Veterans School

Mike House
Building + Grounds

MDR2
Jun 2025

Indoor Air Quality Backgrounder: The Basics

Indoor air quality (IAQ) is an increasingly important issue in schools across the nation. IAQ can directly affect the health and comfort of students and staff. There are many ways that school occupants can help to improve air quality. EPA developed the *Indoor Air Quality Tools for Schools (IAQ TfS)* Program to help schools address many IAQ issues using practical and often low-cost measures (such as unblocking ventilation supply vents to improve airflow).

By simply reviewing this *Indoor Air Quality Backgrounder* and completing the IAQ checklists, occupants can learn how to make a significant impact on IAQ and provide a healthy learning and working environment.

This guidance is based on the following principles:

- Most IAQ problems can be prevented and resolved by school staff through simple, inexpensive measures.
- The cost and effort needed to **prevent** most IAQ problems is significantly less than the cost and effort required to **resolve** problems after they develop.

WHY IAQ IS IMPORTANT TO YOUR SCHOOL

Most people are aware that outdoor air pollution can impact their health, but indoor air pollution can also have significant, harmful effects. EPA studies of human exposure to air pollutants indicate that indoor levels of pollutants may be two to five times—and occasionally more than 100 times—higher than outdoor levels. EPA and its Science Advisory Board consistently rank indoor air pollution among the top five environmental health risks to the public.

This is especially important to schools, as children may be more susceptible to air pollutants.

Failure to prevent or respond promptly to IAQ problems can:

- Increase potential for long- and short-term health problems for students and staff.
- Negatively impact student attendance, comfort, and performance.
- Reduce teacher and staff comfort and performance.
- Accelerate deterioration and reduce efficiency of school facilities and equipment.
- Increase potential for school closings or relocation of occupants.
- Strain relationships among school administration, parents, and staff.
- Create negative publicity.
- Impact community trust.
- Create liability problems.

UNDERSTANDING IAQ PROBLEMS AND SOLUTIONS

To understand IAQ problems and solutions, it is important to know what factors affect IAQ. These include:

- Sources of indoor air pollutants.
- Heating, ventilation, and air conditioning (HVAC) systems.
- Building occupants.
- Pollutant pathways.

SOURCES OF INDOOR AIR POLLUTANTS

Indoor air contaminants can originate within the building or be drawn in from outdoors. Air pollutants consist of numerous particulates, fibers, mists, bioaerosols, and gases. It is important to control air pollutant sources (see the table on the next page), or IAQ problems can arise—even if the HVAC system is properly operating.

Indoor Air Quality

Tools for Schools

Good IAQ helps to provide a healthy and productive environment for students, teachers, and staff in order to assist a school in its core mission—educating children.

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A complicating factor is that indoor air pollutant concentration levels can vary by:

- Time (for example, weekly, during floor stripping); and
- Location (within a school or even within a single classroom).

HVAC System Design and Operation

Properly designed HVAC equipment in a school helps to:

- Control temperature and humidity to provide thermal comfort.
- Distribute adequate amounts of outdoor air to meet ventilation needs of school occupants.
- Isolate and remove odors and pollutants through pressure control, filtration, and exhaust fans.

Not all HVAC systems accomplish all of these functions. Some buildings rely only on natural ventilation. Others lack mechanical cooling equipment, and many function with little or no humidity control.

The two most common HVAC designs in schools are unit ventilators and central air-handling systems. Both can perform the same HVAC functions, but a unit ventilator serves a single room while a central air-handling unit serves multiple rooms.

The diagrams on page 5 of this *Indoor Air Quality Backgrounder* show how three typical HVAC designs circulate air through classrooms. As shown in the diagrams, it is important that all rooms have both an air supply and exhaust.

TYPICAL SOURCES OF INDOOR AIR POLLUTANTS

Outdoor Sources

Polluted Outdoor Air

- Pollen, dust, fungal spores
- Industrial emissions
- Vehicle emissions

Nearby Sources

- Loading docks
- Odors from dumpsters
- Unsanitary debris or building exhausts near outdoor air intakes

Underground Sources

- Radon
- Pesticides
- Leakage from underground storage tanks

Building Equipment

HVAC Equipment

- Microbiological growth in drip pans, ductwork, coils, and humidifiers
- Improper venting of combustion products
- Dust or debris in ductwork

Other Equipment

- Emissions from office equipment (volatile organic compounds, ozone)
- Emissions from shop, lab, and cleaning equipment

Components and Furnishings

Components

- Microbiological growth on or in soiled or water-damaged materials
- Dry traps that allow the passage of sewer gas
- Materials containing volatile organic compounds, inorganic compounds, or damaged asbestos
- Materials that produce particles (dust)

Furnishings

- Emissions from new furnishings and floorings
- Microbiological growth on or in soiled or water-damaged furnishings

Other Indoor Sources

- Science laboratory supplies
- Vocational art supplies
- Copy/print areas
- Food prep areas
- Smoking lounges
- Cleaning materials
- Emissions from trash
- Pesticides
- Odors and volatile organic compounds from paint, chalk, adhesives
- Occupants with communicable diseases
- Dry-erase markers and similar pens
- Insects and other pests
- Personal care products

Building Occupants

The effects of IAQ problems on school occupants—including staff, students, and others—are often non-specific symptoms rather than clearly-defined illnesses. Symptoms commonly attributed to IAQ problems include:

- Headache, fatigue, and shortness of breath.
- Sinus congestion, cough, and sneezing.
- Eye, nose, throat, and skin irritation.
- Dizziness and nausea.

These symptoms could be caused by air quality deficiencies, but may also be linked to other factors—poor lighting, stress, noise, and more. Due to varying sensitivities among school occupants, IAQ problems may affect a group of people or just one individual. In addition, IAQ problems may affect people in different ways. Individuals that may be particularly susceptible to effects of indoor air contaminants include, but are not limited to, people with:

- Asthma, allergies, or chemical sensitivities.
- Respiratory diseases.
- Suppressed immune systems (due to radiation, chemotherapy, or disease).
- Contact lenses.

Pollutant Pathways and Driving Forces

Airflow patterns in buildings are determined by the combined forces of mechanical ventilation systems, human activity, and natural effects. Air pressure differences created by these forces move airborne pollutants from areas of higher pressure to areas of lower pressure through any available openings in building walls, ceilings, floors, doors, windows, and HVAC systems. For instance, as long as the opening to an inflated balloon is kept shut, no air will flow. When opened, however, air will move from the inside (area of higher pressure) to the outside (area of lower pressure).

Even if the opening is small, air will move until the inside pressure is equal to the outside pressure.

SIX BASIC CONTROL STRATEGIES

There are six basic control methods that can lower concentrations of indoor air pollutants. Specific applications of these basic control strategies may be noted in the attached checklist(s).

1. Source Management - Management of pollutant sources includes:

- **Source removal** - Eliminating pollutant sources or not allowing them to enter the school. Examples include not allowing buses to idle, not placing garbage in rooms with HVAC equipment, and replacing moldy materials.
- **Source substitution** - Replacing pollutant sources. Examples include selecting less- or non-toxic art materials or interior paints.
- **Source encapsulation** - Placing a barrier around the source so that it releases fewer pollutants into the indoor air. Examples include covering pressed wood cabinetry with sealed or laminated surfaces or using plastic sheeting to contain contaminants when renovating.

2. Local Exhaust - Removing point sources of indoor pollutants (through exhausting fume hoods and local exhaust fans to the outside) before they disperse. Examples include exhaust systems for restrooms and kitchens, science labs, storage rooms, printing and duplicating rooms, and vocational/industrial areas (such as welding booths and firing kilns).

3. Ventilation - Lowering pollutant concentrations by using cleaner (outdoor) air to dilute polluted (indoor) air. Local building codes likely specify the quantity (and sometimes quality) of outdoor air that should be continuously supplied in your school, as do voluntary standards set by the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE). Temporarily increasing ventilation coupled with proper use of the exhaust system while painting or applying pesticides, for example, can be useful in diluting the concentration of noxious fumes in the air.

4. Exposure Control - Adjusting the time and location of pollutant exposure. An example of time control is scheduling floor stripping and waxing (with the ventilation system functioning) for Friday after school. This allows products to off-gas over the weekend while the school is unoccupied. Location control involves moving the pollutant source away from occupants or even relocating susceptible occupants.

5. Air Cleaning - Filtering particles and gaseous contaminants as air passes through ventilation equipment. In most cases this type of system should be engineered on a case-by-case basis.

6. Education - Teaching and training school occupants about IAQ issues. People in the school can reduce their exposure to many pollutants by understanding basic information about their environment and knowing how to prevent, remove, or control pollutants.

Some solutions, such as major ventilation changes, may not be practical to implement due to lack of resources or the need for long periods of non-occupancy to ensure the safety of the occupants. Use temporary measures to ensure good IAQ in the meantime. Other solutions, such as anti-idling programs, offer low-cost options that can be easily and quickly implemented.

YOUR ROLE IN THE IAQ TEAM

As a school occupant, your activities and decisions have an impact on the quality of the school's indoor air. You can participate by completing the appropriate checklist and by continuing to apply these principles on a daily basis. Your school's IAQ Coordinator serves as a focal point for collecting IAQ information and handling IAQ concerns.

HOW TO KNOW IF YOU HAVE AN IAQ PROBLEM

Diagnosing IAQ-related symptoms can be tricky, especially because acute (short-term) symptoms are similar to those from colds, allergies, fatigue, or the flu. There are clues, however, that can help link symptoms to IAQ problems:

- Symptoms are widespread within a class or school.
- Symptoms disappear when the students or staff leave the school building for a day or for extended periods of time.
- Onset is sudden after some change at school (such as painting or pesticide application).
- Reactions occur indoors but not outdoors.
- Symptoms have been identified by a doctor as being IAQ-related.

It is not safe to assume that a lack of symptoms means that the IAQ in your school is acceptable. Symptoms of long-term health effects (such as lung cancer due to radon) often do not become evident for many years.

IF YOU THINK YOU HAVE AN IAQ PROBLEM

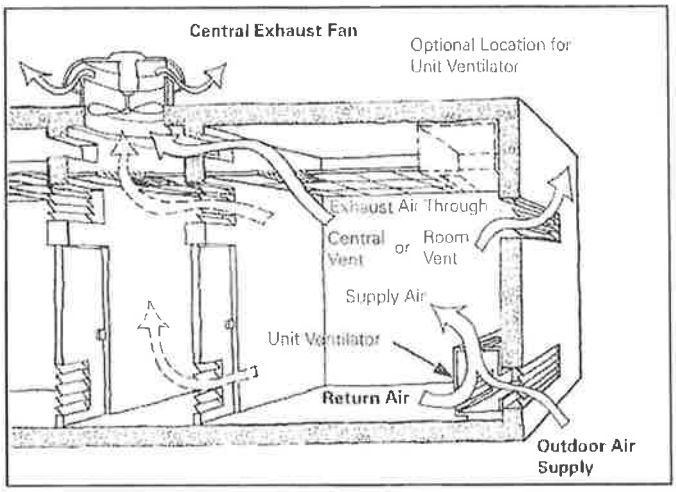
If you have a potential IAQ problem in your school or area that requires a simple solution or action, correct the problem. If the problem cannot be easily corrected or if the complaint seems to indicate a potentially severe IAQ problem, contact the IAQ Coordinator immediately. The IAQ Coordinator will investigate the problem further, either using in-house resources or by calling in help from outside the school.

