

To: Granby Board of Education

From: Christopher DeGray, Director of Facilities

Date: February 5, 2025

OVERVIEW, CT MANDATE ON INDOOR AIR QUALITY

In 2022, Governor Lamont signed into law new requirements for Connecticut boards of education to evaluate the indoor air quality and heating, ventilation and air conditioning systems in their respective school buildings.

The Act created 3 significant changes to the IAQ Statute.

1. Most significantly, the IAQ Statute now requires BOEs to conduct an HVAC system assessment for each public-school building.

Each school must complete its initial assessment and every five (5) years after the initial assessment. The HVAC inspection must be performed by a certified testing, adjusting and balancing technician, a certified industrial hygienist or a mechanical engineer and, at a minimum, satisfy the assessment tasks listed in the Act. The deadline for school districts to complete their initial HVAC system inspections in all schools was originally January 1, 2024 then January 1, 2025, but now school buildings now must complete the HVAC inspections and evaluations by June 30, 2031. BOEs must ensure that at least 20% of their schools complete the HVAC inspections and evaluations in each year until June 30, 2031, by which time the HVAC systems at all schools must have been assessed.

2. IAQ inspections and evaluations must now be done **annually starting on January 1, 2024** for every school. Additionally, the EPA's Indoor Air Quality Tools for Schools Program is now required, not just preferred, for IAQ inspections and evaluations beginning on January 1, 2024.
3. Lastly, the Act included new definitions of key terms to better inform the IAQ and HVAC requirements.

What is involved in the testing?

For indoor air quality testing:

Over 70 individual testing metrics must be taken and documented covering categories that include reviewing outdoor air intakes, obstructions, pollutant sources, system cleanliness, air handling and roof top unit inspections, controls for outdoor air supply, control components, dampers, thermostats, air distribution, exhaust systems, overall airflow, exhaust ductwork

For HVAC testing:

By law, the HVAC system inspection and evaluation must include the following:

1. Testing for maximum filter efficiency
2. Measuring outside air rate
3. Verifying ventilation components' operation
4. Measuring air distribution through all inlets and outlets
5. Verifying unit operation and performance of required maintenance in accordance with American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) standards
6. Verifying control sequences
7. Verifying carbon dioxide sensors and acceptable carbon dioxide indoor air concentrations
8. Collecting field data (if none exist) for installing mechanical ventilation. The inspection and evaluation must identify the extent to which each school's current ventilation system, including any existing central or noncentral mechanical ventilation system, is operating to provide appropriate ventilation to the school building according to ASHRAE's most recent indoor ventilation standards. The inspection and evaluation must result in a written report that includes any corrective actions needed for the mechanical ventilation system or the HVAC infrastructure

OLR Bill Analysis

sSB 287

AN ACT CONCERNING INDOOR AIR QUALITY IN SCHOOLS.

SUMMARY

This bill extends, from January 1, 2025, to June 30, 2030, the deadline for local and regional boards of education (i.e., “school boards”) to complete a uniform inspection and evaluation of their school buildings’ heating, ventilation, and air conditioning (HVAC) systems required by law (see BACKGROUND). Beginning July 1, 2025, school boards must conduct the inspection and evaluation in at least 20% of their schools each year until all schools in the district are inspected.

The bill also authorizes the Department of Administrative Services (DAS) to award indoor air quality grants to school boards to conduct the inspection and evaluation. It permits these grants even when a school district has not certified compliance with the inspection and evaluation requirements. Under current law, a school district must be compliant to receive any HVAC grant. (Once in compliance, a district may receive the other HVAC grants for repair, upgrading, and installation work.)

Additionally, the bill extends, from July 1, 2024, to January 1, 2030, the deadline for the school indoor air quality working group to submit its final report to the governor and Education, Labor and Public Employees, and Public Health committees. It also requires annual progress reports from the group.

EFFECTIVE DATE: July 1, 2024, except the provision extending the working group is effective upon passage.

§ 2 — HVAC INSPECTION AND EVALUATION

Current law requires school boards to complete the uniform HVAC system inspection and evaluation in each school building under the board’s jurisdiction before January 1, 2025, and thereafter every five

years. The bill instead requires school boards to complete the evaluations and inspections during a five-year period from July 1, 2025, to June 30, 2030. Under the bill, school boards must conduct the inspection and evaluation in at least 20% of their schools each year until all schools are inspected. It also requires that each school building be inspected again every five years.

