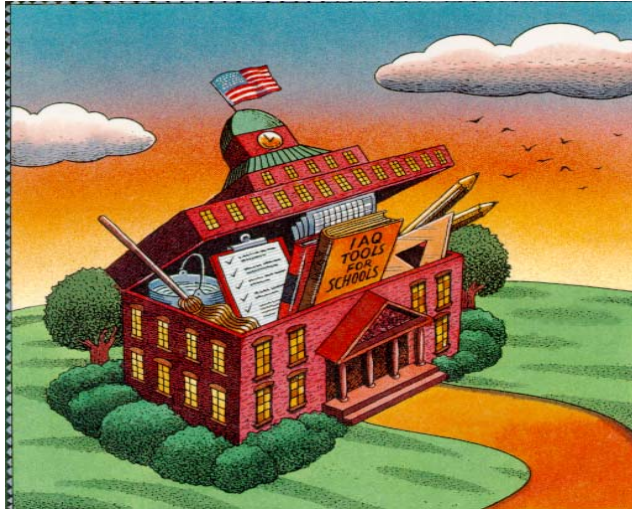


# Environmental Protection Agency Region 10

## TOOLS FOR SCHOOLS



### *INDOOR AIR QUALITY IMPLEMENTATION*

### **3 EASY STEPS**

**STEP 1** Select an IAQ Coordinator

**STEP 2** Complete an IAQ Walk-Around  
Assessment of Your School

**STEP 3** Create Your Own IAQ Program

*Your contacts for this program are:*

EPA Region 10 IAQ Program Coordinator

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Operate & Maintain  
A Five Star School:



Dry



Clean



Comfortable

Control Pollutants



Adequate Ventilation



Date \_\_\_\_\_

# STEP 1

## Select an **IAQ Coordinator** for your School



The following person is the IAQ Coordinator  
at this school:

(please type or print)

Name: \_\_\_\_\_ Title: \_\_\_\_\_

School name: \_\_\_\_\_

School mailing address: \_\_\_\_\_

\_\_\_\_\_

School phone: \_\_\_\_\_ FAX: \_\_\_\_\_

Email: \_\_\_\_\_

Save time . . .

Just attach business card

Check here if the IAQ Coordinator is also the District IAQ contact

## STEP 2

# Conduct an **IAQ Walk-Around Assessment** Includes completing *Teacher Checklists*

Check "OK" box if your school is already doing a good job.  
Check "See Notes" if you are unsure or the item needs attention.  
Make a note about those items that may need attention - these are likely candidates for your IAQ Program. (Step 3)

OK   See Notes

### 1. Get Started

#### REQUIRED: COMPLETE TEACHER CHECKLISTS

Assemble a team to participate

Distribute advanced notice of the walk-around

OK   See Notes

### 2. Classrooms and "Portable" Units

Adequate ventilation and filtration, housekeeping

No asthma triggers, moisture problems, odors, health issues/high absenteeism

Use of low-emission classroom materials & supplies

OK   See Notes

### 3. Office & Staff Areas

Adequate ventilation, filtration, comfort

Office equipment exhausted to outside

OK   See Notes

### 4. Staff Work Rooms & Lounge

Adequate ventilation and filtration

Use of low-emission products and equipment

Space maintained at negative pressure to adjoining rooms

Carbon monoxide (CO) alarms for combustion devices

Direct exhaust of fumes, proper storage of chemicals

OK   See Notes

### 5. Labs, Shops, Mechanical

Adequate ventilation and filtration

Direct exhaust of odors and fumes

Proper storage of chemicals and flammables

Room maintained at a negative pressure

Carbon monoxide (CO) alarms for combustion devices

Use of personal safety equipment

**OK** See Notes

## **6. Custodial and Storage Areas**

- Carpet vacuums equipped with filtration bags; use of low-emission cleaning products
- Adequate ventilation and exhaust of moisture and odors; space maintained at a negative pressure to surrounding rooms
- Proper storage of chemicals and flammables

**OK** See Notes

## **7. Ventilation System**

- Intake screens are clean and proper quantity of outside air is delivered to occupants
- Outside air is not contaminated
- Adequate filters are correctly installed
- Equipment and ducts are dry and clean
- System on/off controls are working properly
- System is providing comfortable temperatures in building

**OK** See Notes

## **8. Basements, Tunnels, Crawlspace, Attics**

- Areas are dry and free from air pollutant sources such as mold, dust and particles, insects & rodents, odors
- Note pathways for unplanned air flows to occupied zones
- Asbestos removed or encapsulated; confined space requirements are being observed; radon tests completed

**OK** See Notes

## **9. Outside the Building**

- No nearby sources of contaminants, odors, dust, pollen
- No vehicle parking/loading, dumpsters, or other pollution sources near air intakes
- Adequate site drainage; sprinklers do not spray buildings

**OK** See Notes

## **10. General**

- No "problem" rooms or areas, comfort issues, evidence of moisture problems, odors, rodents & insects, inadequate housekeeping, old carpet
- Carbon Monoxide (CO) alarms are installed and maintained

**Use this checklist as a guide to identify IAQ program items that will help your school maintain a healthy and productive learning environment.**

## STEP 3

# Suggested Elements of an IAQ Program

Choose and circle items that will help you start an indoor air quality program that will best serve your students and staff.

