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Energy Efficient Indoor Air Quality Assessment:

A Self-Assessment Tool For Schools

People in the U.S. spend about 90% of their time indoors, where levels of air pollution are often two to five times higher than outdoors. Building infrastructure, high density of occupancy, and diversity of activities make the indoor air quality in schools more challenging. Poor air quality in the classroom affects how children and staff concentrate, learn, and achieve. Children's smaller lung size and more frequent breathing, along with the higher rates of respiratory infections in schools, make children susceptible to poor indoor air quality.

Assessing school buildings' strengths and opportunities for improvement is a first step to creating healthy and efficient school environments. This Energy Efficient Indoor Air Quality Assessment Form (EE IAQ Assessment Form) is designed as a helpful resource for schools in the assessment, development, and implementation of a written EE IAQ Management Plan (EE IAQ Plan). This EE IAQ Assessment Form has been informed by the U.S. Environmental Protection Agency's (EPA) IAQ Tools for Schools.

An EE IAQ Plan is a formal, written plan that outlines the policies and procedures implemented by a school or district to maintain healthy indoor air quality while also prioritizing energy efficiency. These IAQ Plans take a proactive approach to preventing and responding to issues through effective operations and maintenance practices, staff training, communications, and compliance with local and federal regulations.

This EE IAQ Assessment Form:

- 1. Should be completed by individuals most knowledgeable about the school facilities, which may include staff in facilities management, operations & maintenance, environmental health and safety, indoor air quality coordinators, or administrators.
- 2. Relates to a single physical school building.
- 3. Should be completed at least once per year for each building.
- 4. Should be used to enter work orders for necessary improvements, with findings shared with district facilities management and the school administrator.
- 5. Should be kept on record for at least five years and reviewed annually alongside past assessment forms to identify trends and unresolved issues.
- 6. Highlights each component of a comprehensive school assessment and allows the people completing to document observations.
- 7. Suggests practical, proven, cost-effective steps that can be taken to improve indoor air quality, manage energy use, and reduce the impact of excessive heat.

Building and Policy Assessment

Building Information

1.	Date of assessment
2.	NameTitleEmail
	(of person completing this school building assessment)
3.	School building name
4.	NCES number
	School district
6.	School building address
7.	What year was the school built?
	Has the building been renovated?
	Have there been any building additions?
8.	Approximate square footage of the school building:
9.	Number of staff Number of Students Number of School Nurses?
10.	Has this school completed an indoor air quality assessment before? ☐ Yes ☐ No ☐ Don't know ☐ NA If yes, what is the date of last assessment?
	Please share the building's current IAQ assessment
11.	Has this school completed an energy assessment before?
	If yes, what is the date of last assessment?
12.	Is there a process for reporting environmental and/or air quality concerns?



13.	What types of environmental and/or air quality complaints have been received in the last 12 months? (Select all that apply.)												
		Cleanliness	☐ Clutter	☐ Humidity	☐ Odors	☐ Pests	☐ Temperature	e 🔲 Visible mold	☐ Water leaks				
	☐ Other (write in) ☐ No complaints have been received.												
14.	14. Does your school or district currently have any of the following plans or policies? (Select all that apply.)												
		Animals/Pe	ets in classro	om policy				Integrated pest man	agement plan				
		Anti-idling	policy for sch	nool buses				Legionella water ma	nagement plan				
		Anti-idling	policy during	school drop-c	off or pick-up)		Mold prevention and	remediation plan				
		Asbestos h	nazard emerg	gency response	e act			Personal appliances	(space heaters, microwaves) policy				
		Cleaning p	roducts polic	¢y				Plant policy					
		Energy mai	nagement pl	an				Tobacco and vape-f	ree school policy				
		Environmer	ntally prefera	ble purchasing	policy			Upholstered furniture	e in classrooms policy				
		Fragrances	(air freshene	ers, scented pr	oducts) poli	су		Wildfire smoke man	agement plan				
		Flood dama	age plan					Other energy and air	quality policies (write in)				
		Hazardous	communicat	tion plan									
		Indoor air c	juality manag	gement plan									
Ve	nti	lation ar	nd Filtrati	on Systen	ns								
15.	Wh	at types of H	IVAC system	(s)/controls is/a	are in use in	the building	g? (Select all that	apply.)					
		Central me	chanical syst	tem with outdo	or air ventila	ation (air ha	ndlers, rooftop ur	nits)					
		Is the centr	alized HVAC	system multi-z	one or singl	e zone?							
				a duct and dar d when outdoo			_	n that enables the HV	AC system to use outdoor air				
		Dedicated	Outdoor Air 9	System (DOAS)) - provides	100% outdo	oor air and manag	ges humidity indeper	ndently.				
		Window air	conditioning	g units - no out	side air vent	ilation							
		Ductless m	ini split heat	pumps									
		Classroom	unit ventilato	ors located on o	outside walls	s, capable c	of bringing in outs	side air					
		Boiler											



