 200 participants at the first Symposium to more than 500 (plus an extensive waiting list) at the 5<sup>th</sup> Annual Symposium.

EPA's goals for the Symposium are to introduce participants to IAQ management programs for schools (particularly *IAQ TFS*). EPA intends for information presented at the Symposium to translate into implementation of high quality IAQ management programs that result in improved indoor air quality and contribute to increased productivity and better health. Participants often leave the Symposium with great energy and enthusiasm, a great amount of knowledge, and a new network of contacts. However, they are challenged with using the information they learned to create an efficient and well-organized IAQ management program and plan.

This Web conference provided an opportunity for three past Symposium participants to share their success stories for taking action after the Symposium. The three presentations will highlight some differences and several similarities among the approaches to implementing *IAQ TFS*. However, each district has established successful techniques for taking action and implementing the program following the Symposium.

### **Jim Foxx**

For 15 years, Jim Foxx has been the Director of Operations for Cypress-Fairbanks Independent School District (Cy-Fair) in Houston, Texas. He is also the district's IAQ Coordinator, a position to which he was appointed in 2000, and is responsible for the district's aquatic safety program. Mr. Foxx is responsible for 9.5 million square feet of space in the district's facilities, and he oversees the work of the district's 575 custodians. He and fellow IAQ team members have been part of the *IAQ TFS* Mentor Network since its inception in 2002.

Cy-Fair currently has about 79,800 students in seven high schools, 12 middle schools, and 40 elementary schools. Five additional schools are under construction, and several more are in the planning process.

Before 2000, Cy-Fair had an IAQ response team comprised of the Director of Operations, Director of Maintenance, and Energy Manager. Their responsibility was to respond to IAQ concerns throughout the district. In 2000, the district saw the need to establish a comprehensive and proactive IAQ management program. Mr. Foxx was designated as the district's IAQ Coordinator, and he worked closely with the Harris County Public Health Environmental Services Department and EPA Region 6 to implement *IAQ TFS*.

Mr. Foxx used the resources and guidance in the *IAQ TFS* Kit to develop the Cy-Fair IAQ program. In February 2001, Jim Foxx presented to the superintendent and administrative staff the Cy-Fair IAQ program, which closely followed the outline of the *IAQ TFS* Kit and Program. With buy-in from the top administrative level, Cy-Fair was able to implement the program district-wide and not incrementally as with many districts.

For the district's IAQ program, Cy-Fair organized a team with representatives from across the district, including building principals, campus administrators, and school nurses. This diverse team has been one key to the success of the program.

In addition, an extensive training program has also contributed to Cy-Fair's successful program. Mr. Foxx has provided training on IAQ and the *IAQ TFS* Program for the district's custodians. All district maintenance personnel have also been trained to administer the IAQ program. District architects and engineers are familiar with the IAQ program and often discuss IAQ issues with maintenance staff.

Mr. Foxx attended the 3<sup>rd</sup> Annual *IAQ TFS* Symposium in 2002. He found that the Symposium provided validation and support for the policies and practices that he had incorporated as part of

the district's IAQ plan. He expressed his appreciation for EPA's support of the district's process for implementing the *IAQ TFS* program.

At the Symposium in 2002, Mr. Foxx participated in the first Mentor Network launch meeting. He has a strong network of supporters and colleagues in Houston, and he emphasized that networking has been instrumental in the district's success. He noted that networking is where mentoring begins, and he encouraged participants to network with surrounding school districts and organizations.

Immediately following the 2002 Symposium, Mr. Foxx and other members of the Cy-Fair IAQ team began conducting in-service presentations. They conducted presentations for school principals and secretaries as well as for elementary and secondary school nurses. Through these presentations, the IAQ team has communicated enthusiasm and potential for the program, which has been a factor in the district's successful *IAQ TFS* program. Getting buy-in and support from all groups has been another key factor in the team's success.

Cy-Fair received EPA's *IAQ TFS* Leadership Award in 2003 and the Excellence Award in 2004. Mr. Foxx attended the 2004 Symposium to accept the Excellence Award. This Symposium provided greater insight and a more comprehensive look at requirements for maintaining an IAQ program. It further validated Cy-Fair's successful IAQ program.