COMMUNICATION

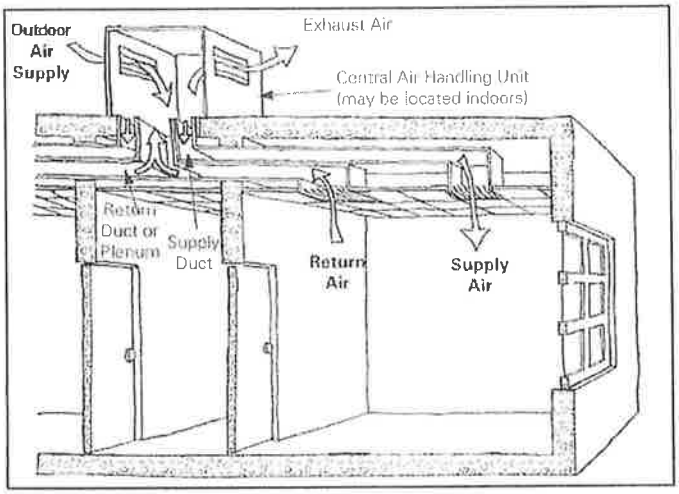
Because of the health risks involved, parents, the community, and media may react strongly to reports of poor indoor air quality in your school. It is recommended that you follow your school's IAQ communications guidelines. This typically involves referring all questions and inquiries to one central source—the IAQ Coordinator. This is the best way to avoid incomplete, incorrect, or conflicting information regarding the quality of the air in your school and any actions necessary to improve IAQ. For more information, refer to the ***IAQ TfS Communications Guide***, posted on EPA's Web site: www.epa.gov/iaq/schools

IAQ Checklists Available

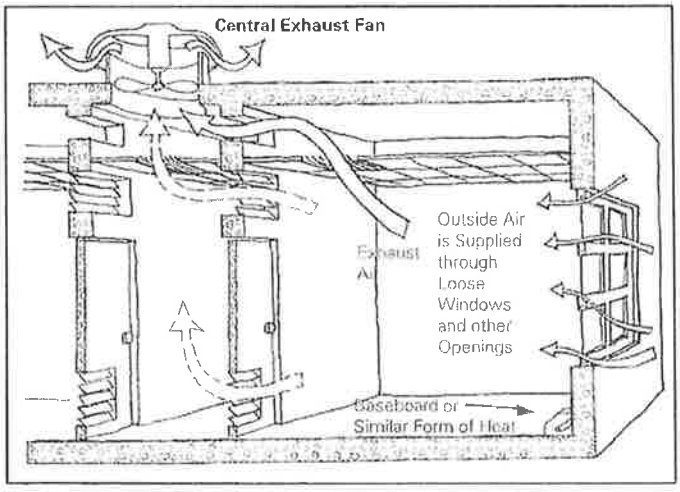
- Teacher's
- Administrative Staff
- School Official's
- Health Officer's
- Ventilation
- Building Maintenance
- Food Service
- Waste Management
- Renovation and Repairs
- Integrated Pest Management
- Walkthrough



Air Supply through a Unit Ventilator



Air Supply in a Central Air Handling System



Air Supply in an Exhaust-only System

Food Service Checklist

Name: Michael House

School: Fresno Veterans Memorial School

Room or Area: 60,000 Sq Ft Date Completed: June 2025

Signature:

Instructions

1. Read the *IAQ Backgrounder* and the Background Information for this checklist.
2. Keep the Background Information and make a copy of the checklist for future reference.
3. Complete the Checklist.
   - Check the "yes," "no," or "not applicable" box beside each item. (A "no" response requires further attention.)
   - Make comments in the "Notes" section as necessary.
4. Return the checklist portion of this document to the IAQ Coordinator.

1. COOKING AREA

		Yes	No	N/A
1a.	Determined that local exhaust fans operate properly (note if fans are excessively noisy)	X		
1b.	Checked for odors near cooking, preparation, and eating areas	X		
1c.	Ensured that exhaust fans are used whenever cooking, washing dishes, and cleaning	X		
1d.	Determined that gas appliances function properly	X		
1e.	Verified that gas appliances are vented outdoors	X		X
1f.	Ensured there are no combustion gas or natural gas odors, leaks, back-drafting, or headaches when gas appliances are used			X
1g.	Ensured that kitchen is clean after use	X		
1h.	Checked for signs of microbiological growth in the kitchen, including the upper walls and ceiling (for example, mold, slime, and algae)	X		
1i.	Selected biocides registered by EPA (if required), followed the manufacturer's directions for use, and carefully reviewed the method of application	X		
1j.	Verified the kitchen is free of plumbing and ceiling leaks (signs include stains, discoloration, and damp areas)	X		

2. FOOD HANDLING AND STORAGE

2a.	Checked food preparation, cooking, and storage areas for signs of insects and vermin (for example, feces or remains)	X		
2b.	Stored leftovers in well-sealed containers with no traces of food on outside surfaces	X		
2c.	Ensured that food preparation, cooking, and storage practices are sanitary	X		
2d.	Disposed of food scraps properly and removed crumbs	X		
2e.	Cleaned counters with soap and water or a disinfectant (according to school policy)	X		
2f.	Swept and wet mopped floors	X		

3. WASTE MANAGEMENT

3a.	Selected and placed waste in appropriate containers	X		
3b.	Ensured that containers' lids are securely closed	X		
3c.	Separated food waste and food-contaminated items from other wastes, if possible	X		
3d.	Stored waste containers in a well-ventilated area	X		
3e.	Ensured that dumpsters are properly located (away from air intake vents, operable windows, and food service doors in relation to prevailing winds)	X		

4. DELIVERIES

	Yes	No	N/A
4a. Instructed vendors to avoid idling their engines during deliveries	⊗	○	○
4b. Posted a sign prohibiting vehicles from idling their engines in receiving areas	⊗	○	○
4c. Ensured that doors or air barriers are closed between receiving area and kitchen	⊗	○	○

NOTES

Building and Grounds Maintenance Checklist

Name: Mike House

School: Veterans

Room or Area: 60K sqft Date Completed: June 2025

Signature:

Instructions

1. Read the *IAQ Backgrounder* and the Background Information for this checklist.
2. Keep the Background Information and make a copy of the checklist for future reference.
3. Complete the Checklist.
   - Check the "yes," "no," or "not applicable" box beside each item. (A "no" response requires further attention.)
   - Make comments in the "Notes" section as necessary.
4. Return the checklist portion of this document to the IAQ Coordinator.

1. BUILDING MAINTENANCE SUPPLIES

		Yes	No	N/A
1a.	Developed appropriate procedures and stocked supplies for spill control	☒	☐	☐
1b.	Reviewed supply labels	☒	☐	☐
1c.	Ensured that air from chemical and trash storage areas vents to the outdoors	☒	☐	☐
1d.	Stored chemical products and supplies in sealed, clearly labeled containers	☒	☐	☐
1e.	Researched and selected the safest products available	☑	☐	☐
1f.	Ensured that supplies are being used according to manufacturers' instructions	☑	☐	☐
1g.	Ensured that chemicals, chemical-containing wastes, and containers are disposed of according to manufacturers' instructions	☒	☐	☐
1h.	Substituted less- or non-hazardous materials (where possible)	☑	☐	☐
1i.	Scheduled work involving odorous or hazardous chemicals for periods when the school is unoccupied	☑	☐	☐
1j.	Ventilated affected areas during and after the use of odorous or hazardous chemicals	☒	☐	☐

2. GROUNDS MAINTENANCE SUPPLIES

2a.	Stored grounds maintenance supplies in appropriate area(s)	☒	☐	☐
2b.	Ensured that supplies are used and stored according to manufacturers' instructions	☒	☐	☐
2c.	Established and followed procedures to minimize exposure to fumes from supplies	☒	☐	☐
2d.	Reviewed and followed manufacturers' guidelines for maintenance	☑	☐	☐
2e.	Replaced portable gas cans with low-emission cans	☒	☐	☐
2f.	Stored chemical products and supplies in sealed, clearly-labeled containers	☒	☐	☐
2g.	Ensured that chemicals, chemical-containing wastes, and containers are disposed of according to manufacturers' instructions	☒	☐	☐

3. DUST CONTROL

3a.	Installed and maintained barrier mats for entrances	☒	☐	☐
3b.	Used high efficiency vacuum bags	☒	☐	☐
3c.	Used proper dusting techniques	☒	☐	☐
3d.	Wrapped feather dusters with a dust cloth	☒	☐	☐
3e.	Cleaned air return grilles and air supply vents	☒	☐	☐

4. FLOOR CLEANING

	Yes	No	N/A
4a. Established and followed schedule for vacuuming and mopping floors	X		
4b. Cleaned spills on floors promptly (as necessary)	X		
4c. Performed restorative maintenance (as necessary)	X		

5. DRAIN TRAPS

5a. Poured water down floor drains once per week (about 1 quart of water)	X		
5b. Ran water in sinks at least once per week (about 2 cups of water)	X		
5c. Flushed toilets once each week (if not used regularly)	X		

6. MOISTURE, LEAKS, AND SPILLS

6a. Checked for moldy odors	X		
6b. Inspected ceiling tiles, floors, and walls for leaks or discoloration (may indicate periodic leaks)	X		
6c. Checked areas where moisture is commonly generated (e.g., kitchens, locker rooms, and bathrooms)	X		
6d. Checked that windows, windowsills, and window frames are free of condensate	X		
6e. Checked that indoor surfaces of exterior walls and cold water pipes are free of condensate	X		
6f. Ensured the following areas are free from signs of leaks and water damage:			
Indoor areas near known roof or wall leaks	X		
Walls around leaky or broken windows	X		
Floors and ceilings under plumbing	X		
Duct interiors near humidifiers, cooling coils, and outdoor air intakes	X		

7. COMBUSTION APPLIANCES

7a. Checked for odors from combustion appliances	X		
7b. Checked appliances for backdrafting (using chemical smoke)	X		
7c. Inspected exhaust components for leaks, disconnections, or deterioration	X		
7d. Inspected flue components for corrosion and soot	X		

8. PEST CONTROL

8a. Completed the *Integrated Pest Management Checklist*	X		

NOTES

Integrated Pest Management Checklist

Name: Mike House

School: Veterans

Room or Area: 60K SqFt Date Completed: June 2025

Signature:

Instructions

1. Read the *IAQ Backgrounder* and the Background Information for this checklist.
2. Keep the Background Information and make a copy of the checklist for future reference.
3. Complete the Checklist.
   - Check the "yes," "no," or "not applicable" box beside each item. (A "no" response requires further attention.)
   - Make comments in the "Notes" section as necessary.
4. Return the checklist portion of this document to the IAQ Coordinator.

