Florida Tools For Schools
Asthma Indoor Air Quality

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Introducing Webinar Suites by Topic Area

Topic 1:

IAQ Management Program Essentials

The IAQ Master Class Professional Training Webinar Series and the IAQ Knowledge-to-Action Professional Training Webinar Series offer a combination of resources aimed at providing the latest technical information on IAQ management program fundamentals.

The three webinars highlighted below cover three major components of an IAQ management program:

1. How to start, improve or sustain an IAQ management program.

2. How to present evidence to motivate others to support the creation of an IAQ management program.

3. How to implement the IAQ Tools for Schools Framework in an IAQ management program.
School IAQ Assessment Mobile App

Indoor Air Quality Tools for Schools

Organize Communicate
Assess Plan Act Evaluate

EPA

Nemours. Children’s Health System
The Framework for Effective School IAQ Management:

**Six Key Drivers**

**Organize**
- Develop Systematic Approach
- Identify Existing Assets
- Design Standard Operating Procedures
- Empower an IAQ Leader
- Build an Effective Team
- Create Champions
- Secure Senior Buy-In

**Communicate**
- Share Your Goals
- Make IAQ Meaningful
- Be Transparent and Inclusive
- Communicate Results (Return on Investment)

**Evaluate**
- Solicit Feedback
- Capture ROI

**Assess**
- Walk the Grounds
- Listen to Occupants
- Use Technology
- Determine a Baseline
- Keep Customers Satisfied
- Identify and Prevent Risks

**Act**
- Educate Staff About IAQ to Change Behavior
- Train Occupants to Address IAQ Risks
- Address the Source of Problems

**Plan**
- Prioritize Actions
- Put Goals in Writing
- Start Small
- Work in Stages
- Plan for the Future

**Action Kit**
- HVAC
- Moisture/Mold
- IPM
- Cleaning & Maintenance
- Materials Selection
- Source Control
The Framework for Effective School IAQ Management:
Six Technical Solutions

Quality HVAC
- Inspect HVAC systems regularly
- Establish a maintenance plan
- Change filters regularly and ensure condensate pans are draining
- Provide outdoor air ventilation according to ASHRAE Standard or local code
- Clean air supply diffusers, return registers, and outside air intakes
- Keep unit ventilators clear of books, papers, and other items

Control ofMoisture/Mold
- Conduct routine moisture inspections
- Establish mold prevention and remediation plan
- Maintain indoor humidity levels between 30% and 60%
- Address moisture problems promptly
- Dry wet areas within 24-48 hours

Strong Integrated Pest Management (IPM)
- Inspect and monitor for pests
- Establish an IPM plan
- Use spot treatments and baits
- Communicate with occupants prior to pesticide use
- Mark indoor and outdoor areas treated with pesticides

Effective Cleaning and Maintenance
- Conduct routine inspections of school environment
- Develop a preventative maintenance plan
- Train cleaning/maintenance staff on protocols
- Ensure material safety data sheets (MSDS) are available to staff
- Clean and remove dust with damp cloth
- Vacuum using high-efficiency filters

Smart Materials Selection
- Maintain products inventory
- Develop low-emitting products purchasing and use policies
- Use only formaldehyde-free materials
- Use only low-toxicity and low-emitting paint
- Select products based on product rating systems
- Use least toxic cleaners possible (only those approved by the district)