Since the Symposium, Cy-Fair has received substantial publicity for its award. Mike Miller of EPA Region 6 presented at the Cy-Fair board meeting in January 2005 and highlighted the district's successes. Greg Lookabaugh from the Education Service Center Region IV also attended the board meeting. Following the board meeting, they visited four other school districts and encouraged them to put in place IAQ programs using *IAQ TFS*.

In closing, Mr. Foxx acknowledged the difficulty in beginning and maintaining an IAQ program, especially motivating and encouraging team members. However, he encouraged participants to access EPA's resources, including the annual Symposium and the Mentor Network. Mr. Foxx and other members of the Cy-Fair IAQ team are available and eager to provide assistance to other districts.

### **Jack Levine**

Jack Levine is the Director of Business and Operations and the IAQ Coordinator for North Haven Public Schools in North Haven, Connecticut. He has been at the district for 11 years. When he is not involved in regular business responsibilities, including budget and transportation, he is involved heavily in the maintenance of the district's buildings and grounds. The district maintains six buildings (one high school, one middle school, and four elementary schools) that encompass about 560,000 square feet. The district is in the process of building a new high school to replace the current facility, which was built in the 1950s.

The district has 23 maintenance and custodial staff, with three tradesmen and one HVAC technician. In its six school buildings, the district currently has 3,800 students, 300 instructional staff, and 170 support staff. The district's 2004-2005 budget is \$36 million. Though North Haven is a smaller district than either Cy-Fair or Broward County, all three districts have experienced similar problems and have had great success.

North Haven Public Schools started its IAQ management program in 2002, using *IAQ TFS* as the framework. The district began the program because of mold problems in two schools. Exposure to mold led to excessive teacher sick days. At the same time, the local newspaper published articles about other schools with similar problems and reported teacher and parent complaints. At this

point, North Haven realized the importance of being proactive. Since they had been introduced to the *IAQ TFS* Program previously, the district used it as the framework for its IAQ management program.

North Haven Public Schools now has a district IAQ committee and school-based IAQ committees. The nurse at each school was invited to participate on the school-based IAQ committees, and many of them now lead the teams at their schools. All members of North Haven's IAQ team have always taken their roles and responsibilities seriously. For instance, the district's charge nurse developed a video about the district's IAQ policies and procedures for addressing IAQ concerns.

At first, several custodians were concerned that their work was being criticized. However, Mr. Levine communicated to the custodians that the district's IAQ program formalized a plan to maintain the facilities to ensure good indoor environmental quality. The custodians have since become involved with and supportive of the program. Maintenance staff also participate in the program and have become proactive.

One key to the district's success is the team's proactive approach to addressing IAQ concerns. Frequent and ongoing communications with all school stakeholders have also contributed to the district's successful program.

In addition, the district has implemented a protocol and procedures for responding to complaints and remedying problems. This protocol has promoted better communication among the school occupants and demonstrates that complaints are taken seriously. When the IAQ team receives a complaint, team members visit the site, work with the staff to identify the source of the problem, and determine a solution. To document complaints, the team completes an inspection form for each site visit. This process creates a paper trail and shows the complainant that the problem is being addressed.

Another key factor to the district's success has been top-level buy-in. Since the program began, the superintendent has been invested in the program. In the current and upcoming district budget, she has incorporated *IAQ TFS* as one of the top three goals for the district. In particular, the budget states that the district will emphasize *IAQ TFS* as the path to create safe and healthy schools.

The North Haven School District received EPA's *IAQ TFS* Excellence Award in 2004. Mr. Levine accepted the award at the 2004 *IAQ TFS* Symposium, which was the first Symposium attended by a North Haven representative. Following the Symposium, Mr. Levine and the North Haven IAQ team decided to incorporate student participation into the district's IAQ program. The idea of student participation was central to the 2004 Symposium's message. In addition, Mr. Levine found the Symposium to be a valuable networking tool. His conversations and the information he learned validated the district's IAQ management methods. Since mold has been an ongoing concern for North Haven, Mr. Levine was able to discuss methods for addressing mold problems with several other Symposium attendees.

