Ventilation Checklist

Name: William Blouin

School: Lewis Mills

Unit Ventilator/AHU No: RTU's + AHU's

Room or Area: High School Date Completed: 1/3/24

Signature: William P. Blouin

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

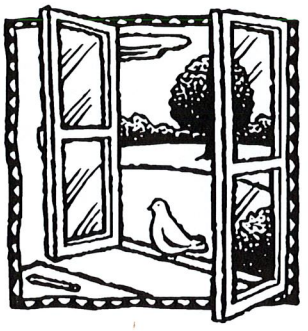
1h. Obtained chemical smoke (or a small piece of tissue paper or light plastic)	☑	☐	☐
1i. Confirmed that outdoor air is entering the intake appropriately	☑	☐	☐

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)

	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	☑	☐	☐

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