

Why a Healthy School Matters

By David M. Hill

A school district makes the best of an open resource from the US EPA's Indoor Environments Division to improve indoor air quality. Learn how your school district can make use of this resource too.

The Blue Valley School District (BVSD) in Overland Park, Kansas used the EPA's Indoor Air Quality Tools for Schools (TfS) Program's "Change Package" to accelerate action to create a healthier and safer learning environment. Learn how your school can achieve similar results.

What is the IAQ TfS Program Change Package?

The IAQ TfS Program Change Package provides quick access to strategies and actions that successful school districts have followed to build effective and enduring IAQ management programs. This Change Package is one element in a suite of materials that presents the accumulated learning of more than 1,000 schools and 10 years of research into IAQ programs that deliver improved health, safety, performance, community relations, facility conditions, and more. The *Envisioning Excellence* materials provide in-depth access to the research base while the *Framework for Effective School IAQ Programs* synthesizes its most essential findings.

What Is 'The Framework' and How Can I Use It?

Years of research led to the discovery of a clear program *Framework* that underlies successful IAQ programs. The *Framework* is flexible and adaptable and any school, regardless of location, size, budget, or

facility conditions, can follow it to launch and sustain an effective IAQ program. The *Framework for Effective School IAQ Programs: Six Key Drivers* presents the proven system for success and provides a common language for discussing the *Key Drivers* that lead to IAQ management program effectiveness:

- Organize for Success
- Assess Your Environments Continuously
- Plan Your Short and Long-Term Activities
- Act to Address Structural, Institutional, and Behavioral Issues
- Evaluate Your Results for Continuous Improvement
- Communicate with Everyone, All the Time

Each *Key Driver* in the *Framework* contributes to the success of a school IAQ management program. The *Key Drivers* are not ranked in priority order—they are all equally important. The *Framework for Effective School IAQ Programs* is a self-reinforcing system. Working to develop one *Key Driver* will contribute to and build-up another; the strategies behind the *Key Drivers* overlap and reinforce one another.

It is important to remember that a highly effective IAQ management program is a work in progress: successful school districts continuously

pursue and build their programs around these Key Drivers. It is important to think about IAQ management as a marathon and not a sprint.

KEY DRIVER #1

Organize for Success

Systems Matter: Apply a systematic approach to coordinate and enhance existing activities and build a sustainable IAQ initiative.

BVSD used the IAQ TfS Program's guidance to identify which procedures, resources, and personnel to coordinate to improve our facilities management plan. By integrating disconnected pieces, we created a stronger program out of our existing parts. We used the IAQ TfS Program structure to tie disparate facility management activities and functions together, and to get the right people from across the district talking about environmental management issues and policies.

Process, Process, Process: Create standard operating procedures (SOPs) to ensure regular facility assessments, prevention actions, and swift problem response.

BVSD adapted existing SOPs for facility design and capital construction projects, building envelope and major mechanical replacement programs to establish new response protocols for IAQ. We also explicitly tied the new SOPs to the overarching

ing goal of creating outstanding learning environments that promote student success. We felt it was important to demonstrate and publicize the links between our IAQ prevention and response SOPs and the educational mission of our district to help decision-makers and staff to support our activities.

Designate and Empower a Leader: Identify the person in charge of the IAQ management program and empower that person to make decisions and direct action.

BVSD chose a strong leader who is committed to IAQ management, facility health, and occupant wellness. Our IAQ coordinator has the influence necessary to pull the right policies and people together; promote the program's importance to decision-makers, staff, and teachers; and hold people accountable for progress. We chose a coordinator for our IAQ initiative whose role as Safety Manager had prepared him in many of the relevant issues (facility management, pollution prevention, etc.). He became the face of the District's IAQ program—the "go-to guy" critical to our success.

Foster IAQ champions (on your team and in the broader community) to promote your program's success.

BVSD communicated broadly about the links between the IAQ Program and student learning; Everyone knew how they could contribute to healthy school environments that lead to student success. Principals saw that the program could keep students healthy; and custodians felt pride about being the first line of IAQ defense.

KEY DRIVER #2

Assess Your Environments Continuously

Establish your facility performance baseline.