### 1. Policy and Guidance

1. Gain the full support of school administration for full participation in the U.S. Environmental Protection Agency's Tools for Schools Program.
2. Establish a formal set of IAQ policy statements for your school.
3. Post the IAQ policy.
4. Alert parents and students that your school has an IAQ policy.
5. Develop and adopt IAQ guidance for administration and staff (no furniture "from home;" no live-in animals in classrooms; use only approved chemicals in the school, etc.)
6. Adopt and enforce practical "good management practices" for operation and maintenance of the school's various "systems" (ventilation system, heating system, plumbing, roof, etc.).
7. Adopt and enforce practical "standard of care" guidance for custodial care of the facility.
8. Adopt Integrated Pest Management (IPM) to reduce pesticides.
9. Develop guidance on purchase of new materials and equipment for the school to eliminate, or at least reduce, introduction of air pollutant sources into the facility (photocopiers, laminators, etc., must have exhaust systems; low-emission adhesives and paints; reduction in "fleecy" materials).
10. Adopt detailed guidance for renovation and remodeling.

Self selected elements

- 1.
- 2.
- 3.
- 4.
- 5.

## 2. Indoor Air Pollutant Sources

1. Review IAQ pollutant sources information in the Tools For Schools Action Kit.
2. Review literature on indoor air pollutants in other publications.
3. Conduct a thorough survey of the facility to identify indoor air pollutant sources and their location.
4. Remove or eliminate as many indoor pollutants as possible. Come up with guidelines to keep them out of the facility in the future.
5. Substitute products, materials and equipment that emit indoor air pollutants for alternatives that have less impact on occupants.
6. Install carbon monoxide (CO) alarms in areas with combustion equipment, and in prominent areas for occupants to monitor.
7. Reduce asthma triggers (dust, pollen, insects/mites, rodents, custodial chemicals, fragrances, classroom and art supplies, etc.).

### Self Selected Elements:

- 1.
- 2.
- 3.
- 4.
- 5.

## 3. Ventilation

1. Establish a good working relationship between the IAQ coordinator and individuals who operate and maintain the facility's ventilation systems.
2. Review the design intent and current operation of the ventilation systems, especially in areas where remodeling has occurred, walls have been added to divide spaces, or the intended use has changed.
3. Organize a "tour" of the ventilation systems led by the systems operator and note actual operation and condition of equipment. Ensure outside air is not contaminated by outdoor sources; outside air quantities are adequate; filters are tight-fitting and of good quality; ducts are dry and relatively clean; mechanical rooms are not used to store chemicals or other potential air pollutant sources; and controls and time clocks are set appropriately. Invite



- staff along on "tour" to give them a better understanding of how air handling systems function.
4. Coordinate with ventilation systems operator to develop and use maintenance checklists and maintenance calendars and logs to ensure routine checks are made and preventive maintenance (PM) servicing is completed. (For sample forms, see EPA's *Building Air Quality Manual*  
[http://www.environ.com/IAQ\\_Resource\\_Pages/BuildingAirQuality.htm](http://www.environ.com/IAQ_Resource_Pages/BuildingAirQuality.htm))
  5. Carefully look for and correct "unplanned air flows" that can move air pollutants to occupied zones (use tracer smoke, etc.).
  6. Ensure exhaust fans are ducted to the outside and actually move air (not just make noise); exhaust zones, including laboratory hoods, are actually under "negative pressure;" system on/off timers are set properly.
  7. Borrow or purchase carbon dioxide (CO<sub>2</sub>) measurement equipment to make routine measurements throughout the facility at times of peak occupancy for the longest period of time in order to document worst case scenario.
  8. Make sure ventilation air is supplied to all classrooms and "portable classrooms" at all times when these spaces are occupied. Many heating and cooling units only deliver air when the thermostat is calling for heat or air conditioning - no air is delivered when the space is comfortable.
  9. Train all ventilation systems operators on the subjects of ventilation and IAQ, equipment and measurement of air flows, assessment of unplanned air flows, and pressure control.
  10. Ensure reports of comfort or indoor air problems are handled appropriately and promptly.

**Self Selected Elements:**

- 1.
- 2.
- 3.
- 4.
- 5.