1. OFFICIAL POLICY STATEMENT

		Yes	No	N/A
1a.	Developed or located the school's official policy statement for integrated pest management (IPM)	☒	☐	☐

2. DESIGNATING PEST MANAGEMENT ROLES

2a.	Assigned and trained a qualified person to be the pest manager	☐	☐	☒
2b.	Involved decision makers in the IPM program	☒	☐	☐
2c.	Educated students and staff (the occupants of the building) about IPM and asked them to keep their areas clean and free of clutter	☐	☒	☐
2d.	Encouraged parents to learn about IPM practices and implement them at home	☐	☒	☐
2e.	Developed a program to educate and train all IPM participants	☐	☒	☐
2f.	Included language about IPM into contracts with pest management professionals	☒	☐	☐

3. SETTING PEST MANAGEMENT OBJECTIVES

3a.	Set appropriate pest management objectives for school buildings (such as preventing pests from interfering with students' learning environment and preserving the integrity of the building structure)	☒	☐	☐
3b.	Set appropriate pest management objectives for school grounds (such as providing safe playing areas and the best athletic surfaces possible)	☐	☐	☒ Grubs

4. INSPECTING, IDENTIFYING, AND MONITORING

4a.	Inspected all buildings and grounds for pest evidence, entry points, food, water, and harborage sites	☒	☐	☐
4b.	Identified potential pest habitats in buildings and grounds	☒	☐	☐
4c.	Pinpointed the source of any current pest problems	☒	☐	☐
4d.	Monitored to determine the extent of pest problems and to estimate pest populations	☒	☐	☐
4e.	Developed plans to modify habitat (for example, exclusion, repair, and sanitation efforts) to prevent or resolve any pest problems	☒	☐	☐
4f.	Established a monitoring program that consists of routine inspections to estimate pest population levels and identify evidence of pests and potential habitat	☒	☐	☐

5. SETTING ACTION THRESHOLDS

	Yes	No	N/A
5a. Evaluated all available data obtained through inspecting, identifying, and monitoring	X		
5b. Determined how many pests the school buildings, grounds, and occupants can tolerate	X		
5c. Set action thresholds	X		

(0)

6. PREVENTIVE STRATEGIES

INDOOR SITES

6a. Implemented appropriate strategies to prevent pests from inhabiting the following areas:

• Entryways	X		
• Classrooms	X		
• Gymnasiums	X		
• Locker rooms	X		
• Offices	X		
• Staff lounges	X		
• Bathrooms	X		
• Food preparation and serving areas	X		
• Rooms with extensive plumbing	X		
• Maintenance areas	X		
• Other			

OUTDOOR SITES

6b. Implemented appropriate strategies to prevent pests from inhabiting the following areas:

• Playgrounds	X		
• Parking lots	X		
• Lawns and athletic fields	X		
• Teaching gardens or greenhouses			X
• Loading docks			X
• Dumpsters	X		
• Areas with ornamental shrubs and trees	X		
• Other			

7. PESTICIDE USE AND STORAGE

7a. Explored alternative pest management methods before concluding that pesticides were necessary	X		
7b. Ensured that pest management professionals integrate IPM into their pest management methods	X		
7c. Identified the least toxic, target-specific chemical (or pesticide formulation) that is the most effective to address the pest problem, preferably as baitsand granules	X		
7d. Reviewed and followed all label instructions on pesticides and learned how to properly apply and handle these chemicals	X		
7e. Used spot-treatment (or bait, crack, and crevice applications) to apply pesticides whenever possible and only treated the obviously infested plants in the area	X		
7f. Used protective clothing or equipment when applying pesticides			X
7g. Placed all pesticides in tamper-resistant bait boxes or locations that are inaccessible to children and non-target species	X		

All we do on our own

7. PESTICIDE USE AND STORAGE (cont.)

		Yes	No	N/A	
7h.	Locked or fastened lids of all bait boxes and placed bait away from the runway of the box	⊗	○	○	mouse traps
7i.	Applied pesticides when occupants were not present or in areas where they would not be exposed to the chemicals	⊗	○	○	
7j.	Ensured that school occupants (students and staff) are notified of upcoming pesticide applications through posted notices and/or letters	⊗	○	○	
7k.	Ensured that parents are notified of upcoming pesticide applications through letters	⊗	○	○	
7l.	Kept copies of current pesticide labels and information on pesticides easily accessible	⊗	○	○	
7m.	Stored pesticides off site or in areas that are locked and accessible only to designated personnel	○	○	⊗	
7n.	Ensured that storage areas are adequately ventilated and are located away from areas prone to flooding or where spills or leaks may contaminate the environment	○	○	⊗	
7o.	Ensured that flammable liquids are stored away from ignition sources	○	○	○	
7p.	Ensured that pesticides are stored in their original containers and all lids are securely fastened	⊗	○	○	spray
7q.	Ensured that air in the storage space cannot mix with the air in the central ventilation system	⊗	○	○	

8. EVALUATING RESULTS AND RECORD KEEPING

8a.	Ensured that accurate, up-to-date records of IPM practices and a pest management log for each property are kept	⊗	○	○
8b.	Ensured that pesticide records necessary to meet all state, local, and school board requirements are maintained	⊗	○	○
8c.	Ensured that each log book contains the following items:			
	• Copy of the pest management plan	⊗	○	○
	• Service schedules for maintenance of buildings and grounds	⊗	○	○
	• Current EPA-registered labels	⊗	○	○
	• Current Material Safety Data Sheets (MSDS) for each pesticide project	⊗	○	○
	• Pest surveillance data sheets	⊗	○	○
	• Diagram noting the location of pest activity, traps, and bait stations	⊗	○	○

NOTES My pesticide company is Waltham, New London CT (B.11.x)

Ventilation Checklist

Name: Mike Hoos

School: Veterans

Unit Ventilator/AHU No: (40 class room) (5 FCU) (10 AHU)

Room or Area: 60 K sq ft Date Completed: June 2025

Signature:

Instructions

1. Read the *IAQ Backgrounder* and the Background Information for this checklist.
2. Keep the Background Information and make a copy of this checklist for **each** ventilation unit in your school, as well as a copy for future reference.
3. Complete the Checklist.
   - Check the "yes," "no," or "not applicable" box beside each item. (A "no" response requires further attention.)
   - Make comments in the "Notes" section as necessary.
4. Return the checklist portion of this document to the IAQ Coordinator.

1. OUTDOOR AIR INTAKES

	Yes	No	N/A
1a. Marked locations of all outdoor air intakes on a small floor plan (for example, a fire escape floor plan)	X		
1b. Ensured that the ventilation system was on and operating in "occupied" mode	X		

ACTIVITY 1: OBSTRUCTIONS

1c. Ensured that outdoor air intakes are clear of obstructions, debris, clogs, or covers	X		
1d. Installed corrective devices as necessary (e.g., if snowdrifts or leaves frequently block an intake)	X		

ACTIVITY 2: POLLUTANT SOURCES

1e. Checked ground-level intakes for pollutant sources (dumpsters, loading docks, and bus-idling areas)	X		
1f. Checked rooftop intakes for pollutant sources (plumbing vents; kitchen, toilet, or laboratory exhaust fans; puddles; and mist from air-conditioning cooling towers)	X		
1g. Resolved any problems with pollutant sources located near outdoor air intakes (e.g., relocated dumpster or extended exhaust pipe)	X		

ACTIVITY 3: AIRFLOW

1h. Obtained chemical smoke (or a small piece of tissue paper or light plastic)	X		
1i. Confirmed that outdoor air is entering the intake appropriately	X		

2. SYSTEM CLEANLINESS

ACTIVITY 4: AIR FILTERS

2a. Replaced filters per maintenance schedule	X		
2b. Shut off ventilation system fans while replacing filters (prevents dirt from blowing downstream)	X		
2c. Vacuumed filter areas before installing new filters	X		
2d. Confirmed proper fit of filters to prevent air from bypassing (flowing around) the air filter	X		
2e. Confirmed proper installation of filters (correct direction for airflow)	X		

Tucker Mechanical is our Service Contractor on Contract.

Checked drain pans for mold and mildew ..... ☒ ○ ○

ACTIVITY 6: COILS

2i. Ensured that heating and cooling coils are clean ..... ☒ ○ ○

ACTIVITY 7: AIR-HANDLING UNITS, UNIT VENTILATORS

2j. Ensured that the interior of air-handling unit(s) or unit ventilator (air-mixing chamber and fan blades) is clean ..... ☒ ○ ○

2k. Ensured that ducts are clean ..... ☒ ○ ○

ACTIVITY 8: MECHANICAL ROOMS

2l. Checked mechanical room for unsanitary conditions, leaks, and spills ..... ☒ ○ ○

2m. Ensured that mechanical rooms and air-mixing chambers are free of trash, chemical products, and supplies ..... ☒ ○ ○

3. CONTROLS FOR OUTDOOR AIR SUPPLY

3a. Ensured that air dampers are at least partially open (minimum position) ..... ☒ ○ ○

3b. Ensured that minimum position provides adequate outdoor air for occupants ..... ☒ ○ ○

ACTIVITY 9: CONTROLS INFORMATION

3c. Obtained and reviewed all design inside/outside temperature and humidity requirements, controls specifications, as-built mechanical drawings, and controls operations manuals (often uniquely designed) ..... ☒ ○ ○

ACTIVITY 10: CLOCKS, TIMERS, SWITCHES

3d. Turned summer-winter switches to the correct position ..... ☒ ○ ○

3e. Set time clocks appropriately ..... ☒ ○ ○

3f. Ensured that settings fit the actual schedule of building use (including night/weekend use) ..... ☒ ○ ○

ACTIVITY 11: CONTROL COMPONENTS

3g. Ensured appropriate system pressure by testing line pressure at both the occupied (day) setting and the unoccupied (night) setting ..... ☒ ○ ○ every year Tucker Method

3h. Checked that the line dryer prevents moisture buildup ..... ○ ○ ☒

3i. Replaced control system filters at the compressor inlet based on the compressor manufacturer's recommendation (for example, when you blow down the tank) ..... ○ ○ ☑

3j. Set the line pressure at each thermostat and damper actuator at the proper level (no leakage or obstructions) ..... ☒ ○ ○

ACTIVITY 12: OUTDOOR AIR DAMPERS

3k. Ensured that the outdoor air damper is visible for inspection ..... ☒ ○ ○

3l. Ensured that the recirculating relief and/or exhaust dampers are visible for inspection ..... ☒ ○ ○

3m. Ensured that air temperature in the indoor area(s) served by each outdoor air damper is within the normal operating range ..... ☒ ○ ○

NOTE: It is necessary to ensure that the damper is operating properly and within the normal range to continue.

2. SYSTEM CLEANLINESS (continued)

ACTIVITY 5: DRAIN PANS

		Yes	No	N/A
2f.	Ensured that drain pans slant toward the drain (to prevent water from accumulating)	⊗	○	○
2g.	Cleaned drain pans	⊗	○	○
2h.	Checked drain pans for mold			

3. CONTROLS FOR OUTDOOR AIR SUPPLY (continued)

	Yes	No	N/A
3n. Checked that the outdoor air damper fully closes within a few minutes of shutting off appropriate air handler	X	O	O
3o. Checked that the outdoor air damper opens (at least partially with no delay) when the air handler is turned on	X	O	O
3p. If in heating mode, checked that the outdoor air damper goes to its minimum position (without completely closing) when the room thermostat is set to 85°F	X	O	O
3q. If in cooling mode, checked that the outdoor air damper goes to its minimum position (without completely closing) when the room thermostat is set to 60°F and mixed air thermostat is set to 45°F	X	O	O
3r. If the outdoor air damper does not move, confirmed the following items:			
• The damper actuator links to the damper shaft, and any linkage set screws or bolts are tight	X	O	O
• Moving parts are free of impediments (e.g., rust, corrosion)	X	O	O
• Electrical wire or pneumatic tubing connects to the damper actuator	X	O	O
• The outside air thermostat(s) is functioning properly (e.g., in the right location, calibrated correctly)	X	O	O

Proceed to Activities 13–16 if the damper seems to be operating properly.

ACTIVITY 13: FREEZE STATS

3s. Disconnected power to controls (for automatic reset only) to test continuity across terminals	X	O	O
OR			
3t. Confirmed (if applicable) that depressing the manual reset button (usually red) trips the freeze stat (clicking sound indicates freeze stat was tripped)	X	O	O
3u. Assessed the feasibility of replacing all manual reset freeze-stats with automatic reset freeze-stats	X	O	O

NOTE: HVAC systems with water coils need protection from the cold. The freeze-stat may close the outdoor air damper and disconnect the supply air when tripped. The typical trip range is 35°F to 42°F.

