Envisioning Excellence
Lessons from Effective School Indoor Air Quality Programs

A Snapshot of Profiles in IAQ Excellence

Read more about the Profiles in IAQ Excellence and the Framework for Effective School IAQ Management at www.epa.gov/iaq/schools/excellence.html.
The U.S. Environmental Protection Agency has developed *Envisioning Excellence: Lessons from Effective School IAQ Programs* to help schools take action to advance health, safety and wellness initiatives. *Envisioning Excellence* presents the Framework for Effective School IAQ Management — guidelines that detail the organizational approaches and practices that are fundamental to school IAQ program success — and tells the stories of several very different school districts that applied the Framework to create effective and enduring IAQ programs. In their diversity, these stories demonstrate the flexibility and adaptability of the Framework. They make clear that any school, regardless of location, size, budget or facility conditions, can use the Framework to launch and sustain a successful IAQ program.

The following is a snapshot of school districts and the work they have done to effectively manage IAQ. These Profiles in IAQ Excellence demonstrate the Framework for Effective School IAQ Management in action by showing how the Six Key Drivers of the Framework contribute to each school district's program success.

### Profiles in IAQ Excellence

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<tr>
<th>School District</th>
<th>Description</th>
<th>Key Actions</th>
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<tr>
<td><strong>Baltimore County Public Schools</strong></td>
<td>Urban, suburban and rural district surrounding the city of Baltimore, MD</td>
<td>Developed a proactive IAQ management program, leveraging the IAQ Tools for Schools Framework to strengthen existing programs and leverage a proactive approach to environmental issues</td>
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<tr>
<td><strong>Blue Valley School District</strong></td>
<td>Suburban district in Overland Park, KS</td>
<td>Built momentum and secured support for facility investments by linking IAQ management to student performance</td>
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<td><strong>The School Board of Broward County, Florida</strong></td>
<td>Urban district in the Fort Lauderdale, FL area</td>
<td>Created a collaborative approach to IAQ management that brought parents, unions, teachers, facilities, and operations and maintenance together</td>
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<td><strong>Charlotte-Mecklenburg Schools</strong></td>
<td>Urban district in Charlotte, NC</td>
<td>Committed to ensuring healthy indoor environments after an expensive and exhausting IAQ crisis. Reorganized, trained and benchmarking all facilities led to a sustainable, institutionalized IAQ management program</td>
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<td><strong>Hartford Public Schools</strong></td>
<td>Urban district in Connecticut (sixth highest poverty rate of any large U.S. city)</td>
<td>Used the IAQ Tools for Schools Program to coordinate school health and facilities functions across the district and engage community organizations in an effort to address asthma</td>
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<td><strong>Katy Independent School District</strong></td>
<td>Rapidly growing suburban district outside of Houston, TX</td>
<td>Transformed an IAQ crisis into an opportunity by creating an effective IAQ program led by key senior managers at the district level and by health services representatives at each school</td>
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<td><strong>Newark Public Schools</strong></td>
<td>Urban district in Newark, NJ</td>
<td>Created a proactive, results-oriented IAQ management program, despite many 100+ year-old facilities, by training staff, partnering with community groups for support and cultivating program ownership</td>
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<td><strong>North East Independent School District</strong></td>
<td>Urban district in San Antonio, TX</td>
<td>Transformed its reactive IAQ program into a proactive, comprehensive environmental health regime by equating the health of school buildings to the students' health and wellness</td>
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<tr>
<td><strong>West Carrollton School District</strong></td>
<td>Suburban district near Dayton, OH</td>
<td>Overcame an IAQ crisis and loss of public trust by employing an open communications and planning strategy to build understanding, improve assessments and create ownership for IAQ results</td>
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To respond to a County Council resolution, Baltimore County Public Schools (BCPS) Superintendent Dr. Joe A. Hairston formed an Environmental Assessment Advisory Committee to evaluate the district’s IAQ management approach. Though BCPS’ existing maintenance program was strong and did not face any serious IAQ problems, with the second oldest facilities inventory in Maryland, the district needed a concrete plan to manage its facilities effectively. On the advice of the Executive Director of the Department of Physical Facilities, Michael Sines, the Superintendent hired two Industrial Hygienists who serve as IAQ experts, David Glassman and Sean Joyce, to team with Environmental Services supervisor, Robert Merry, to develop a preventive, preemptive and proactive environmental management program. Using the IAQ Tools for Schools Program as a major component, BCPS initiated a school-driven, prevention-focused IAQ management program.

