



Environmental Resources Group

Assessment • Remediation • Compliance • Risk Management

INDOOR AIR QUALITY EVALUATION REPORT



**CHIPPEWA MIDDLE SCHOOL - GYM
4000 OKEMOS ROAD
OKEMOS, MICHIGAN 48864**

PREPARED FOR:

**OKEMOS PUBLIC SCHOOLS-OPERATIONS
4000 OKEMOS ROAD
OKEMOS, MICHIGAN 48864
ATTENTION: MR. BRIAN LIEBER**

PREPARED BY:

**ENVIRONMENTAL RESOURCES GROUP, LLC
3125 SOVEREIGN DRIVE, SUITE 9B,
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ERG PROJECT NO.: 250608

PROJECT DATE: JANUARY 21, FEBRUARY 12, AND APRIL 25, 2025

FINAL REPORT DATE: APRIL 28, 2025

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1.0 INTRODUCTION AND BACKGROUND

1.1 INTRODUCTION

Environmental Resources Group, LLC (ERG) was retained by Okemos Public Schools to conduct an Indoor Air Quality Evaluation within the Gym and Locker Rooms at Chippewa Middle School, 4000 Okemos Road, Okemos, Michigan. The specific tasks of the evaluation were as follows:

- Conduct visual and olfactory observations in and around the Gym and Locker Rooms, paying particular attention to conditions at the entrance to the Girl's Locker Room where an objectionable odor was reported.
- Conduct sampling for carbon dioxide, oxygen, carbon monoxide, lower explosive limit (LEL) and hydrogen sulfide and conduct measurements of temperature and relative humidity in select locations in and around the aforementioned areas.
- Conduct bioaerosol (air) sampling for mold, pollen and other particulate using Zefon Air-O-Cell cassettes in the aforementioned rooms and out-of-doors.
- Conduct tape sampling using IMS Tape Lift Samplers.
- Collect digital photographs of current conditions.

Kristin Peterson conducted the evaluation on January 21 (to conduct tape lift, 4 gas, temperature and relative humidity testing), February 12 (to inspect accessible ventilation equipment), and April 25, 2025 (to collect bioaerosol samples), to determine current indoor air quality conditions in these rooms following the reported presence of an objectionable odor.

1.2 BACKGROUND INFORMATION

The structure is a single-story building of steel and masonry construction with a flat, membrane roof. The building is believed to have been built in 1958 and was estimated to occupy approximately 136,000 square feet. The school was generally constructed slab on grade and has areas with tunnels and crawlspaces.

The building is heated by unit ventilators and mechanical ventilation systems and some rooms are cooled by ceiling mounted air conditioning units.

Staff made complaints of an odor that was observed near the Girl's Locker Room and voiced concerns of mold in the Gym and surrounding areas.

1.3 EVALUATION EQUIPMENT AND METHODS

Kristin Peterson, a trained investigator with over 26 years of environmental experience, made visual and olfactory observations and collected samples.

Carbon dioxide measurements were made using a TSI IAQ Calc Carbon Dioxide Meter. The meter was allowed to equilibrate for five minutes prior to the collection of data from the instrument. The instrument was used pursuant to the manufacturer's recommendations.

Oxygen, carbon monoxide, LEL and hydrogen sulfide concentrations were measured using a RKI Instruments Inc., Model GX-3R four gas meter. The instrument was allowed to equilibrate for five minutes prior to the collection of data from the instrument. The four-gas meter was used pursuant to the manufacturer's recommendations.

Temperature and relative humidity measurements were made using Protmex, Model MS6508, digital temperature humidity meter. This instrument was allowed to equilibrate for 5 minutes prior to the collection of data and was used pursuant to the manufacturer's recommendations.

Bioaerosol (air) samples were collected using Air-O-Cell cassettes, tubing, a calibrated rotameter and a high-volume vacuum pump. All bioaerosol samples were submitted to and analyzed in the ERG Indoor Air Quality Laboratory pursuant to the requirements of modified ASTM International Standard D7391-09.

Tape samples were collected using IMS Tape Lift Samplers. All tape samples were submitted to and analyzed in the ERG Indoor Air Quality Laboratory pursuant to the requirements of modified ASTM International Standard D7391-09.

Digital photographs were collected using a digital camera.