When the North Haven IAQ team returned from the 2004 Symposium, the district hosted a reception to learn about activities at the Symposium and to discuss the future of the district's IAQ program. The entire IAQ team was recognized for its successful, award-winning program. They talked about the program on a local television program and at a Board of Education meeting. Mr. Levine has become a member of the Mentor Network, and he has presented IAQ information to a few schools and districts in Connecticut.

In closing, Mr. Levine noted that receiving the Excellence Award was gratifying and validated North Haven's efforts and improvements that they have made. However, implementing and maintaining

an IAQ management program is a continuous process. He encouraged other districts to take the first step in implementing a program. By taking proactive steps to address IAQ issues, districts can promote good community relations and solve problems.

### **Jeff Moquin**

For 12 years, Jeff Moquin has worked with Broward County Schools in Fort Lauderdale, Florida. He has been involved with addressing IAQ issues for seven years, and, for the last three years, he has been a member of the IAQ response team. In addition, Mr. Moquin has served as the district's Director of Risk Management for the past five years. As the Risk Manager, Mr. Moquin procures district property and casualty insurance policies, and he manages the district's \$100 million self-insurance program. He oversees about 5,500 general liability and workers' compensation claims annually.

Broward County is the nation's sixth largest district with 250 schools and current enrollment of about 275,000 students. The district employs 17,000 instructional staff and approximately 13,000 other full-time support staff. The district's total annual budget is \$4.14 billion, including capital expenses for capacity additions and upgrades.

Though implementing *IAQ TfS* in a large district is challenging, Broward County's IAQ team is committed to working with EPA and partners to show that staff can successfully implement *IAQ TfS* in a large district. Broward County is implementing its IAQ program incrementally. During the 2003-2004 school year, they began a pilot program in 35 schools. The plan is to implement *IAQ TfS* in 50 schools each school year until all 250 schools are participating. For their efforts to date, Broward County Schools received EPA's *IAQ TfS* Leadership Award in 2004.

Broward County's IAQ team is structured differently than in most other schools. Instead of a single point person or district IAQ coordinator, the district organized its IAQ program as a coordinated effort with district staff and a facilities task force. The task force is a board-appointed committee comprised of representatives from the community; a sub-committee is responsible for implementing *IAQ TfS* district wide. This structure arose as a means to address the district's growing credibility issues within the community.

Prior to becoming involved with *IAQ TfS*, the district was primarily reactive in addressing IAQ complaints. Before the district formed an IAQ response team, the risk management staff would investigate IAQ complaints with consultants and would provide recommendations for improving the overall IAQ in the facility of concern. About three years ago, the district realized that including staff from other disciplines with additional expertise could help to address broad IAQ issues more effectively. At that time, the district formed the IAQ response team, which is comprised of staff from the facilities and construction management department, maintenance division, and risk management. All activities and responses are overseen and managed by the district's chief of staff. With the chief of staff as the primary authority overseeing activities of the IAQ response team, the district has vital support from the top level of management.

While attending the 2004 *IAQ TfS* Symposium, Broward County recognized a need to plan in order to maintain the momentum of the district's IAQ efforts. When the team returned from the Symposium, they began developing a strategic plan to address IAQ management and implementation of *IAQ TfS*. Through attending the various Symposium sessions, the Broward team realized a need to focus on two primary areas: student participation and communications.

In the future, Broward hopes to increase student participation in the IAQ program. A student advisor to the school board now serves on the IAQ subcommittee. That student helps to make policy and procedural decisions about the IAQ management plan. Broward is also developing a

pilot IAQ curriculum. The district has an energy management system that monitors temperatures and humidity throughout the district at a central location. The district's science curriculum leadership is developing a pilot project for elementary school students to monitor environmental parameters. The students will learn how these measurements may serve as benchmarks to identify future IAQ concerns.

In an attempt to enhance communications, Broward will begin to utilize technology to communicate. The district is currently developing a comprehensive Web site to communicate information about *IAQ TFS* and related initiatives to address IAQ. The district uses written communications to inform staff when checklists are being completed in response to complaints and to update them on the progress of improvements. The district has also developed written communications for parents and staff to share information about IAQ-related projects. Specific examples include projects related to radon and the district's integrated pest management (IPM) program. The district is making an effort to update parents on testing and applications and to educate them about activities that may effect IAQ.