**Organize for Success — Develop a Systematic Approach:** BCPS assessed the strengths and weaknesses of their maintenance program and incorporated IAQ Tools for Schools guidance to address gaps in their IAQ management approach. For example, BCPS devised formal schedules for HVAC air filter replacements, walkthroughs and other maintenance activities to take the guesswork out of preventive action.

**Assess Your Environments Continuously — Identify and Prevent Risks:** The Department of Physical Facilities compiles a list of campuses at risk for IAQ issues — due to building age, environmental conditions and other factors — and then works with the multi-disciplinary Environmental Action Team to review conditions and develop solutions to manage and solve each issue. The Department of Physical Facilities communicates diligently with school communities throughout the year regarding the progress of the plan. This communication transforms school-based IAQ Tools for Schools Teams into sentinels for environmental issues on their campuses so that the Department of Physical Facilities can act at the first sign of a problem — before little issues become big expensive ones. “We’re a low-cost, no-cost program, which means communication is our most important prevention tool. We tell our staff, ’We love little problems!’ because we hate big problems. Creating that awareness, participation and two-way communication is absolutely critical to our success.” — Sean Joyce, Industrial Hygienist

**Act to Address Structural, Institutional and Behavioral Issues — Address Problems at their Source:** When the Department of Physical Facilities notices repeat issues in a space, they investigate how it is being used, cleaned and maintained. If any of these practices are causing or contributing to the problem, the Department of Physical Facilities and the campus IAQ Tools for Schools Team work together to communicate why the behavior is a problem and suggest alternatives. Keeping a blame-free, solution-focused approach ensures that occupants and staff are receptive to change, and digging deep to find the root cause of issues helps BCPS reduce the number of environmental issues.

**Evaluate Your Results for Continuous Improvement — Solicit Feedback:** BCPS modified its walkthrough inspection report to include a summary that is submitted to the Department of Physical Facilities twice a year. Information on the summaries keeps the Department of Physical Facilities in the loop regarding the realities and perceptions at each campus. If there is the hint of a concern, action will be taken, often before the school community realizes the need for action. This early intervention is key to maintaining the confidence level critical to managing a large system. “Evaluating our program and sharing the results has allowed us to build a lot of confidence from our community — both our internal community and external community — that we have the ability one, to assess our air quality issues and two, to solve them.” — David Glassman, Industrial Hygienist

**PROGRAM RESULTS**

- Reduced average expenditures on mold remediation activities from $513,000 to $150,000 within one year of program implementation.
- Observed a significant reduction in both number and severity of IAQ-related work orders and complaints.
- Reduced the number of remediation projects that delayed school openings from between 30-40 to just a single incident since program implementation.

**ORGANIZE FOR SUCCESS: Create Champions**

BCPS doesn’t mandate participation on campus-level IAQ Tools for Schools Teams; anyone can play a part. Once teams are formed, BCPS trains members on IAQ fundamentals. Combining training with a volunteer’s sense of initiative, leadership and commitment transforms “team members” into bona fide IAQ champions.
In 2000, Blue Valley School District (BVSD) launched an IAQ management program to address increased parent interest in environmental issues, counter the risks of a public relations disaster like the one that occurred when a neighboring district closed a school for IAQ problems, and ensure outstanding learning environments for their students. BVSD applied the IAQ Tools for Schools model to create a structure for facilities management that tied their existing programs together and leveraged resources to radically accelerate their progress. “Our program’s success didn’t materialize overnight. It started with a vision and expectation of excellence, and we have continued to push the program forward at every opportunity.” – Dave Hill, Executive Director, Facilities and Operations

Organize for Success — Build an Effective Team: BVSD created an interdisciplinary IAQ team that includes design and construction, safety, energy, operations and maintenance, and custodial functions. A designated IAQ coordinator leads the team, and everyone in the district knows he is the ‘go-to guy’ for IAQ. The team also includes an executive-level leader who relays the team’s goals and investment needs to the district’s strategic planning committee. “Before adopting IAQ Tools for Schools, we had a lot of successful, but….unrelated pieces in place for managing our environments….IAQ Tools for Schools gave us a framework for organizing; it provided the comprehensive approach we needed….to pull it all together, strengthen our existing practices….and get more out of our work.” – Dave Hill, Executive Director, Facilities and Operations

Assess Your Environments Continuously — Use Technology: Blue Valley uses technology to benchmark facilities, conduct routine monitoring, and save money and man hours by avoiding problems. “With regular inspections, we can detect potential problems before [they] become larger issues that require expensive repairs. By demonstrating the cost savings that preventive maintenance can deliver, we convinced the decision-makers that upfront technology investments made sense.” – Dave Hill, Executive Director, Facilities and Operations

Plan Your Short and Long-Term Activities — Put Goals in Writing: Blue Valley institutionalized their program by including IAQ goals in the district’s strategic plan and establishing metrics to evaluate their progress against goals.