2.0 VISUAL AND OLFACTORY OBSERVATIONS

During the ERG evaluation, visual and olfactory observations were made by the inspector. A summary of observations in the Gym and Locker Rooms follows:

Girl's Locker Room

- A slight odor of sweat/oil/dirt was observed at the entry.
- No odors were observed in the Locker Room.
- No water staining or mold growth were observed.
- The overall level of dust was low.

Boy's Locker Room

- No musty or other odors were observed immediately upon entry.
- No water staining or mold growth were observed.
- The overall level of dust was low.

Gym

- An odor of sweat/oil/dirt was observed upon entry.
- The mechanical ventilation systems air intake grilles were observed to be dirty.
- The mechanical unit by the bleachers had an odor of burning oil. The other units had a slight odor of oil.
- Water stains were observed on the exterior wall. No visible mold was found. Peeling paint was observed on some of the areas on the walls.
- The air filters in the accessible mechanical ventilation units were very dirty.
- The grilles to the units were dirty.
- The inside of the units was very dusty.
- One of the units was not working at the time of the investigation.
- The overall level of dust in the Gym was low.

Janitor's Closet

- An odor of cleaning agents was observed upon entry.
- An area of water stains was observed on the ceiling. No visible mold was observed.
- The overall level of dust was low.

Out-of-doors

- The temperature was cold and conditions were windy on January 12, 2025.
- The ground was covered with snow.
- Light vehicular traffic was observed.
- Light pedestrian traffic was observed.

3.0 RESULTS OF TESTING

All samples were collected by Kristin Peterson. During sampling on January 12, 2025, and on April 25, 2025, the building was occupied by a small number of school staff. Students were in the building at the end of sampling on the February 12, 2025, inspection.

A log with sample description information and the results of bioaerosol (air), tape (settled dust) and other sample data appear in Appendix A and are summarized below.

Indoor carbon dioxide was measured between 461 and 582 parts per million (ppm) indoors. Carbon dioxide was measured at 382 ppm out-of-doors.

Oxygen was recorded at 20.9 percent at all indoor and out-of-doors locations.

Carbon monoxide was not detected indoors or out-of-doors.

LEL was not detected indoors or out-of-doors.

Hydrogen sulfide was not detected indoors or out-of-doors.

Indoor temperature was recorded between 61.3 and 67.1 degrees Fahrenheit. Out-of-doors temperature was recorded at 18.8 degrees Fahrenheit.

Indoor relative humidity was recorded between 14.3 and 20.8 percent. Out-of-doors relative humidity was not measured but was reported by Local Conditions to be 63.5 percent.

No mold growth was observed. The mechanical ventilation systems were dirty along with the grilles and filters.

An odor of sweat/oil/dirt was observed in the Gym and at the entrance to the Girl's Locker Room. At least one of the air handling units was not running and has not been running as reported by staff.

The results of indoor bioaerosol sample analysis indicated total airborne spore concentrations between 0 and 60 structures per cubic meter of air (s/m³). No highly allergenic mold spores were detected in the air. Pollen was not detected indoors, and other particulate was recorded between 460 and 2,300 s/m³. The out-of-doors sample had a spore concentration of 500 s/m³, pollen was not detected, and other particulate was recorded at 1,700 s/m³.

The tape lift samples detected between less than 1% spores in the settled dust to 3% spores in the settled dust. Highly allergenic spores (*Pithomyces* and *Stachbotrys*) were detected in the dust from some of the mechanical ventilation systems.

Digital photographs appear in Appendix B.

4.0 CONCLUSIONS

Based upon reports by others, the visual and olfactory observations made by the investigator and the results of sample analysis, the following conclusions were drawn:

Test results were indicative of conditions at the time of the investigation and may not represent conditions at other times. No conclusions can be drawn regarding areas of the building which were not inspected.

4.1 DIRECT READ INSTRUMENT MEASUREMENTS

Carbon dioxide (CO₂, a colorless odorless gas that results from normal human respiration) concentrations were acceptable in the tested areas of the building and were below the limits established by the American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) in Voluntary Standard 62.1-2007, Ventilation for Acceptable Indoor Air Quality. The ASHRAE carbon dioxide recommended limit is 700 parts per million (ppm) above the out-of-doors concentration. The out-of-doors carbon dioxide concentration was 382 ppm, making CO₂ concentrations of 1082 ppm or less acceptable in this case. The data indicates that adequate fresh air ventilation was provided to the tested areas of the building.