ACTIVITY 14: MIXED AIR THERMOSTATS

3v. Ensured that the mixed air stat for heating mode is set no higher than 65°F	X	O	O
3w. Ensured that the mixed air stat for cooling mode is set no lower than the room thermostat setting	X	O	O

ACTIVITY 15: ECONOMIZERS

3x. Confirmed proper economizer settings based on design specifications or local practices	X	O	O

NOTE: The dry-bulb is typically set at 65°F or lower.

3y. Checked that sensor on the economizer is shielded from direct sunlight	X	O	O
3z. Ensured that dampers operate properly (for outside air, return air, exhaust/relief air, and recirculated air), per the design specifications	X	O	O

NOTE: Economizers use varying amounts of cool outdoor air to assist with the cooling load of the room or rooms. There are two types of economizers, dry-bulb and enthalpy. Dry-bulb economizers vary the amount of outdoor air based on outdoor temperature, and enthalpy economizers vary the amount of outdoor air based on outdoor temperature and humidity level.

3. CONTROLS FOR OUTDOOR AIR SUPPLY (continued)

ACTIVITY 16: FANS

3aa. Ensured that all fans (supply fans and associated return or relief fans) that move outside air indoors continuously operate during occupied hours (even when room thermostat is satisfied) ..... Yes ☒ No ○ N/A ○

NOTE: If fan shuts off when the thermostat is satisfied, adjust control cycle as necessary to ensure sufficient outdoor air supply.

4. AIR DISTRIBUTION

ACTIVITY 17: AIR DISTRIBUTION

4a. Ensured that supply and return air pathways in the existing ventilation system perform as required ..... ☒ ○ ○

4b. Ensured that passive gravity relief ventilation systems and transfer grilles between rooms and corridors are functioning ..... ☒ ○ ○

NOTE: If ventilation system is closed or blocked to meet current fire codes, consult with a professional engineer for remedies.

4c. Made sure every occupied space has supply of outdoor air (mechanical system or operable windows) ..... ☒ ○ ○

4d. Ensured that supply and return vents are open and unblocked ..... ☒ ○ ○

NOTE: If outlets have been blocked intentionally to correct drafts or discomfort, investigate and correct the cause of the discomfort and reopen the vents.

4e. Modified the HVAC system to supply outside air to areas without an outdoor air supply ..... ☒ ○ ○

4f. Modified existing HVAC systems to incorporate any room or zone layout and population changes ..... ☒ ○ ○

4g. Moved all barriers (for example, room dividers, large free-standing blackboards or displays, bookshelves) that could block movement of air in the room, especially those blocking air vents ..... ☒ ○ ○

4h. Ensured that unit ventilators are quiet enough to accommodate classroom activities ..... ☒ ○ ○

4i. Ensured that classrooms are free of uncomfortable drafts produced by air from supply terminals ..... ☒ ○ ○

ACTIVITY 18: PRESSURIZATION IN BUILDINGS

NOTE: To prevent infiltration of outdoor pollutants, the ventilation system is designed to maintain positive pressurization in the building. Therefore, ensure that the system, including any exhaust fans, is operating on the "occupied" cycle when doing this activity.

4j. Ensured that air flows out of the building (using chemical smoke) through windows, doors, or other cracks and holes in exterior wall (for example, floor joints, pipe openings) ..... ☒ ○ ○

5. EXHAUST SYSTEMS

ACTIVITY 19: EXHAUST FAN OPERATION

5a. Checked (using chemical smoke) that air flows into exhaust fan grille(s) ..... ☒ ○ ○

If fans are running but air is not flowing toward the exhaust intake, check for the following:

- *Inoperable dampers*
- *Obstructed, leaky, or disconnected ductwork*
- *Undersized or improperly installed fan*
- *Broken fan belt*

5. EXHAUST SYSTEMS (continued)

ACTIVITY 20: EXHAUST AIRFLOW

NOTE: Prevent migration of indoor contaminants from areas such as bathrooms, kitchens, and labs by keeping them under negative pressure (as compared to surrounding spaces).

	Yes	No	N/A
5b. Checked (using chemical smoke) that air is drawn into the room from adjacent spaces	⊗	○	○

Stand outside the room with the door slightly open while checking airflow high and low in the door opening (see "How to Measure Airflow").

5c. Ensured that air is flowing toward the exhaust intake	⊗	○	○

ACTIVITY 21: EXHAUST DUCTWORK

5d. Checked that the exhaust ductwork downstream of the exhaust fan (which is under positive pressure) is sealed and in good condition	⊗	○	○

6. QUANTITY OF OUTDOOR AIR

ACTIVITY 22: OUTDOOR AIR MEASUREMENTS AND CALCULATIONS

NOTE: Refer to "How to Measure Airflow" for techniques.

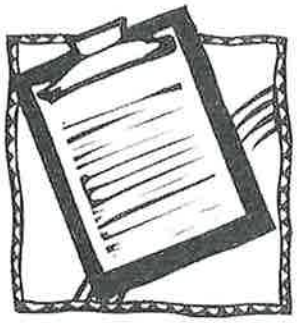
6a. Measured the quantity of outdoor air supplied (22a) to each ventilation unit	○	⊗	○
6b. Calculated the number of occupants served (22b) by the ventilation unit under consideration	⊗	○	○
6c. Divided outdoor air supply (22a) by the number of occupants (22b) to determine the existing quantity of outdoor air supply per person (22c)	○	⊗	○

ACTIVITY 23: ACCEPTABLE LEVELS OF OUTDOOR AIR QUANTITIES

6d. Compared the existing outdoor air per person (22c) to the recommended levels in Table 1	○	⊗	○
6e. Corrected problems with ventilation units that supplied inadequate quantities of outdoor air to ensure that outdoor air quantities (22c) meet the recommended levels in Table 1	⊗	○	○

NOTES

All new Exhaust fans Sept 2024.



Walkthrough Inspection Checklist

Name: Mike House

School: Veterans

Room or Area: 60k Sqft Date Completed: June 2025

Signature: [signature]

Instructions

1. Read the *IAQ Backgrounder* and the Background Information for this checklist.
2. Keep the Background Information and make a copy of the checklist for future reference.
3. Complete the Checklist.
   - Check the "yes," "no," or "not applicable" box beside each item. (A "no" response requires further attention.)
   - Make comments in the "Notes" section as necessary.
4. Return the checklist portion of this document to the IAQ Coordinator.

1. GROUND LEVEL

	Yes	No	N/A
1a. Ensured that ventilation units operate properly	X		
1b. Ensured there are no obstructions blocking air intakes	X		
1c. Checked for nests and droppings near outdoor air intakes	X		
1d. Determined that dumpsters are located away from doors, windows, and outdoor air intakes	X		
1e. Checked potential sources of air contaminants near the building (chimneys, stacks, industrial plants, exhaust from nearby buildings)	X		
1f. Ensured that vehicles avoid idling near outdoor air intakes	X		
1g. Minimized pesticide application	X		
1h. Ensured that there is proper drainage away from the building (including roof downspouts)	X		
1i. Ensured that sprinklers spray away from the building and outdoor air intakes	X		
1j. Ensured that walk-off mats are used at exterior entrances and that they are cleaned regularly	X		

2. ROOF

While on the roof, consider inspecting the HVAC units (use the Ventilation Checklist*).*

	Yes	No	N/A
2a. Ensured that the roof is in good condition	X		
2b. Checked for evidence of water ponding	X		
2c. Checked that ventilation units operate properly (air flows in)	X		
2d. Ensured that exhaust fans operate properly (air flows out)	X		
2e. Ensured that air intakes remain open, even at minimum setting	X		
2f. Checked for nests and droppings near outdoor air intakes	X		
2g. Ensured that air from plumbing stacks and exhaust outlets flows away from outdoor air intakes	X		

3. ATTIC

	Yes	No	N/A
3a. Checked for evidence of roof and plumbing leaks	X		
3b. Checked for birds and animal nests	X		

4. GENERAL CONSIDERATIONS

	Yes	No	N/A
4a. Ensured that temperature and humidity are maintained within acceptable ranges	X		
4b. Ensured that no obstructions exist in supply and exhaust vents	X		
4c. Checked for odors	X		
4d. Checked for signs of mold and mildew growth	X		

4. GENERAL CONSIDERATIONS (continued)

	Yes	No	N/A
4c. Checked for signs of water damage	X		
4f. Checked for evidence of pests and obvious food sources	X		
4g. Noted and reviewed all concerns from school occupants	X		

5. BATHROOMS AND GENERAL PLUMBING

5a. Ensured that bathrooms and restrooms have operating exhaust fans	X		
5b. Ensured proper drain trap maintenance:			
Water is poured down floor drains once per week (approx. 1 quart of water)	X		
Water is poured into sinks at least once per week (about 2 cups of water)			
Toilets are flushed at least once per week			

6. MAINTENANCE SUPPLIES

6a. Ensured that chemicals are used only with adequate ventilation and when building is unoccupied	X		
6b. Ensured that vents in chemical and trash storage areas are operating properly	X		
6c. Ensured that portable fuel containers are properly closed	X		
6d. Ensured that power equipment, like snowblowers and lawn mowers, have been serviced and maintained according to manufacturers' guidelines	X		

7. COMBUSTION APPLIANCES

7a. Checked for combustion gas and fuel odors	X		
7b. Ensured that combustion appliances have flues or exhaust hoods	X		
7c. Checked for leaks, disconnections, and deterioration	X		
7d. Ensured there is no soot on inside or outside of flue components	X		

8. OTHER

8a. Checked for peeling and flaking paint (if the building was built before 1980, this could be a lead hazard)	X		
8b. Determined date of last radon test	X		

NOTES

Radon test every 5 years mystic Air

Waste Management Checklist

Name: Mike Hoven

School: Veterans

Room or Area: 60k Sqft Date Completed: June 2025

Signature:

Instructions

1. Read the *IAQ Backgrounder* and the Background Information for this checklist.
2. Keep the Background Information and make a copy of the checklist for future reference.
3. Complete the Checklist.
   - Check the "yes," "no," or "not applicable" box beside each item. (A "no" response requires further attention.)
   - Make comments in the "Notes" section as necessary.
4. Return the checklist portion of this document to the IAQ Coordinator.

1. WASTE MANAGEMENT

	Yes	No	N/A
1a. Ensured that waste containers are appropriate for use (for example, food waste containers should have lids)	X		
1b. Ensured that waste containers are lined	X		
1c. Ensured that waste from art, science, vocational classes, etc., are handled separately		X	
1d. Labeled recycling bins clearly	X		
1e. Ensured number of bins and dumpsters is adequate	X		
1f. Ensured appropriate location of dumpsters (i.e., away from air intakes, doors, and operable windows in relation to prevailing winds)	X		
1g. Ensured waste containers are emptied regularly	X		
1h. Ensured appropriate waste removal schedule	X		
1i. Ensured waste is stored in a well-ventilated room	X		
1j. Ensured any exhaust fans in the room are operating properly	X		
1k. Checked waste storage areas for odors, contaminants, or signs of vermin	X		

NOTES

Prosha Plans School.
Mike House
Bldg + grounds

Indoor Air Quality Backgrounder: The Basics

Indoor air quality (IAQ) is an increasingly important issue in schools across the nation. IAQ can directly affect the health and comfort of students and staff. There are many ways that school occupants can help to improve air quality. EPA developed the *Indoor Air Quality Tools for Schools (IAQ TfS)* Program to help schools address many IAQ issues using practical and often low-cost measures (such as unblocking ventilation supply vents to improve airflow).