Communicate with Everyone, All the Time — Share Your Goals: By tying the IAQ work to a goal that people care deeply about, BVSD was able to build the depth of commitment the IAQ initiative needed right from the start.

Act to Address Structural, Institutional and Behavioral Issues — Educate Staff About IAQ to Change Behavior: Blue Valley used training to cultivate a culture of stewardship and to create IAQ champions across the organization. All facilities staff members were trained to identify root causes of IAQ problems and to avoid cosmetic fixes.

Evaluate Your Results for Continuous Improvement — Solicit Feedback: BVSD asks occupants to rate the school’s indoor environment on annual surveys and aims to receive scores of at least four out of five from 100 percent of respondents.

BLUE VALLEY SCHOOL DISTRICT
Building Momentum — Linking IAQ Management to Student Success

PROGRAM RESULTS

- Fewer per capita IAQ concerns each year.
- Reduced operating costs through IAQ upgrades (e.g., $23,000 energy savings at one school in one year).
- Rise in test scores every year since program began (highest ACT scores in the state; four out of six of state’s top-ranked schools are in BVSD).
- Marked decrease in lost instructional time due to facility problems.

ACT TO ADDRESS STRUCTURAL, INSTITUTIONAL AND BEHAVIORAL ISSUES: Educate Staff About IAQ to Change Behavior

“We have been able to sustain the excellence of our district’s IAQ management program because we have cultivated an atmosphere of program ownership and building stewardship among all of the employees who are responsible for maintaining excellent IAQ.”

– Dave Hill, Executive Director, Facilities and Operations
The School Board of Broward County, Florida (Broward) experienced a mold crisis in 2002 that led to the implementation of a comprehensive, district-wide IAQ Tools for Schools Program. “Before 2002…we were taking some action to address IAQ, but our activities were not systematic and they were not undertaken in a spirit of collaboration. Our crisis caused a paradigm shift in our approach…Now, we’re much more focused on involvement, communications and collaboration with the community, the unions and all the disciplines throughout the district. Before, we worked behind the scenes…in a veiled way…but now, everyone in the district understands IAQ and knows they have a role to play in promoting healthy school environments.” – Jeff Moquin, Executive Director, Support Operations

Organize for Success — Identify Existing Assets: When the district was hit with a crisis, they looked for an organization that was viewed as effective and trustworthy to carry their IAQ plans forward. In 2002, they engaged the existing Facilities Task Force, comprised of union members, teachers, parents, school board members and others.

Build an Effective Team: Broward engaged all possible stakeholders for the IAQ Subcommittee, including the district’s superintendent. Then they recruited IAQ committees in each school to serve as trainers, survey administrators and community liaisons.

Design Standard Operating Procedures: Broward created a comprehensive manual codifying all of their IAQ management policies and standard operating procedures into one unifying document, ensuring the best practices that have become institutionalized over the past eight years never lose their meaning or purpose. They distribute the manual at annual kick-off training sessions and make it readily available to anyone on their website. By making sure everyone in the community knows how their IAQ management program operates, they have created a legacy of knowledge and practice that virtually guarantees its sustainability.

Assess Your Environments Continuously — Listen to Occupants: To ensure that the district-level team gets thorough input from building occupants, Broward’s online survey is designed to be simple and comfortable for building occupants to use (e.g., no name required), and the robust, online survey assessment instrument automatically compiles survey findings and maps required response activities to create a complete picture of each facility.

Plan Your Short and Long-Term Activities — Prioritize Actions: Broward’s system names IAQ work orders according to a priority ranking based on the seriousness of the IAQ concern and the nature of the required response (e.g., behavioral change versus equipment repair).

Communicate with Everyone, All the Time — Be Transparent & Inclusive: Where once IAQ issues were addressed quietly, now the district broadcasts information about its facilities — problems and all — on its website, on its cable access television station, and through written action plans to remediate the issues identified on their walkthroughs, which are distributed to all stakeholders.