Oxygen (O₂, a colorless, odorless gas necessary for human life that makes up approximately 20.9% of the atmosphere by volume) concentrations were within the acceptable range of 19.5 – 23.5% at all sampling locations.

Carbon monoxide (CO, a simple asphyxiant gas and possible source of headache) concentrations were acceptable in all indoor tested areas. In fact, carbon monoxide was not detected indoors or out-of-doors.

LEL (combustible gases and possible upper respiratory irritant) concentrations were acceptable in all tested areas. In fact, LEL was not detected indoors or out-of-doors.

Hydrogen sulfide (H₂S, a flammable, colorless, gas that smells like rotten eggs and which may cause upper respiratory irritation) concentrations were acceptable in all tested areas. In fact, hydrogen sulfide was not detected indoors or out-of-doors.

Indoor temperature readings were below the ASHRAE (Standard 55) recommended human comfort temperature range (73-79 degrees Fahrenheit) in all tested locations. The temperature had been reduced due to the fact that no occupancy was anticipated.

Indoor relative humidity recorded during the inspection was acceptable and was below the limit (65%) recommended by ASHRAE (in voluntary standard 62.1-2007) in all tested areas.

4.2 BIOAEROSOL SAMPLE RESULTS

Airborne mold concentrations in “clean” commercial buildings generally total 2,650 s/m³ or less with spores of the genera *Aspergillus* and/or *Penicillium* making up not more than 750 s/m³ and spores of the groups Ascospores and Basidiospores together making up not more than 1000 s/m³. The total of all other spores should not exceed 900 s/m³ (Baxter, Journal of Occupational Environmental Hygiene, January 2005). Those limits are called the Baxter Criteria. Additionally, highly allergenic spores (i.e. – *Pithomyces*, *Stemphyllium*, *Stachybotrys*) should not be present in a statistically significant number (i.e. – a raw count of 10 or more spores). Airborne mold concentrations in the building at the times and locations of sampling were within the limits established as the Baxter Criteria and are indicative of “clean” conditions. Additionally, indoor spore concentrations are more than 8 times lower than those out-of-doors, further suggesting that indoor spore concentrations were reflective of “clean” conditions.

Indoor airborne pollen concentrations in “clean” air-conditioned buildings are generally below 30 s/m³. Individuals with pollen allergy may exhibit symptoms when pollen concentrations exceed approximately 50 s/m³, especially when grass or highly allergenic ragweed pollen are present. Pollen was not detected in the collected indoor air samples.

Organic fibers such as cellulose (paper fibers) may be present in “clean” buildings in the range of 0 to 10,000 s/m³. These fibers are not known to cause illness or allergy at these levels, but might suggest inadequate housekeeping or poor ventilation, among other things. Cellulose concentrations were within the normal range (0 to 10,000 s/m³) in the collected air samples.

Inorganic fibers such as mineral wool or fiberglass (fibrous glass) may create dermal irritation when present in concentrations exceeding 1,000 s/m³. Fibrous glass was not detected in the collected air samples.

Synthetic fibers include polyester and Dacron and do not generally exceed 1,000 s/m³. The presence of elevated synthetic fiber concentrations suggests degrading synthetic fiber surfaces (clothing, carpet, upholstered furniture) and/or the need for improved housekeeping. Synthetic fibers were not detected above 1,000 s/m³ in the air in the tested rooms.

Mineral fibers, such as gypsum, generally do not exceed 1,000 s/m³ and may be indicative of uncontrolled renovation or demolition. Mineral fibers were not detected in the collected air samples.

Opaque particles, including soot, fly ash, binders, copy toner, etc., generally do not exceed 5,000 s/m³. When indoor concentrations exceed 10,000 s/m³, attempts to identify the source of the particles and reduce their number should be made. The opaque particle concentrations did not exceed the 5,000 s/m³ threshold in any collected air sample.

Insect fragments, including antennae, legs, wings, etc., should not be observed in “clean” indoor environments. Detectable quantities of insect fragments, including excrement, may cause allergic

reactions in sensitive individuals and suggests the existence of current or past infestation or poor housekeeping. Insect fragments were not detected in the collected samples.

The tape lift samples detected between less than 1% spores and 3% spores in the dust. Dust samples with more than 1% spores in the settled dust are not considered "clean". The samples collected in the air handler near the bleachers and the sample collected at the bottom of the return air grille in the unit in the NE corner near the basketball hoop were not indicative of "clean" conditions. Excluding samples collected from the Air Handler near the west bleachers and NE Area near the basketball hoop which had highly allergenic spores of *Pithomyces* and *Stachybotrys* spores (present, less than 1%) and as a result, are not considered clean.