Like current law, the bill allows DAS to grant a waiver from the inspection requirement, upon the request of a school board, if the department finds (1) there is an insufficient number of certified testing, adjusting, and balancing technicians; industrial hygienists certified by the American Board of Industrial Hygiene or the Board for Global EHS Credentialing; or mechanical engineers to perform the inspections and evaluations or (2) the board has scheduled the inspection for a date after the inspection deadline. Specifically, the bill allows DAS to grant a waiver of up to one year from the five-year deadline and the requirement to inspect at least 20% of a district's schools each year. It also specifies that if a waiver is granted because of the inspection's timing, then the inspection must be scheduled for the subsequent year. (Current law allows a one-year waiver and requires that the inspection be scheduled for after January 1, 2025).

The bill also expands the group of professionals who may conduct the inspections and evaluations to include mechanical contractors licensed in HVAC systems.

§ 3 — STATE GRANTS FOR HVAC INSPECTIONS

Current law prohibits the DAS commissioner from awarding grants for HVAC or indoor air quality improvements to school districts that have not certified compliance with the law's inspection and evaluation requirements. The bill makes an exception by allowing the commissioner to award grants to reimburse the cost of performing the inspections and evaluations. Like current law, the bill prohibits her from awarding other grants under the program if the district has not certified compliance with the inspection and evaluation requirements.

The law allows school boards or regional educational service centers

(RESC) to apply for the grants to reimburse costs for projects to install, replace, or upgrade HVAC systems or related improvements. The school board may receive a reimbursement grant for 20%-80% of its eligible expenses, based on its town ranking among all Connecticut towns using property wealth as a measure. As with the school construction grant program, less wealthy towns receive a higher reimbursement rate. RESCs are reimbursed under a similar method that reflects the wealth of the towns served by the RESC.

§ 1 — SCHOOL INDOOR AIR QUALITY WORKING GROUP

The bill extends the deadline, from July 1, 2024, to January 1, 2030, for the school indoor air quality working group to submit its final report to the governor and the Education, Labor and Public Employees, and Public Health committees. It also requires annual progress reports from the working group, with the first due by July 1, 2025, and each following year until July 1, 2029. The group terminates on July 1, 2030, or on the submission of its final report, whichever is later.

Under existing law, the 23-member group must make recommendations to the legislature on a range of issues related to school indoor air quality, including (1) criteria for rating the priority of HVAC repair and remediation needs; (2) optimal HVAC performance benchmarks to minimize the spread of infectious disease; and (3) protocols school districts can use to investigate and address complaints of mold, hazardous odors or chemicals, and poor indoor air quality.

BACKGROUND

School HVAC Inspections

By law, the HVAC system inspection and evaluation must include the following:

1. testing for maximum filter efficiency;
2. measuring outside air rate;
3. verifying ventilation components' operation;
4. measuring air distribution through all inlets and outlets;

5. verifying unit operation and performance of required maintenance in accordance with American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) standards;
6. verifying control sequences;
7. verifying carbon dioxide sensors and acceptable carbon dioxide indoor air concentrations; and
8. collecting field data (if none exist) for installing mechanical ventilation.

The inspection and evaluation must identify the extent to which each school's current ventilation system, including any existing central or noncentral mechanical ventilation system, is operating to provide appropriate ventilation to the school building according to ASHRAE's most recent indoor ventilation standards. The inspection and evaluation must result in a written report that includes any corrective actions needed for the mechanical ventilation system or the HVAC infrastructure.

COMMITTEE ACTION

Education Committee

Joint Favorable Substitute

Yea 44 Nay 0 (03/18/2024)



Ventilation Checklist

Name: _____
 School: _____
 Unit Ventilator/AHU No: _____
 Room or Area: _____ Date Completed: _____
 Signature: _____

Instructions

1. Read the *IAQ Background* 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) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 1b. Ensured that the ventilation system was on and operating in “occupied” mode | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

ACTIVITY 1: OBSTRUCTIONS

- | | | | |
|--|--------------------------|--------------------------|--------------------------|
| 1c. Ensured that outdoor air intakes are clear of obstructions, debris, clogs, or covers | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 1d. Installed corrective devices as necessary (e.g., if snowdrifts or leaves frequently block an intake) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

ACTIVITY 2: POLLUTANT SOURCES

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

ACTIVITY 3: AIRFLOW

- | | | | |
|--|--------------------------|--------------------------|--------------------------|
| 1h. Obtained chemical smoke (or a small piece of tissue paper or light plastic) .. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 1i. Confirmed that outdoor air is entering the intake appropriately | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

2. SYSTEM CLEANLINESS

ACTIVITY 4: AIR FILTERS

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

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) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2g. Cleaned drain pans | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2h. Checked drain pans for mold and mildew | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

