UNIFORM INDOOR AIR QUALITY EVALUATION

Naramake Elementary School – 2024

In 2024 Norwalk Public Schools (NPS) completed a program of uniform Indoor Air Quality (IAQ) inspections and evaluations for all schools in the district in order to comply with Section 10-220(d) of the Connecticut General Statutes (CGS § 10-220(d) known as the "IAQ Statute"). The IAQ Statute specifies 14 categories which must be considered in order to fulfill the reporting requirements. In addition to relying on information from existing initiatives such as NPS's radon testing regime and Integrated Pest Management protocol, the program makes use of the Environmental Protection Agency's (EPA's) IAQ Tools for Schools (TFS) checklists and guidelines to complete the inspections and evaluations. The completed TFS checklists for each school in the Norwalk Public Schools district can be found on the NPS website at https://www.norwalkps.org/departments/operations/facilities/indoor-air-quality.

The following sections pertain to each of the 14 enumerated IAQ Statute categories for inspections and evaluations performed at Naramake Elementary School ("the School") in 2024.

1. **Heating, Ventilation and Air Conditioning (HVAC) Systems**

   NPS used the TFS general Walkthrough Inspection and Ventilation checklists to satisfy this requirement. These checklists are used to evaluate the condition and operation of the HVAC systems. In accordance with section CGS § 10-231(e) of the Connecticut General Statutes, NPS ensures that the School's HVAC systems are: (1) maintained and operated in accordance with the prevailing maintenance standards at the time of installation or renovation of such systems, and (2) operated continuously during the hours in which students or School personnel occupy School facilities, except (A) during scheduled maintenance and emergency repairs, and (B) during periods for which School officials can demonstrate that the quantity of outdoor air sup plied provides sufficient air changes. This year's assessment did not identify any issues with the HVAC system that required immediate action in connection with IAQ in the School or update to reflect findings.

   NPS will also be conducting a separate technical evaluation in 2025 of the mechanical HVAC system(s) at Naramake Elementary School in order to comply with the CGS § 10-220(d)(3) reporting requirement which must be completed every 5 years.

2. Radon Levels in Air

NPS has along-established radon testing regime for all District schools in accordance with CGS § 10-220(d) and the State of CT Department of Public Health guidance and requirements. The program engages qualified professionals to evaluate each school building for radon through sampling and laboratory analysis every three years (formerly five years) as well as reporting to CTDPH. NPS's most recent submission was in February 2022. The next submission is due by March 1st, 2027.

3. Potential For Exposure to Microbiological Airborne Particles, Including, But Not Limited To, Fungi, Mold, and Bacteria

NPS used the TFS Walkthrough Inspection, Building and Grounds Maintenance, and Food Service checklists to satisfy this requirement. The focus items included evaluation of drainage at the exterior and roof of the building, any evidence of interior moisture intrusion or moisture issues through roof or plumbing leaks or any consistent condensation, evidence of mold/mildew growth, etc. The School's IAQ conditions were satisfactory and no substantial concerns for microbiological airborne particles were noted in the assessment.

4. Chemical Compounds of Concern to Indoor Air Quality Including, But Not Limited To, Volatile Organic Compounds

NPS used the TFS Walkthrough Inspection and Building and Grounds Maintenance checklists to satisfy this requirement. The focus items included the evaluation of building maintenance supplies and grounds maintenance supplies and how they are used, stored, and labeled as well as spill response, engineering, and administrative controls used in conjunction with these products. The district contracts with licensed professional service providers to dispose of any chemicals from the chemistry departments on an as-needed basis. This assessment did not reveal any issues with chemicals of concern impacting the IAQ. NPS continues to operate its long-standing green cleaning program utilizing environmentally preferable cleaning and disinfecting products.

5. Degree Of Pest Infestation, Including, But Not Limited To, Insects and Rodents

NPS used the TFS Walkthrough Inspection, Waste Management, Food Service, and Integrated Pest Management checklists to satisfy this requirement. The focus items included the evaluation of pest evidence, entry points, food, water, and identification of potential pest habitats as well as establishing a regular monitoring program. All NPS buildings are inspected monthly by ABC Exterminating Inc, the District's integrated pest management company, to determine if any infestation exists and to eliminate any condition that might be conducive to breeding or attracting pests. Records are maintained of all pest control inspection visits and any measures taken.

6. Degree Of Pesticide Usage

NPS operates an Integrated Pest Management (IPM) program in accordance with CGS § 10-231a-231d. The IPM program requires NPS to evaluate alternative pest management methods before using pesticides, utilize the least toxic method to address the pest problem and ensure all pest control products are used and stored in accordance with regulatory and manufacturer requirements by trained and qualified personnel. Notification is provided and log records maintained of IPM measures taken. The application of pesticides on School grounds is avoided unless there is an emergency and it is only used under the direction of a licensed pesticide applicator.