This analytical technique cannot differentiate spores of the genus *Aspergillus/Penicillium*, among others, due to their similar morphology. Additionally, some mold, pollen, yeast, bacteria, arthropods, and other airborne constituents may be present, but are not identifiable by this technique.

Water-stained building materials were found in the inspected areas. No visible mold was found.

An odor of sweat/oil/dirt was observed in the Gym and at the entrance to the Girl's Locker Room. Based on the results of testing, the odor can be characterized as a nuisance odor. An odor of cleaning products was observed in the Janitor's Closet.

The Mechanical Ventilation System (units) in the Gym (3 of them) were observed to be dirty inside the units. The filters were also dirty. The air intake grilles were also dirty. One unit was not accessible (due to the basketball hoop support structure). An oil smell was observed at each of the inspected units. One of the units was not operational.

The above conclusions are based on the inspection results, observations made at the time of the inspection and information provided by others. Should new or revised information become available, ERG reserves the right to revise the report, modify or change the above conclusions and subsequent recommendations.

5.0 RECOMMENDATIONS

Based on the observations made by the investigator, the findings of this evaluation and the conclusions above, the following recommendation is offered:

1. Clean and disinfect the Mechanical Ventilation units in the Gym including the interior and grilles. Although no visible mold was observed, nor musty odors, the work should proceed pursuant to the requirements of the New York City Department of Health and Mental Hygiene Guidelines on Assessment and Remediation of Fungi in Indoor Environments, Small Isolated Areas of Mold growth in the HVAC System requirements. OPS Operations Department staff trained in mold remediation may perform this task.
2. Remove and discard the disposable filters and replace them with new filters. Clean and disinfect the metal filters.
3. Ensure that all of the mechanical units are working properly.
4. If clean units and filters do not eliminate the nuisance odor, consider an ozone treatment during a 12 to 24 hour period when the Gym and Locker Rooms will not be occupied.
5. If the above actions do not eliminate the nuisance odor, contact ERG to conduct additional evaluation.

This evaluation was conducted consistent with sound investigative principles and current industry standards. Information in this report was provided by other than ERG. The accuracy or correctness of that information was not confirmed or verified by ERG. For additional information, please review the attached data or call ERG.



Kristin Peterson
Senior industrial Hygienist



Phillip A. Peterson
Senior Project Manager

APPENDIX A
Air Sample Data Sheets and Laboratory
Data





PROJECT NUMBER 250608 DATE 1/21/2025

PROJECT Chippewa Middle School-Gym

SAMPLED BY Kristin Peterson

CLIENT Okemos Public Schools

ANALYZED BY ERG

AIR SAMPLE DATA SHEET

SAMPLE #	TYPE	DESCRIPTION	TIME ON TIME OFF	SAMPLE TIME (MIN)	FLOW ON FLOW OFF (L/MIN)	AVERAGE FLOW	VOLUME (LITERS)	RESULTS							
								CO ₂	O ₂	LEL	CO	H ₂ S	T (° F)	RH (%)	Other
1	V	Girl's Locker Room at lockers near office	14:06					548	20.9	0	0	0	66.5	15.2	
2	V	Girl's Locker Room at showers	14:08					582	20.9	0	0	0	67.1	14.3	
3	V	Hallway near entry to Girl's Locker Room	14:27					516	20.9	0	0	0	66.7	14.7	
4	V	Gym Outside Girl's Locker Room	14:28					558	20.9	0	0	0	66.2	18.6	
5	V	Center of Gym	14:37					461	20.9	0	0	0	61.3	20.8	
6	V	Outside Gym Hallway near Concession Building	14:39					471	20.9	0	0	0	64.9	18.8	
7	V	Out of doors side of the building	14:55					382	20.9	0	0	0	39.3	63.5	

SAMPLE TYPES: CO - CARBON MONOXIDE
 CO₂ - CARBON DIOXIDE
 O₂ - OXYGEN
 H₂S - HYDROGEN SULFIDE
 LEL - LOWER EXPLOSIVE LIMIT
 T - TEMPERATURE
 RH - RELATIVE HUMIDITY
 FB - FIELD BLANK
 B - BULK
 MV - MICROVACUUM
 BA - BIOAEROSOL
 V - VARIOUS