Broward County Schools has a dedicated television station, which is currently used to share information on curriculum issues and other administrative issues. The IAQ team is taking advantage of this resource by recording various training sessions that are then aired for staff throughout the district.

In closing, Mr. Moquin noted that the district has established many procedures related to *IAQ TFS*, and they are developing a comprehensive IAQ management plan to capture all aspects of the program.

## **QUESTION AND ANSWER SESSION**

**Bobbie Duncan, Odessa, TX: Question for Jim Foxx. They had a crisis in one of their elementary schools, and she is trying to get an IAQ management program started. She asked if he would please send a copy of Cy-Fair's IAQ program outline.**

Jim Foxx: Will send everything by e-mail or mail. Send him an e-mail at [James.Foxx@cfisd.net](mailto:James.Foxx@cfisd.net) with your contact information (e-mail and mailing addresses).

**Marvin Cunningham, Visalia Unified School District, CA: Question for Jeff Moquin. How did you implement the IAQ program in the curriculum?**

Jeff Moquin: Broward reached out to the science curriculum leadership in the district, and they are working to develop a pilot project. Through lesson plans, students will learn about general IAQ issues and how their activities can affect IAQ. Students will also gain an understanding of some basic environmental parameters and how temperature and humidity measurements can help to identify potential IAQ problems. Students will be able to use measurements taken by the district's energy management system to develop graphs and charts so they can get a better understanding of IEQ.

**Jennifer Dunkle, FL: She was impressed by the fact that 1/5 of the population in the country is in schools and that 10 percent of that number is negatively impacted in some way by asthma or airborne pollutants. Do any of the presenters have facts or figures that might cite improvements in absenteeism (of staff and/or students) that she could share with her board to bring the issue closer to home?**

Jim Foxx: This is hard to quantify. He has had discussions with the Director of Nursing and curriculum coordinators. Cy-Fair is working to gather this information so that it can be validated.

Jeff Moquin: Broward has experienced many indirect benefits from its participation in the *IAQ TFS* Program. However, they have not gathered statistics to benchmark the program and its successes. In addition, Broward contends that such facts may sometimes be misleading.

Jim Foxx: Some districts may experience challenges identifying a true IAQ problem. In 2003, Cy-Fair had what they referred to as a “coughers” year; 22 students in an elementary school experienced inexplicable and persistent coughs. The district involved the health department, state, and outside consultants, who determined that the cause was not related to IAQ. However, some community members remained skeptical of IAQ in the school. This illustration demonstrates that some doubters will likely remain even when presented with overwhelming evidence to the contrary.

Jeff Moquin: Broward distributes annual surveys to parents to assess their perceptions of safety and health in the school environment. Broward uses those survey results to assess the success of the program and makes changes to the building environment in response to certain comments received from parents. Also, as awareness has increased, Mr. Moquin, as the risk manager, has seen an increase in the number of workers’ compensation claims related to IAQ or exposure to mold and indoor contaminants. He suggested using workers’ compensation numbers to assess a school district’s program and to provide baseline information.

Tracy Enger: Solid anecdotal information provides a compelling case for IAQ improvements and management. She directed participants to school case studies on EPA’s Web site, some of which include examples of IAQ’s effects on productivity. EPA is currently attempting to gather information on quantifiable benefits to support the work that schools are doing.

**Felicia Venable, Detroit Public Schools: They are interested in learning more about Broward’s IAQ program because the districts are similar in size. In addition, Broward’s IAQ work is similar to what DPS wants to do. She is interested in conducting a follow-up call with Jeff.**

Jeff Moquin: Requested that Felicia contact him at [Jeffrey.Moquin@browardschools.com](mailto:Jeffrey.Moquin@browardschools.com) or 754-321-3200. He would be happy to talk with DPS about how Broward has implemented *IAQ TFS* in a large district.