By simply reviewing this *Indoor Air Quality Backgrounder* and completing the IAQ checklists, occupants can learn how to make a significant impact on IAQ and provide a healthy learning and working environment.

This guidance is based on the following principles:

- Most IAQ problems can be prevented and resolved by school staff through simple, inexpensive measures.
- The cost and effort needed to **prevent** most IAQ problems is significantly less than the cost and effort required to **resolve** problems after they develop.

WHY IAQ IS IMPORTANT TO YOUR SCHOOL

Most people are aware that outdoor air pollution can impact their health, but indoor air pollution can also have significant, harmful effects. EPA studies of human exposure to air pollutants indicate that indoor levels of pollutants may be two to five times—and occasionally more than 100 times—higher than outdoor levels. EPA and its Science Advisory Board consistently rank indoor air pollution among the top five environmental health risks to the public.

This is especially important to schools, as children may be more susceptible to air pollutants.

Failure to prevent or respond promptly to IAQ problems can:

- Increase potential for long- and short-term health problems for students and staff.
- Negatively impact student attendance, comfort, and performance.
- Reduce teacher and staff comfort and performance.
- Accelerate deterioration and reduce efficiency of school facilities and equipment.
- Increase potential for school closings or relocation of occupants.
- Strain relationships among school administration, parents, and staff.
- Create negative publicity.
- Impact community trust.
- Create liability problems.

UNDERSTANDING IAQ PROBLEMS AND SOLUTIONS

To understand IAQ problems and solutions, it is important to know what factors affect IAQ. These include:

- Sources of indoor air pollutants.
- Heating, ventilation, and air conditioning (HVAC) systems.
- Building occupants.
- Pollutant pathways.

SOURCES OF INDOOR AIR POLLUTANTS

Indoor air contaminants can originate within the building or be drawn in from outdoors. Air pollutants consist of numerous particulates, fibers, mists, bioaerosols, and gases. It is important to control air pollutant sources (see the table on the next page), or IAQ problems can arise—even if the HVAC system is properly operating.

Indoor Air Quality

Tools for Schools

Good IAQ helps to provide a healthy and productive environment for students, teachers, and staff in order to assist a school in its core mission—educating children.

A complicating factor is that indoor air pollutant concentration levels can vary by:

- Time (for example, weekly, during floor stripping); and
- Location (within a school or even within a single classroom).

HVAC System Design and Operation

Properly designed HVAC equipment in a school helps to:

- Control temperature and humidity to provide thermal comfort.
- Distribute adequate amounts of outdoor air to meet ventilation needs of school occupants.
- Isolate and remove odors and pollutants through pressure control, filtration, and exhaust fans.

Not all HVAC systems accomplish all of these functions. Some buildings rely only on natural ventilation. Others lack mechanical cooling equipment, and many function with little or no humidity control.

The two most common HVAC designs in schools are unit ventilators and central air-handling systems. Both can perform the same HVAC functions, but a unit ventilator serves a single room while a central air-handling unit serves multiple rooms.

The diagrams on page 5 of this *Indoor Air Quality Backgrounder* show how three typical HVAC designs circulate air through classrooms. As shown in the diagrams, it is important that all rooms have both an air supply and exhaust.

TYPICAL SOURCES OF INDOOR AIR POLLUTANTS

Outdoor Sources

Polluted Outdoor Air

- Pollen, dust, fungal spores
- Industrial emissions
- Vehicle emissions

Nearby Sources

- Loading docks
- Odors from dumpsters
- Unsanitary debris or building exhausts near outdoor air intakes

Underground Sources

- Radon
- Pesticides
- Leakage from underground storage tanks

Building Equipment

HVAC Equipment

- Microbiological growth in drip pans, ductwork, coils, and humidifiers
- Improper venting of combustion products
- Dust or debris in ductwork

Other Equipment

- Emissions from office equipment (volatile organic compounds, ozone)
- Emissions from shop, lab, and cleaning equipment

Components and Furnishings

Components

- Microbiological growth on or in soiled or water-damaged materials
- Dry traps that allow the passage of sewer gas
- Materials containing volatile organic compounds, inorganic compounds, or damaged asbestos
- Materials that produce particles (dust)

Furnishings

- Emissions from new furnishings and floorings
- Microbiological growth on or in soiled or water-damaged furnishings

Other Indoor Sources

- Science laboratory supplies
- Vocational art supplies
- Copy/print areas
- Food prep areas
- Smoking lounges
- Cleaning materials
- Emissions from trash
- Pesticides
- Odors and volatile organic compounds from paint, chalk, adhesives
- Occupants with communicable diseases
- Dry-erase markers and similar pens
- Insects and other pests
- Personal care products

Building Occupants

The effects of IAQ problems on school occupants—including staff, students, and others—are often non-specific symptoms rather than clearly-defined illnesses. Symptoms commonly attributed to IAQ problems include:

- Headache, fatigue, and shortness of breath.
- Sinus congestion, cough, and sneezing.
- Eye, nose, throat, and skin irritation.
- Dizziness and nausea.

These symptoms could be caused by air quality deficiencies, but may also be linked to other factors—poor lighting, stress, noise, and more. Due to varying sensitivities among school occupants, IAQ problems may affect a group of people or just one individual. In addition, IAQ problems may affect people in different ways. Individuals that may be particularly susceptible to effects of indoor air contaminants include, but are not limited to, people with:

- Asthma, allergies, or chemical sensitivities.
- Respiratory diseases.
- Suppressed immune systems (due to radiation, chemotherapy, or disease).
- Contact lenses.

Pollutant Pathways and Driving Forces

Airflow patterns in buildings are determined by the combined forces of mechanical ventilation systems, human activity, and natural effects. Air pressure differences created by these forces move airborne pollutants from areas of higher pressure to areas of lower pressure through any available openings in building walls, ceilings, floors, doors, windows, and HVAC systems. For instance, as long as the opening to an inflated balloon is kept shut, no air will flow. When opened, however, air will move from the inside (area of higher pressure) to the outside (area of lower pressure).

Even if the opening is small, air will move until the inside pressure is equal to the outside pressure.

SIX BASIC CONTROL STRATEGIES

There are six basic control methods that can lower concentrations of indoor air pollutants. Specific applications of these basic control strategies may be noted in the attached checklist(s).

1. Source Management - Management of pollutant sources includes:

- **Source removal** - Eliminating pollutant sources or not allowing them to enter the school. Examples include not allowing buses to idle, not placing garbage in rooms with HVAC equipment, and replacing moldy materials.
- **Source substitution** - Replacing pollutant sources. Examples include selecting less- or non-toxic art materials or interior paints.
- **Source encapsulation** - Placing a barrier around the source so that it releases fewer pollutants into the indoor air. Examples include covering pressed wood cabinetry with sealed or laminated surfaces or using plastic sheeting to contain contaminants when renovating.

2. Local Exhaust - Removing point sources of indoor pollutants (through exhausting fume hoods and local exhaust fans to the outside) before they disperse. Examples include exhaust systems for restrooms and kitchens, science labs, storage rooms, printing and duplicating rooms, and vocational/industrial areas (such as welding booths and firing kilns).

3. Ventilation - Lowering pollutant concentrations by using cleaner (outdoor) air to dilute polluted (indoor) air. Local building codes likely specify the quantity (and sometimes quality) of outdoor air that should be continuously supplied in your school, as do voluntary standards set by the American Society of Heating, Regrigerating, and Air-Conditioning Engineers (ASHRAE). Temporarily increasing ventilation coupled with proper use of the exhaust system while painting or applying pesticides, for example, can be useful in diluting the concentration of noxious fumes in the air.

4. Exposure Control - Adjusting the time and location of pollutant exposure. An example of time control is scheduling floor stripping and waxing (with the ventilation system functioning) for Friday after school. This allows products to off-gas over the weekend while the school is unoccupied. Location control involves moving the pollutant source away from occupants or even relocating susceptible occupants.

5. Air Cleaning - Filtering particles and gaseous contaminants as air passes through ventilation equipment. In most cases this type of system should be engineered on a case-by-case basis.

6. Education - Teaching and training school occupants about IAQ issues. People in the school can reduce their exposure to many pollutants by understanding basic information about their environment and knowing how to prevent, remove, or control pollutants.

Some solutions, such as major ventilation changes, may not be practical to implement due to lack of resources or the need for long periods of non-occupancy to ensure the safety of the occupants. Use temporary measures to ensure good IAQ in the meantime. Other solutions, such as anti-idling programs, offer low-cost options that can be easily and quickly implemented.

YOUR ROLE IN THE IAQ TEAM

As a school occupant, your activities and decisions have an impact on the quality of the school's indoor air. You can participate by completing the appropriate checklist and by continuing to apply these principles on a daily basis. Your school's IAQ Coordinator serves as a focal point for collecting IAQ information and handling IAQ concerns.

HOW TO KNOW IF YOU HAVE AN IAQ PROBLEM

Diagnosing IAQ-related symptoms can be tricky, especially because acute (short-term) symptoms are similar to those from colds, allergies, fatigue, or the flu. There are clues, however, that can help link symptoms to IAQ problems:

- Symptoms are widespread within a class or school.
- Symptoms disappear when the students or staff leave the school building for a day or for extended periods of time.
- Onset is sudden after some change at school (such as painting or pesticide application).
- Reactions occur indoors but not outdoors.
- Symptoms have been identified by a doctor as being IAQ-related.

It is not safe to assume that a lack of symptoms means that the IAQ in your school is acceptable. Symptoms of long-term health effects (such as lung cancer due to radon) often do not become evident for many years.

IF YOU THINK YOU HAVE AN IAQ PROBLEM

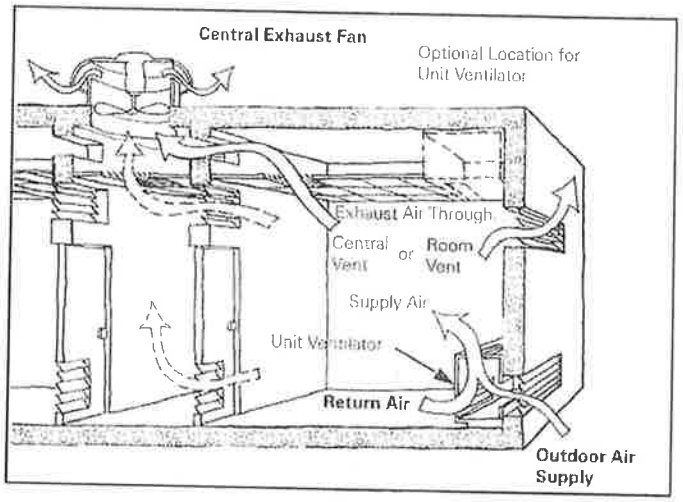
If you have a potential IAQ problem in your school or area that requires a simple solution or action, correct the problem. If the problem cannot be easily corrected or if the complaint seems to indicate a potentially severe IAQ problem, contact the IAQ Coordinator immediately. The IAQ Coordinator will investigate the problem further, either using in-house resources or by calling in help from outside the school.