PROJECT NUMBER 250608 DATE 2/12/2025

PROJECT Chippewa Middle School-Gym

SAMPLED BY Kristin Peterson

CLIENT Okemos Public Schools

ANALYZED BY ERG

AIR SAMPLE DATA SHEET

SAMPLE #	TYPE	DESCRIPTION	TIME ON TIME OFF	SAMPLE TIME (MIN)	FLOW ON FLOW OFF (L/MIN)	AVERAGE FLOW	VOLUME (LITERS)	RESULTS						Other	
								CO ₂	O ₂	LEL	CO	H ₂ S	T (° F)		RH (%)
1	TL	On grille to Room 224	6:30												See Attached Data Sheet
2	TL	Inside air handler near bleachers west corner	6:45												See Attached Data Sheet
3	TL	Bottom of air handler near hoop NE corner	6:55												See Attached Data Sheet
4	TL	Inside air handler near hoop east wall on grille	7:05												See Attached Data Sheet
5	TL	Inside air handler near Girl's Locker Room on grille	7:16												See Attached Data Sheet
6	TL	On return air grille Girls Locker Room	7:20												See Attached Data Sheet
7	TL	On return air grill in Lobby	7:38												See Attached Data Sheet

SAMPLE TYPES: FB - FIELD BLANK
 B - BULK
 MV - MICROVACUUM
 BA - BIOAEROSOL
 V - VARIOUS
 TL-TAPE LIFT



IAQ Surface Sample Analytical Results

ERG Project Number: 250608

Client Name: Okemos Public Schools
 Project Name: Chippewa Middle School, Okemos, MI

Date of Sample Collection: 2/12/2025
 Date of Submittal: 2/12/2025
 Date of Analysis: 2/20/2025

Report Date: 2/20/2025
 Analyst: Kaila Schwanitz

Sample #	1	2	3
Sample Type	Tape Lift	Tape Lift	Tape Lift
Sample Location	On grille to Room 224	Inside air handler near bleachers west	Bottom return air on handler near hoop NE
Spores, Pollen, and Other Particulate (In decreasing order of abundance)	Non Fibrous Matter Synthetic Fibers Opaque Particles Cellulose Fibers Ascospore	Non Fibrous Matter Synthetic Fibers Opaque Particles <i>Cladosporium</i> Ascospore <i>Periconia/Myxomycete/Smut</i> Pollen <i>Pithomyces</i>	Non Fibrous Matter Synthetic Fibers Opaque Particles <i>Cladosporium</i> Hyphal Fragments <i>Stachybotrys</i> <i>Periconia/Myxomycete/Smut</i>
Notes:	This sample contains less than 1% spores.	This sample contains approximately 2% spores.	This sample contains approximately 3% spores and related structures.

Surface samples were analyzed pursuant to the requirements of the ASTM International Standard D-7391.



IAQ Surface Sample Analytical Results

ERG Project Number: 250608

Client Name: Okemos Public Schools
Project Name: Chippewa Middle School, Okemos, MI

Date of Sample Collection: 2/12/2025
 Date of Submittal: 2/12/2025
 Date of Analysis: 2/20/2025

Report Date: 2/20/2025
 Analyst: Kaila Schwanitz

Sample #	4	5	6
Sample Type	Tape Lift	Tape Lift	Tape Lift
Sample Location	Inside air handler hoop east wall on grille	Inside air handler near girls locker room on grille	On return air grille girls locker room
Spores, Pollen, and Other Particulate (In decreasing order of abundance)	Non Fibrous Matter Synthetic Fibers Opaque Particles <i>Cladosporium</i> Ascospore <i>Periconia/Myxomycete/Smut</i>	Non Fibrous Matter Synthetic Fibers Opaque Particles Insect Fragments Ascospore <i>Cladosporium</i>	Non Fibrous Matter Synthetic Fibers Opaque Particles
Notes:	This sample contains approximately 2% spores.	This sample contains less than 1% spores.	

Surface samples were analyzed pursuant to the requirements of the ASTM International Standard D-7391.