		Chiller				
		Combination				
		Energy recove	ery ventilator (E	ERV) or Heat recovery vent	ilators (HRV) system	
		Other (write in	n)			
		Unknown/uns	sure			
16.	Hav	e the ventilatio	n rates in class	sroom and common areas	been measured in the	last 1-3 years?
		□ Yes	□No	☐ Don't know	□NA	
	If ye	es, how many a	ir changes per	hour?		
17.	If th	e building is us	ed for other pu	urposes after hours, does t	the HVAC run during th	ese activities?
		☐ Yes	□No	☐ Don't know	□NA	
18.		en the building sumption?	is not occupie	ed during the day by studer	nts, is the HVAC systen	n time setting adjusted to a "setback" to help reduce energy
		☐ Yes	□No	☐ Don't know	□NA	☐ HVAC does not allow for a "setback setting"
19.	Hav	e any upgrade:	s been made t	o the ventilation system si	nce 2020?	
		☐ Yes	□No	☐ Don't know	□NA	
20.	. Who	o is the HVAC s	system service	d by?		
		In-house pers	sonnel			
		Service comp	any			
		Both in-house	e personnel an	d service company		
21.	Wha	at is the MERV	rating of the fil	ters used in the school's H	VAC system?	
		MERV 8 (equa	ates to Micropa	article Performance Rating	/MPR of 600 or Filter P	erformance Rating/FPR of 5)
		MERV 11 (equa	ates to MPR of	1000-2000 or FPR of 7)		
		MERV 13 (equ	ates to MPR of	1500-1900 or FPR of 10)		
		Other?				
		N/A				



22. How often are t	the above filter	s inspected and replace	ed in the school's H\	VAC system?
23. Is the school us	sing any HEPA	portable air cleaners?		
☐ Yes	□No	☐ Don't know	□NA	
If Yes:				
Number of roor	ms equipped v	vith air cleaners		
Hours of opera	tion of air clear	ners:		
How often are t	the air cleaner	filters replaced?		
Are the air clea	ners registered	d (for recall notifications	and warranty)?	
Indoor Air Qu	uality Mon	itoring		
24. Do you have ar	ny of the follow	ing sensors or monitors	to assess the indoc	or air quality of your building? (Select all that apply)
☐ Carbon die	oxide			☐ Radon
☐ Carbon m	onoxide			☐ Temperature
☐ Humidity				☐ Volatile Organic Compounds (VOCs)
☐ Particulate	matter (PM1/F	PM2.5 /PM10)		☐ Other? (Write in)
25. Does your scho	ool have a Build	ling Management Syste	em that tracks and re	eports data to the facilities director in real-time?
☐ Yes	□No	☐ Don't know	□NA	
Asbestos				
26. Has your school	ol been inspect	ed for the presence of	asbestos-containin	g materials?
☐ Yes	□No	☐ Don't know	□NA	
If yes, does you every six month	•	ct the areas with asbes	tos-containing mate	erials to ensure the areas are still intact without disturbances
☐ Yes	□No	☐ Don't know	□NA	