COMMUNICATION

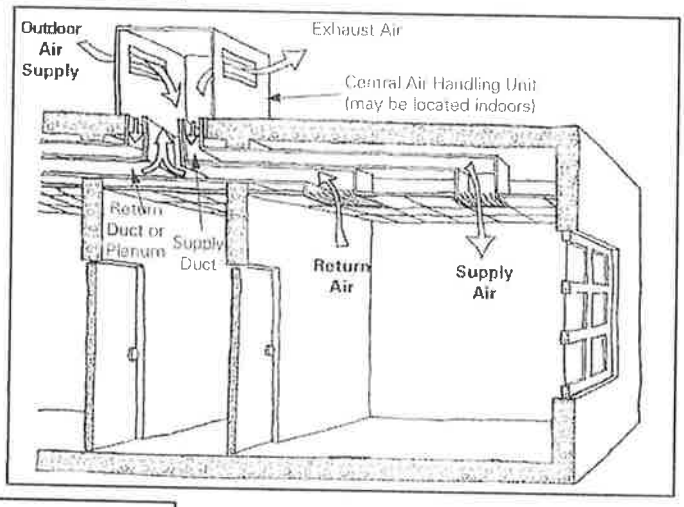
Because of the health risks involved, parents, the community, and media may react strongly to reports of poor indoor air quality in your school. It is recommended that you follow your school's IAQ communications guidelines. This typically involves referring all questions and inquiries to one central source—the IAQ Coordinator. This is the best way to avoid incomplete, incorrect, or conflicting information regarding the quality of the air in your school and any actions necessary to improve IAQ. For more information, refer to the ***IAQ TfS Communications Guide***, posted on EPA's Web site: www.epa.gov/iaq/schools

IAQ Checklists Available

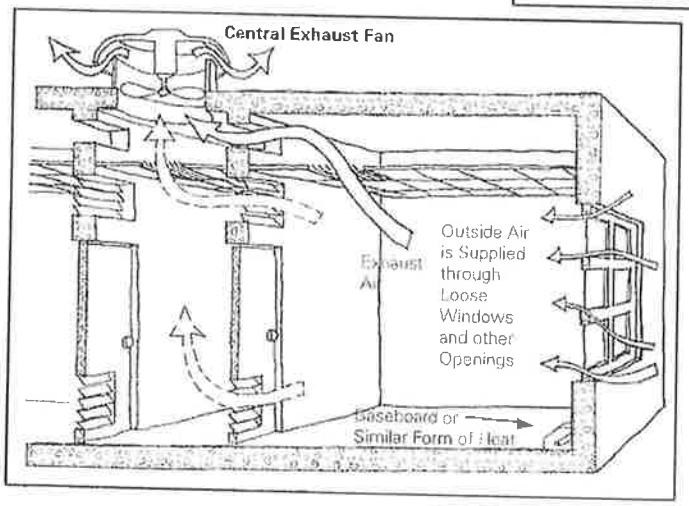
- Teacher's
- Administrative Staff
- School Official's
- Health Officer's
- Ventilation
- Building Maintenance
- Food Service
- Waste Management
- Renovation and Repairs
- Integrated Pest Management
- Walkthrough



Air Supply through a Unit Ventilator



Air Supply in a Central Air Handling System



Air Supply in an Exhaust-only System

Food Service Checklist

Name: Mike Hawes

School: Prairie Plains

Room or Area: 39K SqFt Date Completed: June 2025

Signature:

Instructions

1. Read the *IAQ Backgrounder* and the Background Information for this checklist.
2. Keep the Background Information and make a copy of the checklist for future reference.
3. Complete the Checklist.
   - Check the "yes," "no," or "not applicable" box beside each item. (A "no" response requires further attention.)
   - Make comments in the "Notes" section as necessary.
4. Return the checklist portion of this document to the IAQ Coordinator.

1. COOKING AREA

		Yes	No	N/A
1a.	Determined that local exhaust fans operate properly (note if fans are excessively noisy)	X		
1b.	Checked for odors near cooking, preparation, and eating areas	X		
1c.	Ensured that exhaust fans are used whenever cooking, washing dishes, and cleaning	X		
1d.	Determined that gas appliances function properly	X		
1e.	Verified that gas appliances are vented outdoors	X		
1f.	Ensured there are no combustion gas or natural gas odors, leaks, back-drafting, or headaches when gas appliances are used	X		
1g.	Ensured that kitchen is clean after use	X		
1h.	Checked for signs of microbiological growth in the kitchen, including the upper walls and ceiling (for example, mold, slime, and algae)	X		
1i.	Selected biocides registered by EPA (if required), followed the manufacturer's directions for use, and carefully reviewed the method of application	X		
1j.	Verified the kitchen is free of plumbing and ceiling leaks (signs include stains, discoloration, and damp areas)	X		

2. FOOD HANDLING AND STORAGE

2a.	Checked food preparation, cooking, and storage areas for signs of insects and vermin (for example, feces or remains)	X		
2b.	Stored leftovers in well-sealed containers with no traces of food on outside surfaces	X		
2c.	Ensured that food preparation, cooking, and storage practices are sanitary	X		
2d.	Disposed of food scraps properly and removed crumbs	X		
2e.	Cleaned counters with soap and water or a disinfectant (according to school policy)	X		
2f.	Swept and wet mopped floors	X		

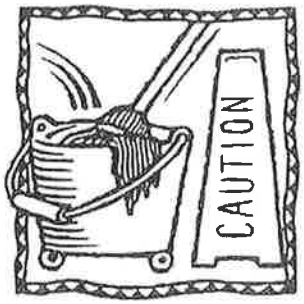
3. WASTE MANAGEMENT

3a.	Selected and placed waste in appropriate containers	X		
3b.	Ensured that containers' lids are securely closed	X		
3c.	Separated food waste and food-contaminated items from other wastes, if possible	X		
3d.	Stored waste containers in a well-ventilated area	X		
3e.	Ensured that dumpsters are properly located (away from air intake vents, operable windows, and food service doors in relation to prevailing winds)	X		

4. DELIVERIES

	Yes	No	N/A
4a. Instructed vendors to avoid idling their engines during deliveries	⊗	○	○
4b. Posted a sign prohibiting vehicles from idling their engines in receiving areas	⊗	○	○
4c. Ensured that doors or air barriers are closed between receiving area and kitchen	⊗	○	○

NOTES



Building and Grounds Maintenance Checklist

Name: Michael Howe
School: Preston Plains
Room or Area: 39 K Date Completed: June 2025
Signature:

Instructions

1. Read the *IAQ Backgrounder* and the Background Information for this checklist.
2. Keep the Background Information and make a copy of the checklist for future reference.
3. Complete the Checklist.
   - Check the "yes," "no," or "not applicable" box beside each item. (A "no" response requires further attention.)
   - Make comments in the "Notes" section as necessary.
4. Return the checklist portion of this document to the IAQ Coordinator.

1. BUILDING MAINTENANCE SUPPLIES

	Yes	No	N/A
1a. Developed appropriate procedures and stocked supplies for spill control	⊗	○	○
1b. Reviewed supply labels	⊗	○	○
1c. Ensured that air from chemical and trash storage areas vents to the outdoors	⊗	○	○
1d. Stored chemical products and supplies in sealed, clearly labeled containers	⊗	○	○
1e. Researched and selected the safest products available	⊗	○	○
1f. Ensured that supplies are being used according to manufacturers' instructions	⊗	○	○
1g. Ensured that chemicals, chemical-containing wastes, and containers are disposed of according to manufacturers' instructions	⊗	○	○
1h. Substituted less- or non-hazardous materials (where possible)	⊗	○	○
1i. Scheduled work involving odorous or hazardous chemicals for periods when the school is unoccupied	⊗	○	○
1j. Ventilated affected areas during and after the use of odorous or hazardous chemicals	⊗	○	○

2. GROUNDS MAINTENANCE SUPPLIES

2a. Stored grounds maintenance supplies in appropriate area(s)	⊗	○	○
2b. Ensured that supplies are used and stored according to manufacturers' instructions	⊗	○	○
2c. Established and followed procedures to minimize exposure to fumes from supplies	⊗	○	○
2d. Reviewed and followed manufacturers' guidelines for maintenance	⊗	○	○
2e. Replaced portable gas cans with low-emission cans	⊗	○	○
2f. Stored chemical products and supplies in sealed, clearly-labeled containers	⊗	○	○
2g. Ensured that chemicals, chemical-containing wastes, and containers are disposed of according to manufacturers' instructions	⊗	○	○

3. DUST CONTROL

3a. Installed and maintained barrier mats for entrances	⊗	○	○
3b. Used high efficiency vacuum bags	⊗	○	○
3c. Used proper dusting techniques	⊗	○	○
3d. Wrapped feather dusters with a dust cloth	⊗	○	○
3e. Cleaned air return grilles and air supply vents	⊗	○	○

4. FLOOR CLEANING

	Yes	No	N/A
4a. Established and followed schedule for vacuuming and mopping floors	X		
4b. Cleaned spills on floors promptly (as necessary)	X		
4c. Performed restorative maintenance (as necessary)	X		

5. DRAIN TRAPS

5a. Poured water down floor drains once per week (about 1 quart of water)	X		
5b. Ran water in sinks at least once per week (about 2 cups of water)	X		
5c. Flushed toilets once each week (if not used regularly)	X		

6. MOISTURE, LEAKS, AND SPILLS

6a. Checked for moldy odors	X		
6b. Inspected ceiling tiles, floors, and walls for leaks or discoloration (may indicate periodic leaks)	X		
6c. Checked areas where moisture is commonly generated (e.g., kitchens, locker rooms, and bathrooms)	X		
6d. Checked that windows, windowsills, and window frames are free of condensate	X		
6e. Checked that indoor surfaces of exterior walls and cold water pipes are free of condensate	X		
6f. Ensured the following areas are free from signs of leaks and water damage:			
Indoor areas near known roof or wall leaks	X		
Walls around leaky or broken windows	X		
Floors and ceilings under plumbing	X		
Duct interiors near humidifiers, cooling coils, and outdoor air intakes	X		

7. COMBUSTION APPLIANCES

7a. Checked for odors from combustion appliances	X		
7b. Checked appliances for backdrafting (using chemical smoke)	X		
7c. Inspected exhaust components for leaks, disconnections, or deterioration	X		
7d. Inspected flue components for corrosion and soot	X		

8. PEST CONTROL

8a. Completed the *Integrated Pest Management Checklist*	X		

NOTES

Integrated Pest Management Checklist

Name: Michael House
School: Prairie Plains School
Room or Area: 39 K Date Completed: June 2025
Signature:

Instructions

1. Read the *IAQ Backgrounder* and the Background Information for this checklist.
2. Keep the Background Information and make a copy of the checklist for future reference.
3. Complete the Checklist.
   - Check the "yes," "no," or "not applicable" box beside each item. (A "no" response requires further attention.)
   - Make comments in the "Notes" section as necessary.
4. Return the checklist portion of this document to the IAQ Coordinator.