Act to Address Structural, Institutional and Behavioral Issues — Educate Staff About IAQ to Change Behavior: By engaging the unions and parent groups, the IAQ Subcommittee changed the way the Facilities and Maintenance and Operations Departments did business. They helped staff become collaborative problem-solvers rather than secret keepers.

Broward uses survey results to track IAQ concerns and responses over time, and monitors workers’ compensation claims.

- Implemented IAQ Tools for Schools in 206 locations so far and continues to add at least 20 new schools each year.
- Achieved a 50-percent decrease in IAQ complaints, and continues to observe a declining trend.
- Observed correlation between schools with IAQ programs and decrease in reported IAQ issues, as well as workers’ compensation claims and the average expense per claim.
- Institutionalized IAQ and other green initiatives by including them in district strategic plans and following up with written plans of action for all members of the school community.

The More Open and Collaborative the Program, the Better the IAQ Outcomes

Program Results

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As our IAQ program grows, we strive to grow with it and stay current. We realigned our policies and procedures with the Key Drivers and Technical Solutions of the Framework to develop a comprehensive Indoor Air Quality Manual and concise IAQ Resource Guide. Along with our Environmental Stewardship Strategic Plan, these are the blueprints we will use to realize our vision of success in environmental management.” – Jeff Moquin, Executive Director, Support Operations
For Charlotte-Mecklenburg Schools (CMS), IAQ troubles began with parent concern about possible mold in one school. An investigation concluded that mold was not an issue, but skeptical parents took their concerns to the media, inciting a whirlwind of bad publicity and community mistrust. Although CMS weathered the immediate crisis, this event spurred a new commitment — CMS set out to ensure that proactive IAQ management became a way of life in the district. CMS followed the IAQ Tools for Schools Program guidance to establish a district-wide facility assessment program, assign departmental responsibilities to address environmental risks, partner with community groups to implement the management approach, and train everyone across the school community on IAQ management. The result is a sustainable and successful program, a sense of ownership among the staff for facility and occupant health, and improved trust and openness with the community.

Organize for Success — Empower an IAQ Leader: For CMS, a sustainable IAQ program required a strong advocate with the power to make big decisions. Senior management created a new position, Manager of Environmental Health and Safety, and hired an IAQ expert with extensive experience managing environmental health in large, institutional buildings.

Assess Your Environments Continuously — Walk the Grounds: CMS implemented a two-track system for continuous assessments. Track one is a proactive inspection system consisting of routine monthly walkthroughs. Track two is a reactive system for responding to all reported occupant concerns within 24 hours to assess the conditions and initiate a response plan. “We’re proactively looking for problems. By finding and cleaning up problems early, we make the classrooms healthier and save maintenance funds in the long run.” — Brian Kasher, Manager of Environmental Health and Safety

Plan Your Short and Long-Term Activities — Work in Stages: The Executive Director of Building Services, Phil Berman, understood that he couldn’t sustain an effective IAQ program alone; successful management requires a team approach. CMS worked with the University of Tulsa to plan a district-wide assessment program for all 150+ school facilities. To ensure adequate time, budget and thoroughness of inspections, they conducted the baseline assessments, including surveying occupants, inspecting HVAC equipment, conducting walkthroughs and collecting monitoring data over two years.

Communicate with Everyone, All the Time — Share Your Goals: A written mission and vision that aligns with the district’s strategic plan helps keep the Building Services Department on track and acts as an anthem for their efforts. The mission resonates with everyone: “to provide excellent educational facilities for all stakeholders that are safe, clean, well-maintained and environmentally secure.” “The less time teachers and school-based administrators spend worrying about facilities-related issues and instead focus on their primary mission of educating children, the better.” — Phil Berman, Executive Director, Building Services

Act to Address Structural, Institutional and Behavioral Issues — Educate Staff About IAQ to Change Behavior: By conducting training for all school groups about how everyone can help maintain healthy IAQ, Building Services demonstrated that every department and function has value. The result was a visible shift in CMS culture: a change in perceptions, behavior, and ultimately, the mindset of the school community. One of the first signs of this change was a new appreciation for the facilities staff — the unseen champions of any IAQ program. “Now…we understand IAQ issues are not an agenda item, they are a way of doing business. We have received so many thank you letters from staff — and for a usually thankless job.” — Chip Irby, Director of Maintenance