Mercury				
27. Are there any r	nercury contai	ning science equipment (nsite?	
☐ Yes	□No	☐ Don't know	□NA	
28. Does the scho	ol have any no	n-LED lighting?		
☐ Yes	□ No	☐ Don't know	□NA	
	_		mmon before 2007. Older systems may have mercury in their components. or electrical switches that have not been upgraded in the last 20 years?	Does you
☐ Yes	□No	☐ Don't know	□NA	
Radon				
30. Has your school	ol been tested	for radon within the past	years?	
☐ Yes	☐ No	☐ Don't know	□NA	
If yes, were any	/ levels elevate	d?		
☐ Yes	☐ No	☐ Don't know	□NA	
31. Does the scho	ol have a rador	n mitigation system install	ed?	
☐ Yes	☐ No	☐ Don't know	□NA	
32. Was the school	ol built with rad	on-resistant new constru	tion?	
☐ Yes	□No	☐ Don't know	□NA	
Cleaning				
33. Are school stat	ff/custodians ti	rained on safe and effecti	re handling and use of all cleaning products and equipment?	
☐ Yes	□ No	☐ Don't know	□NA	
34. Are pesticides	applied inside	the building or on schoo	grounds by a licensed applicator?	
ПYes	П №	□ Don't know	ΠNA	



35. Do	es your school	have an approv	ed list of safer cleaning	g products (e.g. Sa	afer Choice Program)?	•				
	☐ Yes	□No	☐ Don't know	□ NA						
36. Do	es your school	only purchase	products on this appro	ved list of safer cle	eaning products?					
	☐ Yes	□No	☐ Don't know	□ NA						
37. Do	you use a HEPA	A (High Efficien	cy Particulate Air) vacu	um on carpeted a	reas?					
	☐ Yes	□No	☐ Don't know	□ NA						
38. Wł	nat is the hallwa	y and classroo	m floor cleaning sched	dule for the building	g?					
	☐ Yes	□No	☐ Don't know	□ NA						
39. If th	nere is carpetin	g, how often is	the carpet deep clean	ed?						
	☐ There is no d	carpeting in the	school building	☐ Weekly	☐ Monthly	\square Annually	☐ Other			
Ener	gy Manag	ement and	d Excessive Hea	at Reduction						
40. ls t	he school build	ing's energy us	age tracked using ENE	RGY STAR Portfoli	io Manager or similar?					
	☐ Yes	□No	☐ Don't know	□ NA						
	nat strategies ha lect all that app		led to reduce energy u	se and mitigate th	e impact of excessive	heat on the outside	e of the school building?			
	Light-colored	building roof to	o reduce heat absorpti	on						
	☐ Green roof with vegetation to absorb rainwater and reduce heat absorption									
	Solar photovoltaic cells (i.e. solar panels) to convert sunlight into renewable energy									
	Reflective wir	ndow coverings	s to reflect sunlight and	l reduce heat						
	Climate-spec	ific vegetation	that supports building	and playground sl	nading					
	Shade structu	ures and/or sur	n sails over playground:	s and/or walkways	3					



Building Walkthrough Assessment

ltem	Yes/Ok	No	Don't Know	Not Applicable	Observations	Recommendations and Follow-up
Outside Ground Level As	sessment					
Outdoor pesticide applications are minimized						Adopt Integrated Pest Management practices and policies to limit the use of pesticides on school grounds.
HVAC units operate properly, including dampers, louvers, screens, filters, fans, heating, and cooling. Condensation is drained away						Change or clean filters at least annually and maintain HVAC units according to manufacturer's recommendations.
Outdoor air intakes are clear of obstructions, debris, clogs, and covers						Trim plants, remove leaves and nests to avoid obstructing the HVAC units and harboring pests. Provide outdoor air ventilation according to ASHRAE Standards or local code.
Dumpsters are located away (at least 25- 50 feet) from doors, windows and outdoor air intakes						Move dumpster at least 25-50 feet away from building entrances and air intakes. Ensure dumpster lids are kept closed to avoid odor and pests.