## 4. Operation & Maintenance

1. The IAQ Coordinator will establish a good working relationship with the operation & maintenance (O&M) staff in order to fully integrate good IAQ practices into daily O&M practices.
2. O&M staff will review the Tools for Schools Action Kit materials and adopt a proactive approach to their work.
3. O&M staff will routinely complete *Building Maintenance Checklists*.
4. O&M staff will review the EPA's *Building Air Quality Manual* and upgrade procedures where applicable
5. O&M staff will incorporate forms, checklists and logs from the EPA's *Building Air Quality Manual* where applicable
6. O&M staff will schedule and perform routine "walk-through" assessments, and address comfort, IAQ and safety hazards.
7. Personal safety training and equipment will be provided for O&M staff to protect them during assessments, maintenance and cleanup activities.
8. O&M staff will be trained in proper handling, cleanup, and disposal of chemicals and moldy materials, and know when to request professional help.
9. Contractors: Formally advise contractors providing services to your facility that your school is participating in the EPA Tools for Schools Program and requires "good management practices" in terms of the heating and ventilation systems. Good practices include selection and use of low-emission products, control of fumes and dust during work, emphasis on energy saving equipment, careful and absolute protection of ductwork from drywall dust during construction and thorough cleanup.
10. An IAQ Response Plan will be developed to ensure serious health-related problems, or time-sensitive situations, such as carbon monoxide, spills, leaks, and electrical problems, are addressed immediately and correctly.

### Self Selected Elements:

- 1.
- 2.
- 3.
- 4.
- 5.

## 5. Classroom Management

1. Maintain a "cleanable" classroom. Avoid excess clutter and piles of dust-collecting objects, especially stuffed toys, that could be boxed or stored in cabinets.
2. Report evidence of water leaks, spills, and wet carpet to maintenance personnel promptly to avoid property damage or biological growth.
3. Typically, maintenance budgets will not support regular dusting of classrooms. Try to wet wipe excessive dust from classroom surfaces as you see it. Encourage students and/or parents to assist in this effort to reduce allergy "triggers" that could impact health.
4. Allow only vinyl covered stuffed chairs and sofas in classrooms instead of fleecy allergen-permeated furniture donated from homes.
5. Don't adjust time clocks or HVAC equipment controls without permission and instruction from qualified maintenance staff.
6. Report classroom climate problems to maintenance staff: noisy fans, inadequate lighting or glare, cold drafts, excess heat, stuffiness, odors or high relative humidity and condensation.
7. Locate supply and return vents in the classroom; explain their purpose to students, and ensure that air flow is not obstructed.
8. Integrate instruction about improving IAQ in the classroom with tips about improving IAQ at home.
9. Use only low-emission markers and art supplies.
10. Ensure no toxic chemicals, such as Drano or Raid, are stored in cabinets under sinks.

Self selected elements:

- 1.
- 2.
- 3.
- 4.
- 5.

## 6. Curriculum and Student Involvement

1. Use lesson plans designed to inform students about the importance of maintaining good IAQ at school and at home.
2. Encourage students to survey for indoor air pollution sources in school and at home as class projects.
3. Obtain a copy of the *Teacher's Guide to Indoor Air Quality* and share it with interested faculty and students.
4. Work specifically with science classes to include IAQ in projects.
5. Work specifically with chemistry classes to include IAQ in projects.
6. Work with school newspaper staff to include articles on IAQ.
7. Ensure students have access to carbon dioxide monitoring results and know how to interpret the findings.
8. Ensure students are aware of the location of carbon monoxide alarms/sensors and know how to interpret the display readings.

Self Selected Elements:

- 1.
- 2.
- 3.
- 4.
- 5.

## 7. Documentation

1. Keep on file for future reference all routine maintenance logs, checklists, and problem reports related to IAQ.
2. Document and file proactive measures your school implements.
3. Document and file results from corrective actions concerning IAQ, include costs, vendors, contractors, and valuable resources used.
4. Track illness and absenteeism in specific rooms and building zones.
5. Track costs of IAQ problems in terms of staff time (faculty, administration, O&M, custodial, contractors, and others) to justify preventive measures/maintenance.

Self Selected Elements:

- 1.
- 2.
- 3.
- 4.
- 5.

## 8. Communications and Awareness

1. Form an IAQ team.
2. Provide IAQ information at staff in-service workshops.
3. Encourage IAQ discussions and study in classrooms.
4. Broadcast that your school is participating in the EPA Tools for Schools Program.
5. Send bulletins to teachers and students explaining IAQ.
6. Let parents know IAQ is a priority for your school.
7. Provide IAQ fact sheets, Tools for Schools Action Kit, report forms, and other resource materials in a prominent location.
8. Work to get IAQ facts and guidance into the school newspaper or bulletins - include "IAQ in the home" to increase awareness of parents/guardians.
9. Work with the school nurse to identify and track/document health issues that may be related to the indoor air, especially asthma.
10. Contact teachers with students diagnosed with asthma and provide guidance on reducing asthma triggers and proper procedures to follow in case of an asthma attack.

### Self Selected Elements:

- 1.
- 2.
- 3.
- 4.
- 5.