**Unknown: Attended the Symposium as a concerned parent and returned to her school district with a lot of enthusiasm. She spoke with the elementary school principal, who, in turn, became enthusiastic about the program. She is meeting tomorrow with the head of maintenance and asked for recommendations on how to conduct this first meeting.**

Jack Levine: His initial feeling about EPA and *IAQ TFS* was that it was another bureaucratic program with red tape and that it would be a waste of time. When he learned more about the program, he realized how helpful it was and became a supporter. Mr. Levine suggested stressing that a proactive IAQ program with established protocols will help the maintenance director. An effective IAQ management plan helps to prevent crisis situations and to respond to crisis situations by establishing plans of actions.

Jim Foxx: It is good business to embrace this program and to have a program in place. In the summer of 2001, after Houston was hit by Tropical Storm Allison, Cy-Fair received a request from local television stations to explain its plan for addressing mold in schools. The district documented and described its IAQ management program, which answered all questions posed by the stations. It is important to document plans and protocols for addressing IAQ concerns, especially during an emergency or crisis situation.

Tracy Enger: One of the most important things to do in important meetings, especially with maintenance staff who will work hands on with the Program, is to listen more than talk. Inquire about the structure of the current program or concerns they have regarding IAQ. Respond to questions with specifics about the Kit, especially resources that can help with specific challenges or improvements to the existing program. Communicate that the Kit is not intended to negate current activities. It is a resource to supplement any existing IAQ efforts and to offer guidelines and proven strategies for improving IAQ management and communications. The Kit can also be useful for "institutionalizing" an IAQ Program.

Jeff Moquin: Many people, especially maintenance staff, are reluctant to begin a program because they fear the program will create additional work. To combat these attitudes, implementing staff must be educated to understand that proactive measures help to avoid negative situations.

**Shelly Rosenblum, EPA Region 9: The speakers mentioned wonderful examples about the involvement of maintenance staff and staff resources. How would the presenters counsel districts that are short on maintenance staff and nurses.**

Jack Levine: Indoor air quality issues exist regardless of school/district size or the staff resources available. In order to address problems proactively, utilize the available staff resources. The key is that you need to take the first step then to move forward by being proactive.

**Shelly Rosenblum: If you had half of your current maintenance staff, would you still be using IAQ Tfs?**

Jack Levine: Absolutely. Each school has different hurdles but must still address the existing problems. In order to be effective, think positively and use existing resources in the best way possible, always with an eye toward moving forward. Use staff, such as those from EPA, and available material resources to help.

Jeff Moquin: Though Broward is a big district, it does not have an abundance of maintenance staff to address IAQ. Since turnover of maintenance staff is high, the district is constantly seeking qualified and skilled maintenance staff. When dealing with limited resources, like most districts, the key is to develop priorities and focus resources on those priorities. Broward prioritizes improvements and is attempting to use resources creatively. One solution is to involve staff, who are receiving workers' compensation, for light duty roles, such as dusting and light housekeeping, instead of paying them to sit at home.

Jim Foxx: Everyone has limited resources to different degrees. It is just good business to be ahead of the game. All districts should be implementing good IAQ practices regardless of available resources.

Jeff Moquin: Communicate to building occupants that their daily behaviors can negatively affect the quality of the indoor environment and air quality. This raises awareness of behavior changes that can contribute to improved IAQ. This message can be communicated at little or no cost to the district.

**Shelly Rosenblum noted that EPA is launching a listserv for teachers to share information on how to involve students.** To join the "Student/Teacher IAQ Activities" Listserv, please go to: <http://groups.yahoo.com/group/StudentandTeacherIAQActivities>.

**Tracy Enger invited participants to offer suggestions for topics or issues that they would like to have addressed during the next conference call scheduled for May 2005. The following topics were suggested:**

Art Busch, WA: Science curriculum and student involvement.

Bobbie Duncan, Odessa, TX: Status report and updates on participants' success resulting from answers they received during this call.

Jenny Mosch, VT: Diesel fuel emissions in climates with below-zero temperatures for two or three consecutive weeks.

Keith Keemer, Washington, DC: Information about how *IAQ TfS* can benefit schools without mechanical ventilation.

Pollen in schools.