7. The Presence Of And The Plans For Removal Of Any Hazardous Substances That Are Contained On The List Prepared Pursuant To Section 302 Of The Federal Emergency Planning And Community Right-To-Know Act, 42 USC 9601 Et Seq. (EPCRA)

NPS did not evaluate the School in 2024 for the potential presence of "extremely hazardous substances" as listed in EPCRA Section 302 and determined there are currently none present. NPS is exploring options for a comprehensive inspection to satisfy this Federal guideline.

8. Ventilation Systems

Assessment of the School's ventilation system(s) is addressed in Section 1 of this report.

9. Plumbing, Including Water Distribution Systems, Drainage Systems and Fixtures

NPS used the TFS General Walkthrough Inspection, Building and Grounds Maintenance, and Food Service checklists to satisfy this requirement. The focus items included the evaluation of drainage and plumbing systems for evidence of leaks, odors, staining, condensation, and evidence of mold/mildew growth. Based on the walkthrough, no significant plumbing issues affecting IAQ were identified.

10. Moisture Incursion

NPS used the TFS general Walkthrough Inspection, Building and Grounds Maintenance, and Food Service checklists to satisfy this requirement. The focus items included evaluation of drainage at the exterior and roof of the building, evidence of interior moisture intrusion or moisture issues through roof or plumbing leaks or consistent condensation, and evidence of mold/mildew growth. NPS protocol stipulates that if school staff sees an issue related to moisture incursion, the staffer reports it to the head custodian. The head custodian works with the school administrative leader to create and submit a work order ticket. The Facilities Department then addresses and resolves the issue in a manner befitting the situation.

11. Overall Cleanliness of The Facilities

NPS used the TFS Walkthrough Inspection, Waste Management, Food Service, and Integrated Pest Management checklists to satisfy this requirement. The focus items included evaluation of sanitary conditions in food handling and storage areas, ensuring waste does not accumulate, verifying walk-off mats are present at each entrance, ensuring proper procedures are in place for dust control during cleaning activities and a schedule is established for vacuuming and mopping floors. Based on the walkthrough, the School was found to be satisfactorily clean.

12. Building Structural Elements, Including, But Not Limited To, Roofing, Basements or Slabs

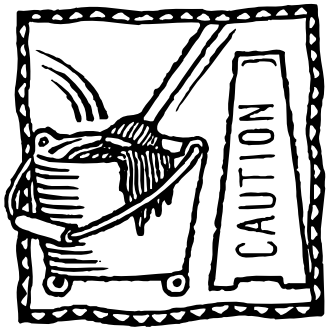
NPS used the TFS Walkthrough Inspection and Building and Grounds Maintenance checklists. The focus items included visual evaluation of roofing materials and structural components of the building. Based on the walkthrough, the School did not present any structural issues.

13. Use Of Space, Particularly Areas That Were Designed to Be Unoccupied

NPS evaluates the use of space at all NPS schools on an ongoing basis. Any repurposed spaces that are, or may be, occupied have been provided with adequate ventilation.

14. The Provision of Indoor Air Quality Maintenance Training for Building Staff

All NPS Facilities staff is trained in the use of TFS checklists. NPS is developing a program and protocols to train on-site building staff in the use of the TFS checklists to gather information related to the overall condition of the school building. Staff will understand that findings must be documented and addressed promptly. On-site staff is trained to follow existing protocols regarding submission of work orders to address issues encountered on site.



Building and Grounds Maintenance Checklist

Name: Brian Collins

School: Naramake Elementary School

Room or Area: _____ Date Completed: 11/5/2024

Signature: Brian Collins

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

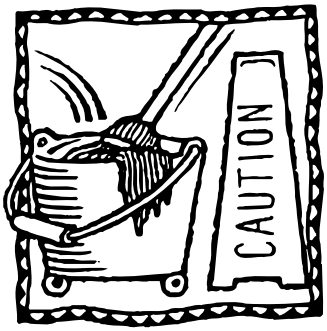
		Yes	No	N/A
1a.	Developed appropriate procedures and stocked supplies for spill control	☑	☐	☐
1b.	Reviewed supply labels	☑	☐	☐
1c.	Ensured that air from chemical and trash storage areas vents to the outdoors	☑	☐	☐
1d.	Stored chemical products and supplies in sealed, clearly labeled containers	☑	☐	☐
1e.	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	☑	❑	❑
4b.	Cleaned spills on floors promptly (as necessary)	☑	❑	❑
4c.	Performed restorative maintenance (as necessary)	☑	❑	❑

5. DRAIN TRAPS

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

6. MOISTURE, LEAKS, AND SPILLS

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

7. COMBUSTION APPLIANCES

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

8. PEST CONTROL

8a.	Completed the *Integrated Pest Management Checklist*	☑	❑	❑

NOTES

- Appliances, flues, and exhausts are checked routinely during periodic and preventative maintenance visits by qualified vendors.