1. OFFICIAL POLICY STATEMENT

		Yes	No	N/A
1a.	Developed or located the school's official policy statement for integrated pest management (IPM)	X		

2. DESIGNATING PEST MANAGEMENT ROLES

		Yes	No	N/A	
2a.	Assigned and trained a qualified person to be the pest manager	X	X		our See
2b.	Involved decision makers in the IPM program	X			
2c.	Educated students and staff (the occupants of the building) about IPM and asked them to keep their areas clean and free of clutter		X		
2d.	Encouraged parents to learn about IPM practices and implement them at home		X		
2e.	Developed a program to educate and train all IPM participants	X			aware
2f.	Included language about IPM into contracts with pest management professionals	X			

3. SETTING PEST MANAGEMENT OBJECTIVES

		Yes	No	N/A
3a.	Set appropriate pest management objectives for school buildings (such as preventing pests from interfering with students' learning environment and preserving the integrity of the building structure)	X		
3b.	Set appropriate pest management objectives for school grounds (such as providing safe playing areas and the best athletic surfaces possible)	X		

4. INSPECTING, IDENTIFYING, AND MONITORING

		Yes	No	N/A
4a.	Inspected all buildings and grounds for pest evidence, entry points, food, water, and harborage sites	X		
4b.	Identified potential pest habitats in buildings and grounds	X		
4c.	Pinpointed the source of any current pest problems	X		
4d.	Monitored to determine the extent of pest problems and to estimate pest populations	X		
4e.	Developed plans to modify habitat (for example, exclusion, repair, and sanitation efforts) to prevent or resolve any pest problems	X		
4f.	Established a monitoring program that consists of routine inspections to estimate pest population levels and identify evidence of pests and potential habitat	X		

5. SETTING ACTION THRESHOLDS

	Yes	No	N/A
5a. Evaluated all available data obtained through inspecting, identifying, and monitoring	X		
5b. Determined how many pests the school buildings, grounds, and occupants can tolerate	X		
5c. Set action thresholds	X		

6. PREVENTIVE STRATEGIES

INDOOR SITES

6a. Implemented appropriate strategies to prevent pests from inhabiting the following areas:

	Yes	No	N/A
• Entryways	X		
• Classrooms	X		
• Gymnasiums	X		
• Locker rooms	X		
• Offices	X		
• Staff lounges	X		
• Bathrooms	X		
• Food preparation and serving areas	X		
• Rooms with extensive plumbing	X		
• Maintenance areas	X		
• Other			

OUTDOOR SITES

6b. Implemented appropriate strategies to prevent pests from inhabiting the following areas:

	Yes	No	N/A
• Playgrounds	X		
• Parking lots	X		
• Lawns and athletic fields	X		
• Teaching gardens or greenhouses	X		
• Loading docks	X		
• Dumpsters	X		
• Areas with ornamental shrubs and trees	X		
• Other			

7. PESTICIDE USE AND STORAGE

	Yes	No	N/A
7a. Explored alternative pest management methods before concluding that pesticides were necessary	X		
7b. Ensured that pest management professionals integrate IPM into their pest management methods	X		
7c. Identified the least toxic, target-specific chemical (or pesticide formulation) that is the most effective to address the pest problem, preferably as baitsand granules	X		
7d. Reviewed and followed all label instructions on pesticides and learned how to properly apply and handle these chemicals	X		
7e. Used spot-treatment (or bait, crack, and crevice applications) to apply pesticides whenever possible and only treated the obviously infested plants in the area	X		
7f. Used protective clothing or equipment when applying pesticides	X		
7g. Placed all pesticides in tamper-resistant bait boxes or locations that are inaccessible to children and non-target species	X		

7. PESTICIDE USE AND STORAGE (cont.)

	Yes	No	N/A
7h. Locked or fastened lids of all bait boxes and placed bait away from the runway of the box	⊗	○	○
7i. Applied pesticides when occupants were not present or in areas where they would not be exposed to the chemicals	⊗	○	○
7j. Ensured that school occupants (students and staff) are notified of upcoming pesticide applications through posted notices and/or letters	⊗	○	○
7k. Ensured that parents are notified of upcoming pesticide applications through letters	⊗	○	○
7l. Kept copies of current pesticide labels and information on pesticides easily accessible	⊗	○	○
7m. Stored pesticides off site or in areas that are locked and accessible only to designated personnel	⊗	○	○
7n. Ensured that storage areas are adequately ventilated and are located away from areas prone to flooding or where spills or leaks may contaminate the environment	⊗	○	○
7o. Ensured that flammable liquids are stored away from ignition sources	⊗	○	○
7p. Ensured that pesticides are stored in their original containers and all lids are securely fastened	⊗	○	○
7q. Ensured that air in the storage space cannot mix with the air in the central ventilation system	⊗	○	○

8. EVALUATING RESULTS AND RECORD KEEPING

8a. Ensured that accurate, up-to-date records of IPM practices and a pest management log for each property are kept	⊗	○	○
8b. Ensured that pesticide records necessary to meet all state, local, and school board requirements are maintained	⊗	○	○
8c. Ensured that each log book contains the following items:			
• Copy of the pest management plan	⊗	○	○
• Service schedules for maintenance of buildings and grounds	⊗	○	○
• Current EPA-registered labels	⊗	○	○
• Current Material Safety Data Sheets (MSDS) for each pesticide project	⊗	○	○
• Pest surveillance data sheets	⊗	○	○
• Diagram noting the location of pest activity, traps, and bait stations	⊗	○	○

NOTES

Ventilation Checklist

Name: Mike House

School: Prairie Plains

Unit Ventilator/AHU No: 20 units

Room or Area: 39 K Date Completed: June 2025

Signature:

Instructions

1. Read the *IAQ Backgrounder* and the Background Information for this checklist.
2. Keep the Background Information and make a copy of this checklist for **each** ventilation unit in your school, as well as a copy for future reference.
3. Complete the Checklist.
   - Check the "yes," "no," or "not applicable" box beside each item. (A "no" response requires further attention.)
   - Make comments in the "Notes" section as necessary.
4. Return the checklist portion of this document to the IAQ Coordinator.

1. OUTDOOR AIR INTAKES

		Yes	No	N/A
1a.	Marked locations of all outdoor air intakes on a small floor plan (for example, a fire escape floor plan)	⊗	○	○
1b.	Ensured that the ventilation system was on and operating in "occupied" mode	○	○	⊗

ACTIVITY 1: OBSTRUCTIONS

1c.	Ensured that outdoor air intakes are clear of obstructions, debris, clogs, or covers	⊗	○	○
1d.	Installed corrective devices as necessary (e.g., if snowdrifts or leaves frequently block an intake)	○	○	⊗

ACTIVITY 2: POLLUTANT SOURCES

1e.	Checked ground-level intakes for pollutant sources (dumpsters, loading docks, and bus-idling areas)	⊗	○	○
1f.	Checked rooftop intakes for pollutant sources (plumbing vents; kitchen, toilet, or laboratory exhaust fans; puddles; and mist from air-conditioning cooling towers)	⊗	○	○
1g.	Resolved any problems with pollutant sources located near outdoor air intakes (e.g., relocated dumpster or extended exhaust pipe)	⊗	○	○

ACTIVITY 3: AIRFLOW

1h.	Obtained chemical smoke (or a small piece of tissue paper or light plastic)	⊗	○	○
1i.	Confirmed that outdoor air is entering the intake appropriately	○	○	⊗

exhaust vent

2. SYSTEM CLEANLINESS

ACTIVITY 4: AIR FILTERS

2a.	Replaced filters per maintenance schedule	⊗	○	○
2b.	Shut off ventilation system fans while replacing filters (prevents dirt from blowing downstream)	⊗	○	○
2c.	Vacuumed filter areas before installing new filters	⊗	○	○
2d.	Confirmed proper fit of filters to prevent air from bypassing (flowing around) the air filter	⊗	○	○
2e.	Confirmed proper installation of filters (correct direction for airflow)	⊗	○	○

2. SYSTEM CLEANLINESS (continued)

ACTIVITY 5: DRAIN PANS

	Yes	No	N/A
2f. Ensured that drain pans slant toward the drain (to prevent water from accumulating)	⊗	○	○
2g. Cleaned drain pans	⊗	○	○
2h. Checked drain pans for mold and mildew	⊗	○	○

ACTIVITY 6: COILS

2i. Ensured that heating and cooling coils are clean	⊗	○	○

ACTIVITY 7: AIR-HANDLING UNITS, UNIT VENTILATORS

2j. Ensured that the interior of air-handling unit(s) or unit ventilator (air-mixing chamber and fan blades) is clean	⊗	○	○
2k. Ensured that ducts are clean	⊗	⊗	○

ACTIVITY 8: MECHANICAL ROOMS

2l. Checked mechanical room for unsanitary conditions, leaks, and spills	⊗	○	○
2m. Ensured that mechanical rooms and air-mixing chambers are free of trash, chemical products, and supplies	⊗	○	○

3. CONTROLS FOR OUTDOOR AIR SUPPLY

3a. Ensured that air dampers are at least partially open (minimum position)	⊗	○	○
3b. Ensured that minimum position provides adequate outdoor air for occupants	⊗	○	○

ACTIVITY 9: CONTROLS INFORMATION

3c. Obtained and reviewed all design inside/outside temperature and humidity requirements, controls specifications, as-built mechanical drawings, and controls operations manuals (often uniquely designed)	⊗	○	○

ACTIVITY 10: CLOCKS, TIMERS, SWITCHES

3d. Turned summer-winter switches to the correct position	⊗	○	○
3e. Set time clocks appropriately	⊗	○	○
3f. Ensured that settings fit the actual schedule of building use (including night/weekend use)	⊗	○	○

ACTIVITY 11: CONTROL COMPONENTS

3g. Ensured appropriate system pressure by testing line pressure at both the occupied (day) setting and the unoccupied (night) setting	○	○	⊗
3h. Checked that the line dryer prevents moisture buildup	○	○	⊗
3i. Replaced control system filters at the compressor inlet based on the compressor manufacturer's recommendation (for example, when you blow down the tank)	⊗	○	○
3j. Set the line pressure at each thermostat and damper actuator at the proper level (no leakage or obstructions)	○	○	⊗

ACTIVITY 12: OUTDOOR AIR DAMPERS

3k. Ensured that the outdoor air damper is visible for inspection	○	○	⊗
3l. Ensured that the recirculating relief and/or exhaust dampers are visible for inspection	⊗	○	○
3m. Ensured that air temperature in the indoor area(s) served by each outdoor air damper is within the normal operating range	○	⊗	○

NOTE: It is necessary to ensure that the damper is operating properly and within the normal range to continue.

3. CONTROLS FOR OUTDOOR AIR SUPPLY (continued)

No Damper

	Yes	No	N/A
3n. Checked that the outdoor air damper fully closes within a few minutes of shutting off appropriate air handler	○	⊗	○
3o. Checked that the outdoor air damper opens (at least partially with no delay) when the air handler is turned on	○	⊗	○
3p. If in heating mode, checked that the outdoor air damper goes to its minimum position (without completely closing) when the room thermostat is set to 85°F	○	⊗	○
3q. If in cooling mode, checked that the outdoor air damper goes to its minimum position (without completely closing) when the room thermostat is set to 60°F and mixed air thermostat is set to 45°F	○	⊗	○
3r. If the outdoor air damper does not move, confirmed the following items:			
• The damper actuator links to the damper shaft, and any linkage set screws or bolts are tight	○	○	⊗
• Moving parts are free of impediments (e.g., rust, corrosion)	○	○	⊗
• Electrical wire or pneumatic tubing connects to the damper actuator	○	○	⊗
• The outside air thermostat(s) is functioning properly (e.g., in the right location, calibrated correctly)	⊗	○	○

Proceed to Activities 13–16 if the damper seems to be operating properly.

ACTIVITY 13: FREEZE STATS

3s. Disconnected power to controls (for automatic reset only) to test continuity across terminals	○	○	⊗
OR			
3t. Confirmed (if applicable) that depressing the manual reset button (usually red) trips the freeze stat (clicking sound indicates freeze stat was tripped)	○	○	⊗
3u. Assessed the feasibility of replacing all manual reset freeze-stats with automatic reset freeze-stats	○	○	⊗

NOTE: HVAC systems with water coils need protection from the cold. The freeze-stat may close the outdoor air damper and disconnect the supply air when tripped. The typical trip range is 35°F to 42°F.