Aggressive Source Control
- Conduct regular building walkthrough inspections
- Test for radon; mitigate if necessary
- Implement a hazardous materials plan (use, label, storage and disposal)
- Establish a school chemical management and inventory plan
- Implement smoke-free policies
- Establish an anti-idling school bus policy
- Use walk-off mats at building entrances
- Conduct pollutant-releasing activities when school is unoccupied
• Building free of water damage, water stains, stained ceiling tiles, apparent microbial growth (AMG), and leaks/uncontrolled water sources
• Sufficient water-proofing around all water-prone areas; caulking around water fountains, sinks, and toilets sufficient and in good repair; area under water fountains is sufficiently water-proofed, carpet around area is dry
• Walk-off flooring at all entrances
• Water in all floor drains (pea-traps or custodians)
• All exhaust vents working
• Air in rooms is comfortable, no occupant complaints. Note any odors or moldy/musty smells, “stuffy” feeling air, and fans and occupant complaints.
• Air flowing, return & supply air vents free of obstruction. Vents free of dust and debris as well as blockage by occupants.
• Mechanical equipment appears to be working properly. No standing water on floor.
• Mechanical rooms free of storage, trash, and excessive dust.
• Vents and ceilings clean and relatively free of dust, not in need of high cleaning
• Floors, especially around bleachers, free of trash and food debris
• Athletic locker rooms clean, air does not smell musty, moldy, or feel too humid
• Areas free of water damage. Check water-prone areas such as showers and restrooms carefully
• Natatorium in good condition, pool clean and in good repair
Custodial Closets

- Custodial office: should have a copy of up-to-date SDS binder
- All wet items kept within water-proofed areas: no mops hanging outside mop sinks, etc
- Hoses hanging down into mop sinks, not wrapped around faucets
- Mop sinks and other water-prone areas well-sealed, caulked, in good repair
- Doors to custodial closets locked when unoccupied (to secure chemicals)
& Prep Rooms

- Chemicals properly stored in science prep room, secured away from students. Chemical storage areas are clean and organized, no hazardous or unlabeled chemicals found.

- Science preparatory area is free of personal food items. No teacher food in the lab refrigerator, no microwaves, or coffee makers. Area reserved for chemical/experiment preparation only.
Integrated Pest Management (IPM)

- Building, especially food areas (teachers’ lounges, etc) clean and free of dirty dishes & food debris. Check in, around, and under microwaves and refrigerators.
- Building, especially food areas, free of excessive cardboard.
- Door sweeps and thresholds adequate.
- Signs of pests.
Exterior

- Building free of moisture problems. Check for blackening or discoloration of brick, especially around gutters, downspouts, and expansion joints.
- Good site drainage away from building: no ponding or discoloration/damage along building wall.
- Weep holes free of blockage.
- Building penetrations sealed.
The Framework for Effective School IEQ Management:

**Six Technical Solutions**

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TECHNICAL SOLUTION: IPM

✓ What is ‘Strong Integrated Pest Management (IPM)?’
  • Your IPM program should be verifiable, documentable pest management that reduces both pests and pesticide risk

✓ IPM Policy Statement
  • Schools and Districts must have a Pest Management Plan that includes IPM; specifically identifies strategies to reduce pests and pesticide risks

✓ Communication
  • Pest Management is People Management; include IPM in your school’s safety committee meetings and encourage regular in-service training for staff

✓ Reduce Pesticide Exposure
  • Use baits and spot treatments of pesticides if necessary
  • Implement a notification system with parents and staff before pesticides are applied

For more information on IPM: epa.gov/pesticides/ipm
What does IPM mean to our District?

- IPM is a part of a sustainable Indoor Environmental Quality Program.
- We can stop pests if we change our behaviors.
- Controlling pests will reduce asthma triggers and in turn reduce absenteeism and improve academic outcomes.
- Everyone has a role in controlling pests.
Occupant Behavior

- Promote Good IPM Behavior in Your School!
- Use closable, rigid food storage containers
- Do not leave food out overnight in classrooms or offices
- Clean up after yourself if you spill something
- Bring food waste to centralized locations that are removed daily
- Report pest and/or dropping sightings to Main Office and add to sighting log
- De-clutter so surfaces are cleanable

Clutter-free classroom saves teachers time and money.
Waste Management

- Have centralized food waste receptacles.
- Empty centralized food waste receptacle at least daily.
- Place centralized receptacle bags into secured bins with lids until removed from site.
- Compost if you can.
Pest Management Professionals