Food Service Checklist

Name: Brian Collins

School: Naramake Elementary School

Room or Area: _____ Date Completed: 11/5/2024

Signature: Brian Collins

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

2. FOOD HANDLING AND STORAGE

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

3. WASTE MANAGEMENT

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

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

- 'No Idling' signage needed

Integrated Pest Management Checklist

Name: Brian Collins

School: Naramake Elementary School

Room or Area: _____ Date Completed: 11/5/2024

Signature: Brian Collins

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)	☑	❑	❑

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	☑	❑	❑
5b. Determined how many pests the school buildings, grounds, and occupants can tolerate	☑	❑	❑
5c. Set action thresholds	☑	❑	❑

6. PREVENTIVE STRATEGIES

INDOOR SITES

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

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

OUTDOOR SITES

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

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

7. PESTICIDE USE AND STORAGE

7a. Explored alternative pest management methods before concluding that pesticides were necessary	☑	❑	❑
7b. Ensured that pest management professionals integrate IPM into their pest management methods	☑	❑	❑
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	☑	❑	❑
7d. Reviewed and followed all label instructions on pesticides and learned how to properly apply and handle these chemicals	☑	❑	❑
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	☑	❑	❑
7f. Used protective clothing or equipment when applying pesticides	☑	❑	❑
7g. Placed all pesticides in tamper-resistant bait boxes or locations that are inaccessible to children and non-target species	☑	❑	❑

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

- Bird nests around building exterior to be properly removed and nested areas addressed
- Soffit damage to be repaired and sealed

Ventilation Checklist

Name: Brian Collins

School: Naramake Elementary School

Unit Ventilator/AHU No: _____

Room or Area: _____ Date Completed: 11/5/2024

Signature: Brian Collins

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

- Marked floor plan showing locations of all outdoor air intakes to be created and retained on site
- Space users must be reminded not place items directly onto vent covers or otherwise block vents
- Ventilation to be addressed in certain restroom(s)
- Grate/Screen to be replaced on certain RTU(s)

Walkthrough Inspection Checklist

Name: Brian Collins

School: Naramake Elementary School

Room or Area: _____ Date Completed: 11/5/2024

Signature: Brian Collins

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
4e.	Checked for signs of water damage	☑	❑	❑
4f.	Checked for evidence of pests and obvious food sources	☑	❑	❑
4g.	Noted and reviewed all concerns from school occupants	☑	❑	❑

5. BATHROOMS AND GENERAL PLUMBING

5a.	Ensured that bathrooms and restrooms have operating exhaust fans	❑	☑	❑
5b.	Ensured proper drain trap maintenance:			
	Water is poured down floor drains once per week (approx. 1 quart of water)	❑	❑	☑
	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	☑	❑	❑
6b.	Ensured that vents in chemical and trash storage areas are operating properly	☑	❑	❑
6c.	Ensured that portable fuel containers are properly closed	☑	❑	❑
6d.	Ensured that power equipment, like snowblowers and lawn mowers, have been serviced and maintained according to manufacturers' guidelines	☑	❑	❑

7. COMBUSTION APPLIANCES

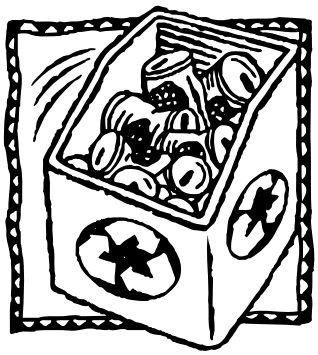
7a.	Checked for combustion gas and fuel odors	☑	❑	❑
7b.	Ensured that combustion appliances have flues or exhaust hoods	☑	❑	❑
7c.	Checked for leaks, disconnections, and deterioration	☑	❑	❑
7d.	Ensured there is no soot on inside or outside of flue components	❑	❑	☑

8. OTHER

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

NOTES

- Stored cleaning chemicals to be reconsolidated to ventilated storage area(s)
- Bathroom vent fan functionality to be remediated in certain rooms
- Door sweeps to be replaced as needed throughout building on exterior doors (inc. boiler room)
- Trees and plantings to be cut back from building walls and roof
- Ceiling tiles to be replaced in certain area(s)
- Roof to be cleared of all plant and/or other debris
- Boiler/Electrical/Mechanical room(s) need organizing and/or cleanup
- Certain exterior air vent(s) needs new grate



Waste Management Checklist

Name: Brian Collins

School: Naramake Elementary School

Room or Area: _____ Date Completed: 11/5/2024

Signature: Brian Collins

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