IAQ Surface Sample Analytical Results
ERG Project Number: 250608

Client Name: _____ Okemos Public Schools
Project Name: _____ Chippewa Middle School, Okemos, MI

Date of Sample Collection: _____ 2/12/2025
 Date of Submittal: _____ 2/12/2025
 Date of Analysis: _____ 2/20/2025

Report Date: _____ 2/20/2025
 Analyst: _____ Kaila Schwanitz

Sample #	7		
Sample Type	Tape Lift		
Sample Location	On return air grille lobby		
Spores, Pollen, and Other Particulate (In decreasing order of abundance)	Non Fibrous Matter Synthetic Fibers Opaque Particles Ascospore		
Notes:	This sample contains less than 1% spores.		

Surface samples were analyzed pursuant to the requirements of the ASTM International Standard D-7391.



Comments

*Debris rating (% obstructed by particulate matter): 0= no particulate matter detected, 1= >0-5%, 2= 6%-25%, 3= 26%-76%, 4= 75%-90%, 5= >90%. Where debris rating =5, fungal/pollen/other particulate are reported as "present." For debris ratings 2-4, negative bias is expected. The degree of negative bias increases with the percent of the trace that is obstructed.

Samples were received in acceptable condition, unless otherwise indicated. Results relate only to items tested. Results are reported in units of structures per cubic meter of air (s/m³), except blank samples, where the actual number of observed particles are reported. Spore types listed without a count or other data indicate that the specific analyte was not detected during the course of sample analysis. Spores of the genera *Aspergillus* and *Penicillium* are categorized together due to their small size and spherical shape with few distinguishing characteristics. Other similar spores will be categorized as *Aspergillus/Penicillium* unless fruiting bodies allow more precise identifications.

ND= none detected (minimum of 20.3% trace scanned) unless otherwise reported .

Minimum Reporting Limit represents the lowest calculated limit in this report.

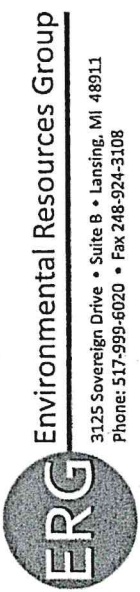
This report shall not be reproduced, except in full, without written approval of the laboratory.

Flow Rate is in liters per minute. Time is reported in minutes.

The enclosed data from Environmental Resources Group, LLC (ERG) is for sample(s) collected by our client. The client bears all risk relative to the use of this data, including any course of action or inaction. Further, ERG asserts that the data pertains only to the submitted sample(s). ERG makes no representation or guarantee about the source of the material analyzed, the suitability of the sample size, sample frequency or sample distribution, or the relationship of the submitted sample(s) to the area sampled.

Approved Signatory: Philip A. Petrov

Date: 2/20/2025



Environmental Resources Group
 3125 Sovereign Drive • Suite B • Lansing, MI 48911
 Phone: 517-999-6020 • Fax 248-924-3108

Client Name:		PARAMETERS		Matrix Code				
Contact Person:		# OF CONTAINERS		S	Soil	GW	Ground Water	
Project Name/ Number:		MATRIX (SEE RIGHT CORNER FOR CODE)		A	Air	SW	Surface Water	
Project Location:		MATRIX (SEE RIGHT CORNER FOR CODE)		O	Oil	W	Wastewater	
Email Distribution List:		MATRIX (SEE RIGHT CORNER FOR CODE)		B	Bulks	X	Other: Specify	
Client Name: Okemos Public Schools		MATRIX (SEE RIGHT CORNER FOR CODE)		MATRIX (SEE RIGHT CORNER FOR CODE)				
Contact Person: K. Peterson		MATRIX (SEE RIGHT CORNER FOR CODE)		MATRIX (SEE RIGHT CORNER FOR CODE)				
Project Name/ Number: 250608		MATRIX (SEE RIGHT CORNER FOR CODE)		MATRIX (SEE RIGHT CORNER FOR CODE)				
Project Location: Chippewa middle school Okemos, MI		MATRIX (SEE RIGHT CORNER FOR CODE)		MATRIX (SEE RIGHT CORNER FOR CODE)				
Email Distribution List:		MATRIX (SEE RIGHT CORNER FOR CODE)		MATRIX (SEE RIGHT CORNER FOR CODE)				
Phone No.:		MATRIX (SEE RIGHT CORNER FOR CODE)		MATRIX (SEE RIGHT CORNER FOR CODE)				
Purchase Order No.:		MATRIX (SEE RIGHT CORNER FOR CODE)		MATRIX (SEE RIGHT CORNER FOR CODE)				
Date	Time	Sample #	Client Sample Descriptor					
5/2/06		-01	on site to room 224	B	X			
		-02	Inside air handler near restrooms bleachers west		X			
		-03	bottom return air on handler near hoop NE		X			
		-04	Inside air handler hoop east wall on site		X			
		-05	Inside air handler near girls locker room on site		X			
		-06	on return air site girls locker room on site		X			
		-07	on return air site lobby		X			
Remarks: Tape Tape Tape Tape Tape Tape Tape								
Comments: <input checked="" type="checkbox"/> Samples received in acceptable condition								
Sampled/Relinquished By: <i>[Signature]</i>		Date/ Time	Received By:		Date/ Time			
Relinquished By: <i>[Signature]</i>		2/12/06 @ 9:33	Received By:		Date/ Time			
Relinquished By:		Date/ Time	Received By Laboratory:		Date/ Time			
			Received By Laboratory: <i>[Signature]</i> LAB USE ONLY					
Turnaround Time ALL RESULTS WILL BE SENT BY THE END OF THE BUSINESS DAY				ERG project number: 250608/0001/0003				
Same day _____ 1 bus. day		_____ 2 bus. days		_____ 3 bus. days		_____ 4 bus. days		
X 5-7 bus. days (standard) Other (specify time/date requirement): _____				Temperature upon receipt at Lab (if applicable): _____				
Please see back for terms and conditions								