Evaluate Your Results for Continuous Improvement — Solicit Feedback: CMS noticed a sharp spike in their mold work orders during the summer months — not surprising considering the humid North Carolina climate — but the facilities staff noticed many were repeat calls. By talking to people experiencing repeat problems, they discovered they could address the repeats by revising the summer energy management program. The results: a 54-percent reduction in mold work orders from repeat calls during the summer.
The city of Hartford has the sixth highest child poverty rate of any large city in the United States. In 2001, a study of Medicaid eligible, school-aged children in Hartford revealed an asthma prevalence of 19 percent. The city council declared an asthma emergency and called on the school district to help manage asthma. Hartford Public Schools (HPS) was challenged by old buildings and limited resources. Two dedicated champions used the IAQ Tools for Schools Program to create a wellness program for the district. They recruited collaborators from across the community and established a network of Health and Safety Teams in the majority of schools linked through the district-level nursing and building and grounds functions. Although recent changes in upper management have resulted in new challenges, bundling IAQ Tools for Schools with the Health and Safety Teams has maintained a sustainable structure to address school wellness. A more targeted focus on training and education has empowered building occupants to be stewards of their environments.

Organize for Success — Develop Systematic Approach: In 2001, HPS applied the IAQ Tools for Schools Framework to create a district-wide wellness program and address rising rates of asthma. They didn't add IAQ activities to a to-do list; they used IAQ Tools for Schools to create a systemic solution. They recruited teams at each school site and partnered with health and environmental organizations from across the city (universities, non-profits, local and state government, etc.). These Health and Safety Teams remain intact despite shifting priorities in the district.

Assess Your Environments Continuously — Listen to Occupants: HPS trained the site-based Health and Safety Teams with the tools and information they needed to assess their facilities. The teams gather detailed information from building occupants about facility history, health trends and comfort issues and use that information to develop a list of priority activities; prompt response to improvement requests from Facilities and Nursing Services provides positive reinforcement. By allowing school staff to assess their facilities and prioritize their own IAQ needs, the district empowers school-based teams to be facility experts and stewards.

Plan Your Short and Long-Term Activities — Work in Stages: HPS put together the components of success over time. At first, there was a single pilot project. But, they used that example to build momentum and support; used the support to build a training program; used the training program to create school-based Health and Safety Teams; used the teams to assess the facilities; and so on. And now, they are ensuring sustainability by reinforcing the program with IAQ Tools for Schools on Health and Safety Team agendas and active outreach to administration and principals that emphasizes the relationships among IAQ management, student health and student performance.

Communicate with Everyone, All the Time — Make IAQ Meaningful: The IAQ program champions in HPS marketed the program by describing their goals for it in the terms that were most relevant to each audience: for administrators, it was a solution for asthma and attendance; for school-based teams, it was the key to achieving “safe, clean and healthy” schools.
Katy Independent School District (KISD) launched their IAQ Tools for Schools Program to respond to a mold crisis that led to the closing of one of their schools and the sudden relocation of over 700 students in the spring of 2002. The community voiced disapproval and expressed distrust that the district could maintain healthy buildings for their children. The district learned some powerful lessons during that crisis and put those lessons to work immediately: a comprehensive IAQ program is essential; it costs less to prevent IAQ problems than to fix them; IAQ management has to be integrated into the culture to be successful; continuous improvement, not just remediation, is the goal; and open and honest communication with the public is essential.

Organize for Success — Empower an IAQ Leader: KISD’s IAQ Program is led by an assistant director inside the Maintenance and Operations (M&O) Department. This level of authority lets the IAQ coordinator hire staff, set policies and apply funds as required to meet the IAQ challenges. “The IAQ Tools for Schools Program has become a part of the KISD culture and the ‘way we do business.’ The expectation is that we will provide a clean, healthy environment for our students and staff, and the IAQ Tools for Schools Program allows us to do just that. As time passes, we continue to instill those lessons in our employees and see buy-in at all levels; it has become an integral part of our day-to-day operations.” – Peggy Caruso, Assistant Director, M&O Department

Assess Your Environments Continuously — Determine a Baseline: The IAQ team recorded baseline environmental conditions at all facilities by conducting walkthrough assessments in the first year of the program. The baseline has provided a way to measure progress over time and continuously motivate staff to take effective actions. And ongoing assessments show continuously improved facility performance over time.