ACTIVITY 6: COILS

- | | | | |
|--|--------------------------|--------------------------|--------------------------|
| 2i. Ensured that heating and cooling coils are clean | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|--------------------------|

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 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2k. Ensured that ducts are clean | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

ACTIVITY 8: MECHANICAL ROOMS

- | | | | |
|--|--------------------------|--------------------------|--------------------------|
| 2l. Checked mechanical room for unsanitary conditions, leaks, and spills | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2m. Ensured that mechanical rooms and air-mixing chambers are free of trash, chemical products, and supplies | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

3. CONTROLS FOR OUTDOOR AIR SUPPLY

- | | | | |
|---|--------------------------|--------------------------|--------------------------|
| 3a. Ensured that air dampers are at least partially open (minimum position) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3b. Ensured that minimum position provides adequate outdoor air for occupants | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

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) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|---|--------------------------|--------------------------|--------------------------|

ACTIVITY 10: CLOCKS, TIMERS, SWITCHES

- | | | | |
|---|--------------------------|--------------------------|--------------------------|
| 3d. Turned summer-winter switches to the correct position | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3e. Set time clocks appropriately | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3f. Ensured that settings fit the actual schedule of building use (including night/weekend use) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

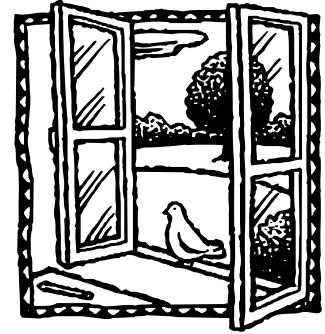
ACTIVITY 11: CONTROL COMPONENTS

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

ACTIVITY 12: OUTDOOR AIR DAMPERS

- | | | | |
|---|--------------------------|--------------------------|--------------------------|
| 3k. Ensured that the outdoor air damper is visible for inspection | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3l. Ensured that the recirculating relief and/or exhaust dampers are visible for inspection | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3m. Ensured that air temperature in the indoor area(s) served by each outdoor air damper is within the normal operating range | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

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)

- | | Yes | No | N/A |
|---|--------------------------|--------------------------|--------------------------|
| 3n. Checked that the outdoor air damper fully closes within a few minutes of shutting off appropriate air handler | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3o. Checked that the outdoor air damper opens (at least partially with no delay) when the air handler is turned on | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 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 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 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 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 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 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| • Moving parts are free of impediments (e.g., rust, corrosion) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| • Electrical wire or pneumatic tubing connects to the damper actuator | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| • The outside air thermostat(s) is functioning properly (e.g., in the right location, calibrated correctly) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

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 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| OR | | | |
| 3t. Confirmed (if applicable) that depressing the manual reset button (usually red) trips the freeze stat (clicking sound indicates freeze stat was tripped) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3u. Assessed the feasibility of replacing all manual reset freeze-stats with automatic reset freeze-stats | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

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 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3w. Ensured that the mixed air stat for cooling mode is set no lower than the room thermostat setting | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

ACTIVITY 15: ECONOMIZERS

- | | | | |
|--|--------------------------|--------------------------|--------------------------|
| 3x. Confirmed proper economizer settings based on design specifications or local practices | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|--------------------------|

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

- | | | | |
|--|--------------------------|--------------------------|--------------------------|
| 3y. Checked that sensor on the economizer is shielded from direct sunlight | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3z. Ensured that dampers operate properly (for outside air, return air, exhaust/relief air, and recirculated air), per the design specifications | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

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
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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- 4b. Ensured that passive gravity relief ventilation systems and transfer grilles between rooms and corridors are functioning

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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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)

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------
- 4d. Ensured that supply and return vents are open and unblocked

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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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

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------
- 4f. Modified existing HVAC systems to incorporate any room or zone layout and population changes

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------
- 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

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------
- 4h. Ensured that unit ventilators are quiet enough to accommodate classroom activities

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------
- 4i. Ensured that classrooms are free of uncomfortable drafts produced by air from supply terminals

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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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)

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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5. EXHAUST SYSTEMS

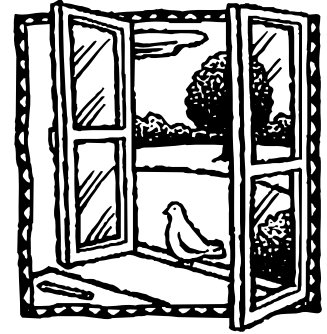
ACTIVITY 19: EXHAUST FAN OPERATION

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

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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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).

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

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