Chemicals used to clean schools. Teachers bringing plug-ins, air fresheners, cleaning chemicals, and other products into their classrooms.

Green products and suggestions for what to use in schools.

Companies with which EPA partners to implement and promote *IAQ TfS*.

## **CLOSING REMARKS**

Tracy thanked Jim Foxx, Jack Levine, and Jeff Moquin for taking time to share their successes and strategies for addressing IAQ. She encouraged participants to use information gathered during the annual *IAQ TfS* Symposium to validate actions planned and in progress. The Symposium can be used as a spring board for continuing IAQ work and for building upon an existing IAQ program. In addition, the Symposium is useful for gathering ideas and building motivation. Though IAQ is often not a priority for school districts, active involvement from all school personnel can help to overcome challenges. Ms. Enger thanked participants for their questions and for suggesting topics for the next Web conference which will be held in May 2005.

## **QUESTIONS RECEIVED ELECTRONICALLY AND ANSWERED AFTER THE WEB CONFERENCE**

**Sally Billado: What kind of student involvement have you had with your IAQ program? This question was asked by the student representative on our committee.**

Jack Levine: North Haven does not have formalized student involvement at this time, though they would like to develop this in the future.

Jim Foxx: Cy-Fair has no formal student involvement.

Jeff Moquin: The School Board of Broward County, Florida has a student representative who participates on the District's IAQ Subcommittee. This Committee is responsible for implementing

the *IAQ Tools for Schools* Program district-wide and makes recommendations regarding all aspects of IAQ. Additionally, Broward has begun to develop a science curriculum involving IAQ and the District's energy management system. Students will utilize the energy management system to record pertinent indoor environmental parameters and learn how they relate to maintaining optimal IAQ and investigating potential IAQ problems.

**Shelly Rosenblum: How would you counsel districts which have many fewer maintenance staff about why they should do this program?**

Jack Levine: The *Tools for Schools* Program helps improve indoor air quality in our school buildings. Number of staff is not the issue. Do you want safe and healthy buildings? Do you want your students and staff to spend their days in a building with indoor air quality problems? Of course not! The program is one in which all school districts, large and small, can benefit.

Jim Foxx: Do as much cross-training as possible. This is key because custodians can do many traditional maintenance tasks that do not require special skills. Also, maximize involvement from all building staff, including teachers, administrators, school nurses, PTO/PTA, etc. This is a good way to buttress a shortage of maintenance staff. The *IAQ TfS* Program lends itself to this type of involvement from all parties.

Jeff Moquin: Districts with few maintenance resources can benefit greatly from the *IAQ TfS* Program. In fact, these districts have a greater need to implement proactive programs and to identify and correct potential IAQ problems before they become a crisis or require corrective maintenance work. Although maintenance is an important component to any successful IAQ program, maintenance staff often become involved to remediate a problem. The *IAQ TfS* Program educates indoor occupants on how to identify potential IAQ problems and empowers them to understand how their daily behaviors/activities impact IAQ at their facilities.

**Joseph Ponessa: I believe that the attitudes and cooperation of maintenance and custodial staff is of key importance. Can you provide more detail about how you accomplished this? Can you provide some additional details about how you honored and rewarded these folks for their efforts?**

Jack Levine: You are absolutely right about the importance of the attitude and cooperation of your maintenance and custodial staff. In fact, North Haven's program began with that type of problem. The custodians initially felt as if the program blamed them for failing to clean their buildings. The maintenance staff viewed the program as a criticism of their inability to fix roof leaks and other problems. To address these issues, Mr. Levine met with the custodians and maintenance staff to assure them that they were the solution and not the problem. In addition, Mr. Levine found ways to compliment the custodial and maintenance staff frequently. For example, when a school with mold problems was thoroughly cleaned, the district distributed letters and recognized the custodians at a Board of Education meeting. Custodians and maintenance employees should be a big part of any program.

Jim Foxx: Top-down buy-in goes a long way to mitigate turf wars. Various department heads realize that their best interest is served in joining forces and rallying around the program. Key to cooperation is top-down buy-in that includes the highest level administrators declaring *IAQ TfS* a priority. A good IAQ coordinator must be a consummate PR person, who constantly tries to sell the program to all levels of the organization and outside the organization.