Plan Your Short and Long-Term Activities — Prioritize Actions: KISD prioritizes IAQ activities in at least two ways: after the assessments, supervisors in the M&O Department review their action lists and rank priorities according to risk; and before any money is spent on major facility upgrades, the department prioritizes sealing building envelopes, windows and doors to prevent moisture intrusion and manage mold risks.

Communicate with Everyone, All the Time — Be Transparent & Inclusive: KISD began an aggressive and open communications campaign when the crisis hit and since then, has never stopped engaging their community. The IAQ team shares their IAQ plan, continuously updates the community on its progress, and willingly opens their facilities to community tours. This openness and the team’s follow-through on their commitments built trust and significant support for the program in a once-doubting community.

Act to Address Structural, Institutional and Behavioral Issues — Educate Staff About IAQ to Change Behavior: KISD saw a change in the principals’ reactions from Year One to Two of the assessment process. At first, principals hardly noticed their reports, but by Year Two, they paid close attention. The district-level staff’s reaction to the reports demonstrated that “this IAQ stuff” must be important. When the assessments were quickly followed by M&O activity in their schools, the principals took notice. The IAQ team continues to train administrators and staff on key IAQ issues and appropriate occupant behaviors.

ORGANIZE FOR SUCCESS:
Secure Senior Buy-In
KISD continues to ensure program sustainability by obtaining support from new administrators.

“I believe ensuring we have skilled technicians and managers able to respond to any feedback or concern from the end user is critical to our success.”

– Tom Gunnell, Chief Operations Officer

“Providing a safe and orderly working and learning environment is essential to the district’s performance.”

– Alton Frailey, Superintendent

KISD tracks baseline facility conditions and improvements over time based on their walkthrough assessments and the number of reported IAQ concerns from work orders.

- Walkthrough assessments of all schools show continuous improvement from baseline.
- Decrease in reported IAQ concerns.
- Improved student, teacher and staff comfort, performance and satisfaction.
- Decreased absenteeism and reduced number of nurse visits for asthma.
- Turned once negative publicity into positive publicity for the district.
- Ongoing public support for major facility investments, including facility upgrades.
- One of 12 schools internationally to win Facilities Masters Award from the Association of School Business Officials International.
As the record-holder for the most school facilities over 100 years old, Newark Public Schools (Newark) faced a challenge when in 2004, New Jersey enacted new school IAQ regulations. Facilities Management Executive Director Steve Morlino formed an IAQ Team to establish a comprehensive IAQ management plan that would go beyond minimums set by state regulations and establish Newark as a national model for facilities management. With superintendent and administrative staff approval, and participation from the entire school community, Newark implemented a proactive, results-oriented program. Thorough program organization, staff training and collaboration with community members helped Newark achieve its goal of IAQ excellence. Today, the district is a national model for IAQ management, school operation and community relationship-building.

Organize for Success — Create Champions: Newark convened an Educational Summit for Facilities Management staff to learn the new state IAQ regulations and share specific goals for IAQ excellence and the actions necessary to achieve them. By bringing everyone together to learn why the program was important and what it would accomplish, Newark created champions with a commitment to the IAQ program and its goals.

Assess Your Environments Continuously — Use Technology: To streamline its operations district-wide, Newark uses SchoolDude, a suite of online operations management tools that help coordinate routine maintenance, schedule proactive IAQ actions and manage responses to potential problems. All facilities staff speak the same language and use the same tools to track their work, which saves time and energy.

Plan Your Short and Long-Term Activities — Work in Stages: Newark organizes its activities into phases with defined measures of success and starts with small tasks to build momentum to support bigger goals. For example, when Newark transitioned to green cleaning, they first educated occupants and custodians about the new products and the reasons for the switch. After a trial period, they asked for feedback. If anyone had reservations, Facilities Management listened and found an alternative. This “educate, test, listen and refine” approach to IAQ management engaged the entire school community and built trust and support for the IAQ program.