BVSD continuously conducts room checks to measure thermal comfort and CO₂ and tracks varia-

tions against baseline data. Data that we collect includes thermal conditions (average temperature, relative humidity, and CO₂), and ventilation rates; particulate matter: frequency with which HVAC filters are changed; and more.

Use technology to simplify assessments, collect and manage data, and track response and prevention activities.

BVSD uses technology – including an Aircurity machine, a Forward Looking Infrared camera (FLIR), and an Environmental Management System – to comprehensively measure facility parameters during walk-throughs; and to continuously monitor filtration, air flow, CO₂, temperature, and relative humidity in all facilities. Our tools help the IAQ team to limit lost instructional time by heading off potential problems.

Respond promptly to occupant concerns and demonstrate that you take concerns seriously.

The BVSD thinks of our occupants as our customers and we show them that we take IAQ issues seriously because we value their health. Our IAQ team follows up within 24 hours of receiving a complaint by talking with the complainant, describing next steps, and continuing to discuss work in progress. This culture of customer service builds trust between facilities staff and occupants and creates a joint sense of ownership for the facility. We tell complainants what we plan to do in response to their concern, share any data that we have with them, and inform them when and how concerns are resolved. Engaging occupants in our work generates trust and support.

Prevention Today Means Savings Tomorrow: Identify IAQ risk factors and opportunities for improvement and take preventive, not just responsive, action.

The BVSD team uses what we learn from our assessments to iden-

tify actions we can take to head off problems. We take opportunities to educate occupants and custodians, update maintenance and policies, and take precautionary action, such as sealing foundation cracks to prevent moisture intrusion. We schedule these actions proactively to save time and money and reduce risks in the future.

We prioritize custodial training for IAQ prevention. The custodial team is our eyes and ears. They are in the buildings every day and can let us know what's happening so we can prevent problems. We teach custodians to identify and report moisture leaks and mold growth and to take pictures and map leaks. The worst thing you can do is replace a stained ceiling tile with a new one. We need to see the stained ones so we can address the root cause of the problem rather than papering over it with a new tile.

KEY DRIVER #3

Plan Your Short- and Long-term Activities

Start Small to Get Big: Continuously plan your prevention and upgrade activities recognizing that you cannot do everything all at once.

BVSD launched an IAQ program by finding opportunities to improve IAQ without much new work. We 'pushed the fly wheel forward' with small wins that continually generated momentum and support for the program. We think of effective IAQ management as a marathon, not a sprint.

Put It in Writing: Include your IAQ program's goals and objectives in documents that codify SOPs.

BVSD institutionalized our program by including goals and measures for success in the district's strategic plan. The IAQ team is publicly accountable and they have senior-level support for the program because the board, superintendent, and others know the IAQ program's

focus is on significant environmental accomplishments resulting in student success. We list our IAQ program goals, plans, and responsibilities in the district's strategic plan, facility operations plans, staff training programs, operating manuals, etc. We articulate our program's goals and objectives clearly and publicly so they become true yardsticks for district performance.

KEY DRIVER #4
Act to Address Structural, Institutional and Behavioral Issues

Educate staff on IAQ risks, evidence of IAQ problems, and how to report what they find.

BVSD's IAQ team meets with principals regularly to educate them about the IAQ program, and to share a 'cheat sheet' that lists the roles, responsibilities, and contact information of facilities department staff. Most principals become active site managers. We give them the knowledge of common IAQ risks and the power to act to protect the buildings in which they spend time. In the process, we can turn them into IAQ guardians and champions.

BVSD includes leadership and stewardship messages in our education programs. We convey that facility health is a joint responsibility and that it takes a team of proactive occupants, staff, and managers to prevent problems and deliver outstanding learning environments.

Root Cause Analysis Works: Identify the underlying cause(s) of problems at the first sign of an IAQ issue and do not be satisfied with cosmetic fixes.

In BVSD, training for all lead custodians focuses on 'the root of the problem' rather than superficial solutions. Lead custodians learn to conduct regular walkthroughs, effectively report potential problems (see it, map it, report it), and train their colleagues to do the same. We ground our preventive maintenance program in root cause

analysis: programs that see the biggest return on investment are those that address the sources of problems.