- Review pest sighting logs in Main Office
- Target areas with sightings of pests and/or droppings
- Do not use chemical pesticides
- Communicate with building occupants in areas with frequent sightings
Bed Bugs

- No disease transmission
- Psychological impact
- Sensitivity and respect for affected children and staff
- Provide resources to families from local health department
- Use steam and HEPA vacuum
- Isolate belongings equitably
Effective Cleaning & Maintenance

- Conduct routine inspections of school environment
  - Safety inspections of entire schools. Look for anything considered “unsafe”
  - Report issued to school principal and leadership team for accountability
  - Weekly building walk-throughs looking for safety issues

- Develop a preventative maintenance plan
  - Assign PM for accountability with date and times.
  - Any PMs that your staff cannot handle could be contracted to outside vendors
  - Monitor PM schedules (web based software or calendar program)

- Train cleaning/maintenance staff on protocols
  - Monthly and annual training with team supervisors/ shop training
  - Other training as needed on “professional learning days” or days when students are not in school
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Aggressive Source Control for Education Facilities

- Manage sources of VOCs, particles, and biological allergens
  → Low Emitting VOC products especially furniture, flooring, paints, and cleaners – that are 3rd party certified
  → Ensure periodic, high performance cleaning is used with HEPA vacuuming, low VOC cleaners, and microfiber cloths, etc.
  → Manage any moisture intrusion or damage immediately by correcting any leak and removing heavily wetted products.
Asthma Management

- Managing air quality in schools is a critical component to keep students with asthma healthy, in school and ready to learn.

- Asthma management in schools can be addressed through a two-pronged approach:
  - establishing an environmental assessment plan
  - creating a comprehensive asthma management plan

- The American Lung Association is recognizing schools for taking the steps to create healthy learning environments. Become a 2014 AFSI Champion Award winning school or school district today!

www.lung.org/afsicampion
Six Key Drivers at Work

Organize

Attendance Funding ➔ Gains / Benefit

Impacts
Student Performance

Number of asthmatics in NEISD schools 11.735% × Average number of school days missed by those students with asthma (CDC) 8 = Potential revenue LOST

8,061 × $32.00 = $2,063,616.00

Benefits possible when Asthma/Allergy Control Environmental measures applied:

Reducing average number of schools days missed due to asthma by 50%....

$1,031,808.00

Improving all asthmatics attendance by only ONE day....

$257,952.00
Asthma is...

Environment
"Inducers"
Dust mite, cat dander,
Cockroach, mold,
ETS

Genetics

Asthma Development

Asthma Control

"Our genes may load the gun, but the environment pulls the trigger."
-- Ellen Silbergeld, Ph.D.

- HVAC
- Moisture/Mold
- IPM
- Cleaning & Maintenance
- Materials Selection
HUMAN Health Connection
Make it Relevant to All Stakeholders

Requires Clinic Visit

- Loss of instruction time
- Student/Staff performance
- Attendance/ $$

Carpet Removal
De-cluttering
Green Cleaning
Custodial Training Program
Cleaning Efficiency
HVAC Filter program
Integrated Pest Management
EMC Commissioning
HEPA Filter Vacuums
Water intrusion trailer
Drying Equipment
Earth Retainer Blocks
Chemical ‘overuse’ Policy
Occupant Best Practices “Tips”
Air Quality Health Alert Policy
Procurement/Construction
Environmental Walk Thru / IAQ Work Order
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. Broward County FL uses EPA tool for schools to address 2002 mold crisis [1](https://www.epa.gov/sites/production/files/2014-08/documents/Broward_County.pdf)

- **IAQ case studies** [2](https://www.epa.gov/iaq-schools/indoor-air-quality-schools-case-studies)

- **Guide to asthma policy for housing and schools** [3](http://www.lung.org/assets/documents/asthma/sample-school-policy-asthma-action-plans.pdf)

Resources continued

• ALA Asthma Friendly Schools