Jeff Moquin: The cooperation of maintenance and custodial staff is integral to the success of any IAQ program. I have found the best way to encourage cooperation and buy-in to a new initiative is to make key players true stakeholders. Broward has found that custodial staff attitudes toward the *IAQ TFS* Program have been positive primarily as a result of listening to their concerns and providing them the tools necessary to be successful. One of these tools is an educational effort about the significant role custodians play in IAQ issues. The other key component to a successful IAQ Program is support from the top. Our custodial and maintenance staff have also been receptive to the Program because of the examples set from our board and senior management.

**Shelly Rosenblum: How do we get a copy of the nurse's video? (question for Jack Levine)**

Jack Levine: To receive a copy of the North Haven nurse's video, please send your request, along with your name and address, to Jack Levine, North Haven Public Schools, 5 Linsley Street, North Haven, CT 06473 or fax to 203-234-9811.

**Linda Allaway: We are having problems with local school districts that are outsourcing custodial services. At times there is a total disconnect with custodial staff, and also they experience high turn over. Does anyone have a successful experience dealing with rental janitors?**

Jack Levine: North Haven uses in-house staff and contracted cleaning services at the high school and middle school. To address issues that have arisen, Mr. Levine developed a detailed list of items for the in-house staff and contracted cleaning service to do on a daily, weekly, monthly, and annual basis. He also established a process for checking work and reporting problems. With time and effort, this on-going struggle can be addressed.

Jim Foxx: Mr. Foxx does not recommend outsourcing. The Education Service Center and Texas Association of School Business Officials have completed some consulting and management reviews showing that outsourcing is rarely more efficient than in-house staffing.

Jeff Moquin: Broward County Schools outsources custodial services at several ancillary administrative sites. At this time, the *IAQ TFS* Program has not been implemented at any of these sites. Broward does, however, experience a high turnover rate with its custodians. As new custodians begin working, they receive training which incorporates principles from the *IAQ TFS* Program. If a district uses outsourced custodial services, one way to control quality is to place language about *IAQ TFS* in your procurement documents. Contractual language requiring participation in the Program may be a possibility.

**Don Molstad: What kind of district policies do you have in place and can you share them with us?**

Jim Foxx: Cy-Fair has an IAQ management plan that was adopted by the School Board. This became the basis for all future IAQ work.

Jeff Moquin: Broward County Schools has not yet established a policy; however, the School Board has acknowledged the implementation of the *IAQ TFS* Program. Currently, the IAQ Team is developing a general policy for maintaining optimal IAQ in all district schools and facilities. The Team is also writing a comprehensive IAQ Management Plan to achieve the goal of the policy. Creating policy in this fashion provides the greatest flexibility for the program. Changes to the IAQ Management Plan can be accomplished without the bureaucracy involved with changes to policy.

**Don Molstad: What state-level support do you have? Are there state laws that support your efforts?**

Jack Levine: Connecticut has a state law that requires an indoor air quality program. North Haven has received help from Mr. Kenny Foscue, who leads the Connecticut School Indoor Environment Resource Team.

Jim Foxx: Though Texas does not have any state-wide legislation for IAQ, Cypress-Fairbanks has received many recommendations through the local health department. In addition, HB 329, the mold licensing law, became effective in 2004.

Jeff Moquin: Broward is supporting legislation requiring all Florida school districts to implement an IAQ management plan such as *IAQ TFS*. The state DOE does not want to impose mandatory legislation without adequate funds to accompany the mandate. Broward has argued that minimal funds are necessary to implement such a program. In fact, most districts are already allocating resources to this function. Broward seeks only to ensure that these resources are organized under the auspices of a formal program.

**Mazie Smith: What was the cost for implementation in Broward?**

Jeff Moquin: Broward has not allocated any new resources to implement its IAQ program. They have reallocated existing resources and have begun to categorize particular expenses in association with IAQ. Currently, the District's maintenance division is undergoing a major reorganization that will result in additional tradespeople (i.e., carpenters, HVAC mechanics, etc.). The IAQ Subcommittee is requesting some of these resources for a much-needed HVAC preventative maintenance program.