ltem	Yes/Ok	No	Don't Know	Not Applicable	Observations	Recommendations and Follow-up
Vehicles do not idle near outdoor air intakes.						In accordance with local and state laws, implement a no idling policy for cars.
Local and state laws on idling should be followed.						Assess the school's idling policy for buses. Consider moving buses away from fresh air intake or having students enter and exit through a different door.
Systems drain away from the building (including roof downspouts). Downspouts, gutters,						Extend downspouts at last 4-6 feet away from the building or as local code requires.
leaders, and roof drains should be inspected for ponding and leaks						Eliminate standing water. Regrade to ensure water flows away from buildings.
Sprinklers spray away from the building and outdoor air intakes						Reposition sprinklers away from building and outdoor air intakes.
Exterior walls are in good condition without signs of mold, cracks, or						Repair mortar joints in brickwork OR replace missing bricks OR repair exterior.
disrepair, (e.g. caulking between building joints, windows, and doors is intact)						Assess building's interior spaces at or below affected exterior locations for evidence of water damage and repair interior.



ltem	Yes/Ok	No	Don't Know	Not Applicable	Observations	Recommendations and Follow-up
Exterior window and door casings are in good condition with no signs of rust						Inspect window casings for water intrusion. Repair if necessary.
Roof and Other HVAC/Air	Handler Syste	ems				
Roof in good condition with no evidence of water ponding or disrepair						Repair the roof as necessary.
Rooftop exhausts are at least 3 feet from building openings						Redirect exhaust away from rooftop air intakes and building openings.
Makeup air intakes should be placed at a sufficient distance to avoid recirculation						Redirect pollution sources away from rooftop air intakes.
Rooftop intakes should be at least 10 feet from combustion or plumbing vents						Redirect pollution sources away from rooftop air intakes.
Cooling towers should be at least 25 feet away from air intakes						Redirect pollution sources away from rooftop air intakes.
Check filters for particle accumulation and proper fit						



ltem	Yes/Ok	No	Don't Know	Not Applicable	Observations	Recommendations and Follow-up
Check outside air dampers for condition and operation						
Check drain pans and coils for moisture accumulation and biological growth						
Check the condensation pump for proper operation						
Check variable frequency drive (VFDs) for proper operation						
General Building Conside	erations					
Walk-off mats are used in all exterior entrances Mats that extend for 6 steps (15-20 feet) will trap 80% of dirt						Ensure mats extend for 6 steps (15-20 feet) at all entrances.
Walk-off mats cleaned at last annually						Ensure carpets, rugs and mats are vacuumed daily using HEPA vacuums. When wet cleaning carpets, dry within 24 hours.
Temperature maintained within acceptable ranges (generally 67-80 degrees Fahrenheit)						Set thermostat to between 67- and 75-degrees F in the winter and 73- and 80-degrees F in the summer.



ltem	Yes/Ok	No	Don't Know	Not Applicable	Observations	Recommendations and Follow-up
Humidity maintained within acceptable ranges (generally 30- 60%)						If humidity levels are high, increase ventilation if humidity levels outside are lower than inside. Consider using portable dehumidifiers in spaces.
Ozone sources, like 3D printers, photocopiers, and laser printers, are placed in well-ventilated rooms / serviced regularly and maintained according to manufacturer recommendations						Ensure photocopiers, 3-D printers, and laser printers are placed away from student-occupied areas and provide ventilation according to manufacturer's guidelines. Ensure equipment is serviced regularly and maintained according to manufacturer's recommendations.
No peeling or flaking paint (potential lead hazard in pre-1978 buildings)						Assess what is causing paint to peel and repair. If building was built prior to 1978, follow EPA's Lead Renovation, Repair and Painting Rule.
No evidence of roof or plumbing leaks						Address leaks and moisture problems promptly; Dry wet areas within 24 to 48 hours.



ltem	Yes/Ok	No	Don't Know	Not Applicable	Observations	Recommendations and Follow-up
Classrooms						
Minimal clutter						Declutter and dust with damp cloth.
Minimal upholstered furniture						Consider replacing with nonfabric furniture or clean weekly to minimize dirt and dust, dust mites, and bed bugs. Use a vacuum with high efficiency particulate air (HEPA) filter. Consider adopting a policy limiting what types of furniture materials teachers can bring into classrooms.
Cleaning supplies are securely stored, including science classroom chemicals						Remove cleaning supplies including disinfectant wipes and secure in a safe location away from students. Dust using a slightly damp
						cloth.
Supply and exhaust vents are free of obstructions						Move chairs, bookshelves, desks and other obstructions at least three feet away from unit ventilators. The tops of unit ventilators should be free from obstructions.
No unusual odors						Identify the source of the odor and address the underlying cause. Increase ventilation.