ACTIVITY 14: MIXED AIR THERMOSTATS

3v. Ensured that the mixed air stat for heating mode is set no higher than 65°F	○	○	⊗
3w. Ensured that the mixed air stat for cooling mode is set no lower than the room thermostat setting	⊗	○	○

ACTIVITY 15: ECONOMIZERS

3x. Confirmed proper economizer settings based on design specifications or local practices	○	⊗	○

NOTE: The dry-bulb is typically set at 65°F or lower.

3y. Checked that sensor on the economizer is shielded from direct sunlight	○	○	⊗
3z. Ensured that dampers operate properly (for outside air, return air, exhaust/relief air, and recirculated air), per the design specifications	○	○	⊗

NOTE: Economizers use varying amounts of cool outdoor air to assist with the cooling load of the room or rooms. There are two types of economizers, dry-bulb and enthalpy. Dry-bulb economizers vary the amount of outdoor air based on outdoor temperature, and enthalpy economizers vary the amount of outdoor air based on outdoor temperature and humidity level.

3. CONTROLS FOR OUTDOOR AIR SUPPLY (continued)

ACTIVITY 16: FANS

	Yes	No	N/A
3aa. Ensured that all fans (supply fans and associated return or relief fans) that move outside air indoors continuously operate during occupied hours (even when room thermostat is satisfied)	⊗	○	○

NOTE: If fan shuts off when the thermostat is satisfied, adjust control cycle as necessary to ensure sufficient outdoor air supply.

4. AIR DISTRIBUTION

ACTIVITY 17: AIR DISTRIBUTION

4a. Ensured that supply and return air pathways in the existing ventilation system perform as required	⊗	○	○
4b. Ensured that passive gravity relief ventilation systems and transfer grilles between rooms and corridors are functioning	○	○	⊗

NOTE: If ventilation system is closed or blocked to meet current fire codes, consult with a professional engineer for remedies.

4c. Made sure every occupied space has supply of outdoor air (mechanical system or operable windows)	○	⊗	○
4d. Ensured that supply and return vents are open and unblocked	⊗	○	○

open windows

NOTE: If outlets have been blocked intentionally to correct drafts or discomfort, investigate and correct the cause of the discomfort and reopen the vents.

4e. Modified the HVAC system to supply outside air to areas without an outdoor air supply	○	⊗	○
4f. Modified existing HVAC systems to incorporate any room or zone layout and population changes	⊗	○	○
4g. Moved all barriers (for example, room dividers, large free-standing blackboards or displays, bookshelves) that could block movement of air in the room, especially those blocking air vents	⊗	○	○
4h. Ensured that unit ventilators are quiet enough to accommodate classroom activities	⊗	○	○
4i. Ensured that classrooms are free of uncomfortable drafts produced by air from supply terminals	⊗	○	○

ACTIVITY 18: PRESSURIZATION IN BUILDINGS

NOTE: To prevent infiltration of outdoor pollutants, the ventilation system is designed to maintain positive pressurization in the building. Therefore, ensure that the system, including any exhaust fans, is operating on the "occupied" cycle when doing this activity.

4j. Ensured that air flows out of the building (using chemical smoke) through windows, doors, or other cracks and holes in exterior wall (for example, floor joints, pipe openings)	○	⊗	○

5. EXHAUST SYSTEMS

ACTIVITY 19: EXHAUST FAN OPERATION

5a. Checked (using chemical smoke) that air flows into exhaust fan grille(s)	○	⊗	○

pap

If fans are running but air is not flowing toward the exhaust intake, check for the following:

- *Inoperable dampers*
- *Obstructed, leaky, or disconnected ductwork*
- *Undersized or improperly installed fan*
- *Broken fan belt*

all replaced 2 years ago

5. EXHAUST SYSTEMS (continued)

ACTIVITY 20: EXHAUST AIRFLOW

NOTE: Prevent migration of indoor contaminants from areas such as bathrooms, kitchens, and labs by keeping them under negative pressure (as compared to surrounding spaces).

	Yes	No	N/A
5b. Checked (using chemical smoke) that air is drawn into the room from adjacent spaces	⊗	○	○

paper

Stand outside the room with the door slightly open while checking airflow high and low in the door opening (see "How to Measure Airflow").

5c. Ensured that air is flowing toward the exhaust intake	⊗	○	○

ACTIVITY 21: EXHAUST DUCTWORK

5d. Checked that the exhaust ductwork downstream of the exhaust fan (which is under positive pressure) is sealed and in good condition	⊗	○	○

6. QUANTITY OF OUTDOOR AIR

ACTIVITY 22: OUTDOOR AIR MEASUREMENTS AND CALCULATIONS

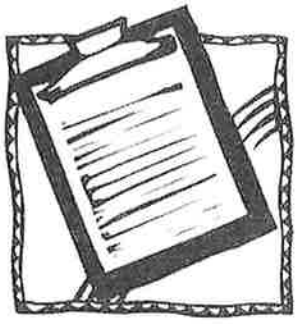
NOTE: Refer to "How to Measure Airflow" for techniques.

6a. Measured the quantity of outdoor air supplied (22a) to each ventilation unit	○	⊗	○
6b. Calculated the number of occupants served (22b) by the ventilation unit under consideration	○	⊗	○
6c. Divided outdoor air supply (22a) by the number of occupants (22b) to determine the existing quantity of outdoor air supply per person (22c)	○	⊗	○

ACTIVITY 23: ACCEPTABLE LEVELS OF OUTDOOR AIR QUANTITIES

6d. Compared the existing outdoor air per person (22c) to the recommended levels in Table 1	○	⊗	○
6e. Corrected problems with ventilation units that supplied inadequate quantities of outdoor air to ensure that outdoor air quantities (22c) meet the recommended levels in Table 1	○	⊗	○

NOTES



Walkthrough Inspection Checklist

Name: Mike Hart

School:

Room or Area: 39 K Date Completed: June 2025

Signature:

Instructions

1. Read the *IAQ Backgrounder* and the Background Information for this checklist.
2. Keep the Background Information and make a copy of the checklist for future reference.
3. Complete the Checklist.
   - Check the "yes," "no," or "not applicable" box beside each item. (A "no" response requires further attention.)
   - Make comments in the "Notes" section as necessary.
4. Return the checklist portion of this document to the IAQ Coordinator.

1. GROUND LEVEL

	Yes	No	N/A
1a. Ensured that ventilation units operate properly	⊗	○	○
1b. Ensured there are no obstructions blocking air intakes	⊗	○	○
1c. Checked for nests and droppings near outdoor air intakes	⊗	○	○
1d. Determined that dumpsters are located away from doors, windows, and outdoor air intakes	⊗	○	○
1e. Checked potential sources of air contaminants near the building (chimneys, stacks, industrial plants, exhaust from nearby buildings)	⊗	○	○
1f. Ensured that vehicles avoid idling near outdoor air intakes	⊗	○	○
1g. Minimized pesticide application	⊗	○	○
1h. Ensured that there is proper drainage away from the building (including roof downspouts)	⊗	○	○
1i. Ensured that sprinklers spray away from the building and outdoor air intakes	○	⊗	○
1j. Ensured that walk-off mats are used at exterior entrances and that they are cleaned regularly	⊗	○	○

2. ROOF

While on the roof, consider inspecting the HVAC units (use the Ventilation Checklist*).*

2a. Ensured that the roof is in good condition	⊗	○	○
2b. Checked for evidence of water ponding	⊗	○	○
2c. Checked that ventilation units operate properly (air flows in)	⊗	○	○
2d. Ensured that exhaust fans operate properly (air flows out)	⊗	○	○
2e. Ensured that air intakes remain open, even at minimum setting	⊗	○	○
2f. Checked for nests and droppings near outdoor air intakes	⊗	○	○
2g. Ensured that air from plumbing stacks and exhaust outlets flows away from outdoor air intakes	⊗	○	○

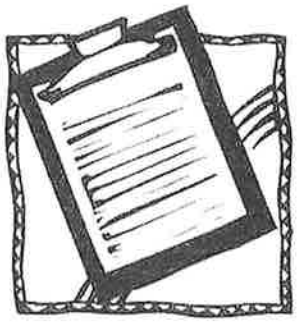
3. ATTIC

3a. Checked for evidence of roof and plumbing leaks	⊗	○	○
3b. Checked for birds and animal nests	⊗	○	○

4. GENERAL CONSIDERATIONS

4a. Ensured that temperature and humidity are maintained within acceptable ranges	⊗	○	○
4b. Ensured that no obstructions exist in supply and exhaust vents	⊗	○	○
4c. Checked for odors	⊗	○	○
4d. Checked for signs of mold and mildew growth	⊗	○	○

4. GENERAL CONSIDERATIONS (continued)



	Yes	No	N/A
4c. Checked for signs of water damage	X		
4f. Checked for evidence of pests and obvious food sources	X		
4g. Noted and reviewed all concerns from school occupants	X		

5. BATHROOMS AND GENERAL PLUMBING

5a. Ensured that bathrooms and restrooms have operating exhaust fans	X		
5b. Ensured proper drain trap maintenance:			
Water is poured down floor drains once per week (approx. 1 quart of water)	X		
Water is poured into sinks at least once per week (about 2 cups of water)	X		
Toilets are flushed at least once per week	X		

6. MAINTENANCE SUPPLIES

6a. Ensured that chemicals are used only with adequate ventilation and when building is unoccupied	X		
6b. Ensured that vents in chemical and trash storage areas are operating properly	X		
6c. Ensured that portable fuel containers are properly closed	X		
6d. Ensured that power equipment, like snowblowers and lawn mowers, have been serviced and maintained according to manufacturers' guidelines	X		

7. COMBUSTION APPLIANCES

7a. Checked for combustion gas and fuel odors	X		
7b. Ensured that combustion appliances have flues or exhaust hoods	X		
7c. Checked for leaks, disconnections, and deterioration	X		
7d. Ensured there is no soot on inside or outside of flue components	X		

8. OTHER

8a. Checked for peeling and flaking paint (if the building was built before 1980, this could be a lead hazard)	X		
8b. Determined date of last radon test	X		

NOTES

Waste Management Checklist

Name: Mike Howe

School: PPMS

Room or Area: 39 K Date Completed: June 2025

Signature:

Instructions

1. Read the *IAQ Backgrounder* and the Background Information for this checklist.
2. Keep the Background Information and make a copy of the checklist for future reference.
3. Complete the Checklist.
   - Check the "yes," "no," or "not applicable" box beside each item. (A "no" response requires further attention.)
   - Make comments in the "Notes" section as necessary.
4. Return the checklist portion of this document to the IAQ Coordinator.

1. WASTE MANAGEMENT

	Yes	No	N/A
1a. Ensured that waste containers are appropriate for use (for example, food waste containers should have lids)	⊗	○	○
1b. Ensured that waste containers are lined	⊗	○	○
1c. Ensured that waste from art, science, vocational classes, etc., are handled separately	⊗	⊗	○
1d. Labeled recycling bins clearly	⊗	○	○
1e. Ensured number of bins and dumpsters is adequate	⊗	○	○
1f. Ensured appropriate location of dumpsters (i.e., away from air intakes, doors, and operable windows in relation to prevailing winds)	⊗	○	○
1g. Ensured waste containers are emptied regularly	⊗	○	○
1h. Ensured appropriate waste removal schedule	⊗	○	○
1i. Ensured waste is stored in a well-ventilated room	⊗	○	○
1j. Ensured any exhaust fans in the room are operating properly	⊗	○	○
1k. Checked waste storage areas for odors, contaminants, or signs of vermin	⊗	○	○

NOTES