KEY DRIVER #5
Evaluate Your Results For Continuous Improvement

Survey Your Customers: Ask occupants for input on your program's progress and effectiveness to improve community relations and gather valuable data.

BVSD asks occupants to score the school's indoor environment on annual surveys and aims to receive scores of at least 4 out of 5 from 100 percent of respondents. We ask occupants for feedback on their comfort with our IAQ program, the ease of reporting concerns, perceived effectiveness of response to reports, and general satisfaction with the indoor environment.

Capture Your Return on Investment (ROI): Establish and track quantitative targets for your program wherever possible.

BVSD documented reduced operating costs associated with the IAQ management program (e.g., energy savings from HVAC upgrades) and used the proof of savings to invest money back into the environmental program. BVSD also documented a rise in test scores every year since the IAQ TFS Program began along with fewer per capita IAQ complaints.

KEY DRIVER #6
Communicate with Everyone, All the Time

Share Your Goals: Publicize your program's goals, plans, and expected activities.

BVSD records its IAQ goals in its strategic plan, communicates them to people across the District, and explains the rationale behind them. We communicate the connection between your IAQ activities and program goals so stakeholders

know what you are doing and why it is important. "We [BVSD IAQ team and administrators] take a proactive approach to maintaining our buildings...We have to be aware that keeping a building in top shape costs money, but we know that it saves money in the long run."

Make it Meaningful to Your Audience: Communicate the link between your program's plans, activities and results and the issues that matter most to your audience.

BVSD generated support for the IAQ program by emphasizing how it would manifestly support the district's goal of "creating outstanding learning environments. The IAQ team also mailed newsletters to all households in the district, to share the message that "Each day we wait to improve IAQ, money is lost." We talk to parents about how our work safeguards their children; we tell staff and administrators how it promotes health, productivity, attendance, and performance; we share with facilities and operations and maintenance staff how their work affects student success and reduces facilities wear and tear and maintenance costs. Our patrons got the message and now support the air quality activities through bond initiatives and volunteerism.

Communicate your results to everyone in the community.

BVSD shares IAQ program progress by reporting on daily, weekly, and monthly improvements to the school board and community. We share information on our efforts and results so the community can understand the full circle of IAQ management—risk identification, action, prevention, and improvement—and see why IAQ investments and behavior/policy changes are worth supporting. "Our patrons know that things get done because we make sure to follow every issue and we communicate what we're doing, why we're doing it, and what to expect next." ■

To learn how your school district can incorporate the *Framework for Effective School IAQ Programs: Six Key Drivers* or to get additional information, contact Michele Curreri at the US EPA at 202-343-9099 or e-mail curreri.michele@epa.gov.

Author Bio

Dave Hill is the Executive Director of Facilities and Operations for the Blue Valley School District (21,000 students) located in Overland Park, Kansas. He has published articles in professional journals and presented at several local & national conferences & symposiums on school facili-

ty planning & design, site planning, population forecasting and demographics, LEED and environmental design, and indoor air quality. Dave received undergraduate and graduate degrees in Architecture and Urban Planning from Iowa State University.

Resources for EPA's Environmental Programs for Schools

EPA is a strong advocate for creating and maintaining healthy and safe school environments. For this reason, it has established several school-based programs to address a variety of environmental factors that schools encounter each day. These school-based programs raise awareness for the importance of creating and maintaining healthy and safe indoor and outdoor school environments for students and staff. Each program offers free information and guidance on how schools can address the variety of environmental factors that affect school buildings, children and staff.

Indoor Air Quality Tools for Schools Program

Indoor Air Quality Tools for Schools is a non-regulatory program that provides district-based guidance to schools about best practices, industry guidelines, and practical management actions designed to help school personnel identify, solve and, prevent indoor air quality problems.

For more information, visit www.epa.gov/iaq/schools or contact Michele Curreri at 202-343-9099.