ltem	Yes/Ok	No	Don't Know	Not Applicable	Observations	Recommendations and Follow-up
No signs of mold or						Clean up mold according to EPA guidelines. Consider utilizing a professional.
mildew growth						Address leaks and moisture problems promptly; Dry wet areas within 24 to 48 hours.
No signs of water damage or intrusion						Address leaks and moisture problems promptly; Dry wet areas within 24 to 48 hours.
No evidence of pests						Adopt Integrated Pest Management practices and policies to limit the use of pesticides on school grounds.
No food is stored in classroom overnight						Food storage is minimized and always stored in hard-sided containers.
Waste is disposed of according to local code and in timely manner						Food waste should be emptied daily.
Any class pets are contained in alignment with policy and exposure to animal allergens is minimized						Animals in the classroom should be kept in their cage as much as possible. Students with allergies should be placed away from the animals. Cages should be cleaned regularly. Consider restricting animals with fur and feathers in the classroom, as these animals can cause allergic reactions.



ltem	Yes/Ok	No	Don't Know	Not Applicable	Observations	Recommendations and Follow-up
No air fragrances, deodorizers, or essential oils used						Restrict the use of air fragrances, deodorizers, or essential oils.
No unapproved cleaning products used or brought into the school						Consider adopting a list of approved cleaning products that include unscented, lowtoxic products.
Rooms damp-dusted and vacuumed, using HEPA filter vacuum, regularly						Ensure carpets, rugs and mats are vacuumed daily using HEPA vacuums. When wet cleaning carpets, dry within 24 hours. Dust using a slightly damp cloth.
Science room chemicals are properly labeled and stored						Implement a hazardous materials plan (use, label, storage and disposal). Establish a school chemical management and inventory plan.
Science, art, and vocational education classrooms have local exhaust ventilation						Ensure adequate ventilation systems; install hoods that exhaust to the outside.



ltem	Yes/Ok	No	Don't Know	Not Applicable	Observations	Recommendations and Follow-up		
Bathrooms and General Plumbing								
Restrooms and locker rooms have operating exhaust fans						Fix any inoperable exhaust fans. Check exhaust fan on roof to ensure it is functioning properly. Repair or replace fan if necessary.		
Water poured down floor drains bi-monthly or as needed						Pour about 1 qt of water down floor drains bi-monthly or as needed.		
Water poured into sinks at least once/week						Pour about 1 qt of water down drains bi-monthly or as needed.		
Toilets are flushed once/week						Flush toilets at least once per week.		
Maintenance and Supplies								
Chemicals are used according to manufacturer's instructions, with adequate ventilation						Use a safer cleaning product, such as one listed in the Safer Choice Program. Ensure proper ventilation during use.		
Vents in chemical and trash storage areas operate properly						Ensure vents are operating properly.		
Unused HVAC filters are stored sealed in a box						Store unused air filters in boxes to avoid dust accumulation.		

Item	Yes/Ok	No	Don't Know	Not Applicable	Observations	Recommendations and Follow-up
Combustion Appliances						
No combustion gas or fuel odors						Immediately evacuate the area and notify school officials and local authorities. Work with local authorities to determine the source of the odor and address. Ensure that combustion appliances are correctly installed, used and maintained.
Kitchen combustion and electric appliances have flues or exhaust hoods that vent to the outside						Exhaust combustion appliances to the outside and clean and maintain flues and chimneys. Ensure that combustion appliances are correctly installed, used and maintained.
No leaks, disconnections or deterioration of the exhaust components						Address any exhaust leaks, disconnections or deterioration. Replace the system if it cannot be fixed. Ensure that combustion appliances are correctly installed, used and maintained.
No soot on inside or outside of flue components						Maintain flues regularly.