Act to Address Structural, Institutional and Behavioral Issues — Educate Staff About IAQ to Change Behavior: Facilities Management worked with Health Services on their common goal to reduce environmental asthma triggers. Together, they teamed with the Pediatric/Adult Asthma Coalition of New Jersey (PACNJ) to educate nurses, principals and teachers about the relationship between IAQ and asthma. New awareness led to asthma-friendly and IAQ-friendly policies and institutional culture changes, which resulted in every school in the district meriting an Asthma-Friendly School Award from PACNJ. “We call nurses our ‘first line of defense.’ When someone comes to them with a health complaint that could be related to IAQ, they call us immediately to give us a heads-up… and explain the medical side of the story. Our partnership is indispensable because they help us understand the complete IAQ picture.”
– Warren Williams, Senior Engineer in Charge

Communicate with Everyone, All the Time — Communicate Results: When Newark won the EPA IAQ Tools for Schools National Excellence Award, the ASBO Facilities Masters Awards and other accolades, they publicized their accomplishments through local newspapers, on the district’s cable television channel, the district website and in a parent e-newsletter. By broadcasting their success, Newark ensured everyone in the school community knew how important and how effective their work is to school health.

Newark tracks complaints submitted through an online form and monitors trends in student attendance.
- Observed decrease in missed school days since IAQ program implementation and asthma-friendly policy changes.
- Switched all chemical cleaning products to green alternatives.
- Experienced fewer and less severe IAQ problems.
- Only school district to win the Facilities Masters Award from the Association of School Business Officials International (ASBO) for four consecutive years.
- Achieved widespread community buy-in and support through a commitment to transparency and honesty.
- Continued positive environmental changes by installing solar panels on five facilities — reducing the district’s carbon footprint by 400 tons of carbon dioxide.

COMMUNICATE WITH EVERYONE, ALL THE TIME:
Communicate Results

“We’re passionate about what we do. We want to share the message, ‘If Newark can do it, anybody can.’”
– Steve Morlino, Executive Director, Facilities Management
In 2006 the North East Independent School District (NEISD) recognized the link between IAQ management and asthma control, as a large number of students with asthma were visiting the school nurse regularly for reliever inhaler doses and missing school. Once the connection was made to student health and productivity, NEISD’s IAQ management program took on new urgency. By developing the Department of Environmental Health, the district sought to improve its control over IAQ in its classrooms through reducing airborne pollutants and other asthma triggers. NEISD strives to maintain a sustainable and institutionalized IAQ management program, while continuing to transform its mission — to create healthy buildings for all students and staff.

**Organize for Success — Empower an IAQ Leader:** To create a proactive and focused IAQ management program, NEISD needed a leader to prioritize the district’s IAQ needs and make important decisions. As NEISD’s Executive Director for Facilities Maintenance and Support, Ron Clary fits this role and leads three departments that are dedicated to maintaining healthy buildings: the Department of Environmental Health, the Department for Custodial Support and the Department for Facilities Maintenance. He also created the IAQ Committee, which works across these departments to synergize their efforts and ensure that all IAQ issues are resolved quickly and completely.

**Organize for Success — Build an Effective Team:** NEISD joined building and human health specialists under one umbrella, the IAQ Committee, to create an effective group that looks at all aspects of IAQ in a classroom. The team members have the credibility and the authority to implement corrective actions at all levels — both in the classroom and in the health clinic. “We have great individual expertise and programs, so when we work together and include input from both sides of the health equation, it makes a world of difference in our school environments and our student health.” — Jerry Lamping, Director for Indoor Air Quality.

**Assess Your Environments Continuously — Walk the Grounds:** NEISD conducts routine environmental health assessments, which are based on safeguarding the health of students and staff by monitoring the conditions within the classrooms. During regular walkthroughs, airborne contaminants, such as particles and volatile organic compounds (VOCs), are measured as primary indicators of the room environment using portable IAQ test instruments. In addition, reliever inhaler usage by children with asthma and IAQ-related symptoms they experience are recorded and tracked. If the IAQ Committee notices a high rate of reliever usage in one school, it is a red flag that there may be an environmental issue.

**Plan Your Short and Long-Term Activities — Plan for the Future:** To ensure future IAQ protection and continue best management practices, NEISD is designing and constructing new school buildings that can be certified under the U.S. Green Building Council’s Leadership in Energy and Environmental Design (LEED) Green Building rating systems. Safe and effective practices, such as low VOC emitting tested materials and high efficiency rated air filtration devices, are being included in all classroom project specifications and design plans.

**Communicate with Everyone, All the Time — Make IAQ Meaningful:** Using CDC’s “Asthma Friendly Schools Toolkit” as a model, NEISD educated teachers and other school building occupants about the importance of IAQ. Communicating and educating building occupants about asthma gave environmental management clear meaning and importance to everyone. Teachers understood the connection between their actions and student health — becoming active stewards of their classroom environment. “Teachers love their kids; they don’t want to do anything to hurt them. Many of our teachers simply didn’t know about asthma triggers. Armed with this education, they were more than willing to change their classrooms to eliminate asthma triggers.” — Diane Rhodes, Director for Asthma Education.