**Ray Ashley: I would like to implement the *IAQ TFS* Program for two of our tribal schools at the Pueblo of Jemez. I would like to know how much money it will cost to start this program? We have monitoring equipment for PM, relative humidity, temperature, radon, and CO<sub>2</sub>.**

Jack Levine: Maintenance and repairs do have associated costs, but the cost of doing nothing can be far greater. Schools can implement an IAQ program with little costs. Examples of no-cost or low-cost methods for improving IAQ include: cleaning vents, removing items that block vents, thoroughly cleaning rooms, replacing air filters, ensuring the temperature is set at a comfortable level, etc. Your teachers will appreciate any efforts to improve IAQ. As the program receives more funds, you will be able to do more to improve IAQ.

Jeff Moquin: Implementation of the *IAQ TFS* Program truly does not cost anything more than a commitment from the stakeholders. Cost becomes an issue only when repair or remediation is required. Broward believes that these activities would be required even if no IAQ program were in place. The Program simply provides a structure to identify, prioritize, and communicate these efforts to all stakeholders. Additionally, Broward believes that dealing with these deficiencies in a proactive manner saves funds in the long run. Repairing a humidity problem in a school is much more cost effective than remediating a mold problem later.

**James Sundell: We are now in the process of developing/integrating IAQ into the science curriculum in the Lebanon Community High School, Lebanon, Oregon. How can our science teachers become involved in this curriculum project?**

Jim Foxx: Cy-Fair has not yet incorporated its IAQ program into the curriculum. Because of the current curriculum structure, laws, and content requirements, Mr. Foxx does not expect Cy-Fair to develop an IAQ curriculum in the near future. He believes curriculum changes would be easier to implement in smaller districts.

Jeff Moquin: Teacher involvement in a curriculum is not his area of expertise. However, Mr. Moquin believes that students can best understand the principles of a project or program by relating the project to actual IAQ conditions in the school. Similarly, Mr. Moquin believes that all stakeholders must be empowered and invested in a program in order for that program to be successful.

**Linda Allaway: For schools that do not provide training time for school staff, do you have any resources for local school communities/staff to self-train in the essentials of IAQ and what they can do to improve their own IAQ?**

Jack Levine: Senior-level management, especially your Superintendent of Schools, must be fully supportive of a program for it to be successful. Though stakeholders can hold 'self-training' or 'after hours with no compensation' workshops, this sends the wrong message. *IAQ TFS* is a wonderful program. Don't short change your district. What will it cost to provide time for some people during the day? Doesn't your school system send teachers to workshops? Doesn't your Superintendent value program development and staff development? This is all about making your buildings safe and healthy for students and staff. Now THAT is important and deserves a little bit of training time. Good luck!

Jim Foxx: Cy-Fair is not doing much training. A nearby district, Spring Branch ISD, has an active local community group (Mothers for Clean Air) that has conducted several trainings and worked with schools. If carefully selected, advocate groups with agendas are good partners.

Jeff Moquin: The lack of opportunities for staff development may be a more systemic problem than IAQ. However, the *IAQ TFS* Kit provides the opportunity for individuals to self-train on IAQ issues. The Kit emphasizes how individual behaviors and activities can impact IAQ in a school. Additionally, Mr. Moquin recommends using existing meetings for IAQ training opportunities. For example, Broward asked participating principals to set aside time in existing staff meetings for discussing *IAQ TFS* Program issues. Additionally, Broward has incorporated *IAQ TFS* principles into its new custodial training program.

**Laraine Koehler: Responding to the question about school materials: New Jersey has materials for radon posted on its web site (<http://www.nj.gov/dep/rpp/radon/ralp.htm>). It includes cross walks to learning objectives**

The issue of tracking impact of activities is difficult. The Pediatric /Adult Asthma Coalition of New Jersey is attempting to determine if the number of students being sent home from school due to asthma episodes has decreased. This measure is under the nurse's control (or other person in the school handling medical issues when a nurse is not available). Information about absences is not always available to nurses, but they know who is sent home sick and why. This may be a good semi- quantitative way to look at impacts.