ltem	Yes/Ok	No	Don't Know	Not Applicable	Observations	Recommendations and Follow-up
Carbon monoxide detectors are installed and working properly						Install carbon monoxide alarms in accordance with applicable local and state laws. Test alarms at a frequency consistent with local and state laws, or at least annually.
Energy Use and Excessiv	e Heat Readin	ess				
ENERGY STAR qualified or similar lighting is in place						Install ENERGY STAR, or similar, qualified LED bulbs in fixtures and exit signs.
Light fixtures are clean (to allow light through)						Dust using a slightly damp cloth.
Window shades (or reflective window coverings) are on all south and west facing windows to block excess heat						Install window shades (or reflective window coverings) on windows.
Windows and exterior doors are closed when heating/ cooling system is running						Provide staff training and education on keeping windows and doors closed when heating/cooling equipment is on.
Classrooms are free of duplicate appliances (mini-fridge, space heater, etc.)						Review staff policies regarding the use of personal home appliances. Remove or replace with ENERGY STAR labeled products.



Item	Yes/Ok	No	Don't Know	Not Applicable	Observations	Recommendations and Follow-up
ENERGY STAR qualified or similar electronics (computers, monitors, printers, and copiers) are in use						Upgrade electronics to ENERGY STAR labeled products where possible.
ENERGY STAR qualified or similar kitchen appliances are in use						Upgrade kitchen appliances to ENERGY STAR labeled products where possible.
Power save settings are activated on computers, printers, and copiers						Provide staff training and education on how to activate power save settings on computers, printers and copiers.
Rechargeable devices are unplugged once charged						Ensure rechargeable devices are unplugged once fully charged.
Refrigerators and freezers are sealed tightly when closed						Replace seals on refrigerators and/or freezers to ensure they seal tightly when closed.
Equipment is plugged into power strips for easy disconnect from power source						Install power strips for equipment.
Unused appliances are unplugged or on a power strip that is shut off						Unplug unused appliances or power off power strips.
Vending machines are turned off or put into sleep mode at end of day						Program vending machines to turn off or go into sleep mode during non-operational hours.



ltem	Yes/Ok	No	Don't Know	Not Applicable	Observations	Recommendations and Follow-up
Windows and doors have adequate weather stripping						Replace weather stripping on windows and doors.
External entrance doors are not propped open						Ensure external doors are not propped open.
Lights are off in unoccupied rooms and gymnasium						Turn off lights when rooms are not occupied; consider installing motion sensors.
Motion sensors (if present) are set to short turn-off time						Program motion sensors are set to short turn-off.
Electronics are located away from thermostats						Provide staff training and education to ensure electronics are located away from thermostats.
HVAC supply pipes are insulated						Insulate HVAC supply pipes.
Ceiling fans are used in classrooms and gyms						Install and run ceiling fans in classrooms and gyms.



Reference and Resources

- CDC Controlling Legionella in Cooling Towers
- 2. Energy Efficient Indoor Air Quality Management Plan Toolkit
- Energy Star Energy Efficiency Student Toolkit
- 4. Energy Star Portfolio Manager
- 5. Energy Star Energy Treasure Map for K-12 Schools
- 6. EPA Creating Healthy Indoor Air Quality at Schools
- 7. EPA Moisture Control, Part of IAQ Design Tools for Schools
- 8. EPA Model AHERA Asbestos Management Plan for Local Education Agencies
- EPA Protecting Children from Lead Exposure in Schools and Child Care Facilities

- 10. EPA Indoor Air Quality Tools for Schools Action Kit
- **#.** EPA Walkthrough Inspection Checklist
- 12. ASHRAE Standard 180 Standard Practice for Inspection and Maintenance of Commercial Building HVAC Systems
- 13. Minnesota Department of Health IAQ Actions for Facility Operators
- 14. New Hampshire Department of Education Bureau of School Safety and Facilities annual air quality survey
- 15. Uniform Mechanical Code (IAPMO 1997a)
- 16. University of Wisconsin Steven's Point K-12 Energy Education Program
- 17. Vermont Department of Health Envision School Walkthrough

Thank you to our Healthy and Efficient School Environments partners for their collaboration on this tool.











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