**PROGRAM RESULTS**

- NEISD captures cost savings from facility upgrades and improvements, tracks student health and performance and monitors IAQ parameters.
  - Installed Web-based HVAC software, which cut energy costs by 9.4 percent in 2009, saving $1.3 million.
  - Increased State of Texas Exemplary and Recognized rated campuses to 87 percent of all schools and received a Recognized rating for the district three years in a row.
  - Converted to Green Cleaning custodial products, which resulted in a six-fold decrease in VOC levels in classrooms and reduced costs by 30 percent.
  - Adopted LEED and CHPS school design recommendations and purchased low VOC emitting furnishings.
  - Moved over 200 classrooms from temporary wood framed buildings to eight new two-story brick face permanent buildings.

**COMMUNICATE WITH EVERYONE, ALL THE TIME:**

**Make IAQ Meaningful**

“IAQ management was never a question, it was an answer. It supports the health of our students, so they can attend school and meet their full potential. It supports the health of our staff, without whom educating students is impossible. Finally, it helps me as an administrator run a more efficient school district, where I can stretch my budget further and channel limited resources where they are needed most: in the classroom.”

– Richard Middleton, Superintendent of Schools
West Carrollton School District (WCSD) began thinking seriously about IAQ issues in the wake of a public IAQ, moisture and ventilation problem that resulted in a lawsuit and negative media attention in the fall of 2001. In response, WCSD launched an IAQ management program in December 2001 to improve facility conditions and regain the public trust. The district built a program using guidance from the IAQ Tools for Schools Action Kit. “IAQ Tools for Schools gave us the guidance we needed to form our original committee and assess our facilities... an organizational framework and the credibility we needed in the wake of our crisis.” – Dana Green, Business Manager

Organize for Success — Build an Effective Team: WCSD’s initial IAQ Team was a diverse group. Members included once-skeptical parents, school board members, the superintendent, the business manager, the operations supervisor for maintenance and facilities, union representatives from the teachers and classified workers unions, and at least one representative from each building. This composition made the team a communications network, a warehouse of facility expertise and a decision-making body that could authorize spending and assign personnel. Over time, the make-up and focus of the IAQ team has evolved to meet the shift from IAQ to student and staff health, wellness and safety.

Assess Your Environments Continuously — Identify and Prevent Risks: WCSD continues to conduct preventive assessments by benchmarking all rooms in the district and conducting in-depth occupant surveys annually. The district uses these data to establish a picture of the normal functioning of every location in every facility. These tools allow them to recognize small problems early and act to prevent big problems from emerging.

Plan Your Short and Long-Term Activities — Put Goals in Writing: Including IAQ issues in the strategic plan ensures that WCSD remains committed to the program because IAQ is linked to a core competency and a core belief. With a pirate as its mascot, the district is serious about changing the community’s attitude towards the importance of IAQ — holding true that “the big ‘P’ in 'Pirate’ is perception.” “IAQ management is more than a plan, it is a WCSD core competency — defined by our belief that IAQ is inextricably linked to wellness, and furthered by aligning our work systems and processes with the IAQ Tools for Schools guidance.” – Dr. Rusty Clifford, Superintendent

Communicate with Everyone, All the Time — Be Transparent & Inclusive: During the IAQ crisis, WCSD observed the positive values of integrity, honesty, responsibility and open communication: it was the best strategy for diffusing the media and demonstrating to the public and staff a “sincere commitment to protecting school health and safety.” “The IAQ Tools for Schools approach for addressing problems has become a way of life for everyone in the school community, from administration to students. It has allowed us to tell our story with passion and a sense of purpose.” – Dana Green, Business Manager

Act to Address Structural, Institutional and Behavioral Issues — Educate Staff About IAQ to Change Behavior: WCSD involves all staff in the assessment process to build their knowledge of and confidence in the IAQ program and to get better data on facility conditions. Staff participation in the in-depth surveys transforms them into educated IAQ champions and building stewards. This has resulted in an annual decline in the number and severity of walkthrough-related issues for six consecutive years.
Read more about the Profiles in IAQ Excellence and the Framework for Effective School IAQ Management at www.epa.gov/iaq/schools/excellence.html.
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