Indoor Air Quality Design Tools for Schools

Indoor Air Quality Design Tools for Schools (IAQ DTfs) provides voluntary web-based guidance for schools on how to design healthy, high performing schools from the ground up and incorporate IAQ practices into the design, planning, building and commissioning process for new schools.

For more information, visit www.epa.gov/schools or contact Michele Curreri at 202-343-9099.

Healthy School Environments Assessment Tool (Healthy SEAT)

Healthy SEAT is a free, fully customizable software tool designed to help school districts manage voluntary self-assessment programs for all of their key environmental, safety and health issues.

For more information and to download the Healthy SEAT, visit www.epa.gov/schools or contact Bob Axelrad at 202-343-9315.

Asbestos in Schools

The presence of asbestos in high-activity public buildings such as schools presents the opportunity for inadvertent disturbance and potential for exposure. Consequently EPA created a web resource addressing asbestos

in schools. This resource contains information on Asbestos Hazard Emergency Response Act (AHERA), which requires public and private non-profit primary and secondary schools to inspect their buildings for asbestos-containing building materials.

For more information, visit www.epa.gov/asbestos/asbestos_in_schools.html.

Clean School Bus USA

The Clean School Bus USA program aims to promote clean and safe school bus transportation for children in order to reduce children's exposure to diesel exhaust and the amount of air pollution created from diesel buses. Clean School Bus USA program encourages school districts to adopt policies and practices to eliminate unnecessary public school bus idling; upgrading (retrofitting) buses that will remain in the fleet with better emission-control technologies and/or fueling them with cleaner fuels and replacing the oldest buses in the fleet with new, less-polluting buses.

For more information, visit www.epa.gov/cleanschoolbus.

ENERGY STAR® for K-12 Schools

ENERGY STAR® Program for K-12 schools offers information for schools on how to incorporate building improvements that will help to reduce energy costs. EPA's ENERGY STAR® for K-12 School Districts encourages schools to prepare an energy strategy for the future; establish a comprehensive energy management program using ENERGY STAR's Guidelines for Energy Management; gather information on how to finance energy projects and receive free training and on-line tools and information and resources through the ENERGY STAR website. Schools can use these resources to improve building management practices, incorporate energy upgrades, and reduce long-term energy costs.

For more information, visit www.energystar.gov and click on the "K-12" link under "Buildings & Plants."

Integrated Pest Management in Schools

The Integrated Pest Management Program for Schools offers voluntary guidance and tips on how schools can incorporate the use of environmentally sensitive pest management techniques which utilize the lowest-impact chemical control of pests in the school

environment. This will reduce the use of common toxic pesticides.

For more information, visit www.epa.gov/pesticides.ipm

Lead in Drinking Water Program for Schools

The Lead in Drinking Water Program for Schools educates schools on lead in drinking water and potential health impacts for children. EPA encourages schools to test water for lead concentration at all fixtures used for drinking and cooking.

For more information, visit www.epa.gov/safewater/lcrrm/pdfs/report_lcrrm_schoolsummary.pdf.

Mercury In Schools Program

The Mercury in Schools Program encourages schools to reduce the hazards of mercury exposure in schools by removing all mercury compounds and mercury-containing equipment and by discontinuing their use. They offer a variety of information and guidance for schools.

For more information, visit www.epa.gov/mercury/schools.htm.

Mold and Moisture Remediation Guidance

Moisture problems in school buildings can be caused by a variety of conditions including roof and plumbing leaks, condensation, and excessive humidity. Moisture problems in schools are also associated with the aging of school facilities, delayed maintenance or insufficient maintenance, due to budget and other constraints. When mold growth occurs in buildings, it may be followed by reports of health symptoms from some building occupants, particularly those with allergies, asthma, or respiratory problems. Mold growth can be controlled indoors by controlling moisture indoors. EPA provides guidance on training on mold remediation.

For more information, visit www.epa.gov/mold.

Schools Chemical Cleanout Campaign

The School Chemical Cleanout Campaign and Prevention Program (SC3) work to raise national awareness of the potential dangers of chemical accumulations in K-12 schools and facilitate chemical cleanout and prevention of future chemical management problems.

For more information, visit www.epa.gov/sc3 or contact Kristina Meson at 703-308-8488.