PROJECT NUMBER 250608 DATE 4/25/2025

PROJECT Chippewa Middle School-Gym

SAMPLED BY Kristin Peterson

CLIENT Okemos Public Schools

ANALYZED BY ERG

AIR SAMPLE DATA SHEET

SAMPLE #	TYPE	DESCRIPTION	TIME ON TIME OFF	SAMPLE TIME (MIN)	FLOW ON FLOW OFF (L/MIN)	AVERAGE FLOW	VOLUME (LITERS)	RESULTS							
								CO ₂	O ₂	LEL	CO	H ₂ S	T (° F)	RH (%)	Other
1	BA	Gym 20' from Girl's Locker Room door	7:08	5	16.1	16.1	80.5								See Attached Data Sheet
			7:12		16.1										
2	FB	Field Blank													See Attached Data Sheet
3	BA	Hallway at Concessions	7:13	5	16.1	16.1	80.5								See Attached Data Sheet
			7:18		16.1										
4	BA	Near the northwest corner of Gym	7:20	5	16.1	16.1	80.5								See Attached Data Sheet
			7:25		16.1										
5	BA	Out-of-doors outside door 38	7:28	5	16.1	16.1	81.5								See Attached Data Sheet
			7:33		16.1										

SAMPLE TYPES: FB - FIELD BLANK
 B - BULK
 MV - MICROVACUUM
 BA - BIOAEROSOL
 V - VARIOUS
 TL-TAPE LIFT



IAQ Bioaerosol Analytical Report

ERG Project Number: 250608

Client Name: Okemos Public Schools
Project Name: Chippewa Middle School Gym

Date of Sample Collection: 4/25/2025 Report Date: 4/25/2025
 Date of Submittal: 4/25/2025 Analyst: Kaila Schwanitz
 Date of Analysis: 4/25/2025 Minimum Reporting Limit: 60 s/m³

Sample #
Sample Location

1			2			3		
Gym, 20' from girl's locker room door			Field Blank			Hallway of concessions		
structures/ sample	s/m³	% trace scanned	structures/ sample	s/m³	% trace scanned	structures/ sample	s/m³	% trace scanned
Alternaria	ND		ND			ND		
Ascospore	ND		ND			5	60	20.3%
Aspergillus/Penicillium	ND		ND			ND		
Basidiospore	ND		ND			ND		
Botrytis	ND		ND			ND		
Chaetomium	ND		ND			ND		
Cladosporium	ND		ND			ND		
Curvularia	ND		ND			ND		
Drechslera/Bipolaris	ND		ND			ND		
Epicoccum	ND		ND			ND		
Erysiphae/Oidium	ND		ND			ND		
Fusarium	ND		ND			ND		
Hyphal Fragments	ND		ND			ND		
Nigrospora	ND		ND			ND		
Periconia/Myxomycete/Smut	ND		ND			ND		
Ulocladium/Pithomyces	ND		ND			ND		
Rhizopus	ND		ND			ND		
Stachybotrys	ND		ND			ND		
Stemphyllium	ND		ND			ND		
Torula	ND		ND			ND		
Miscellaneous/Unidentified Spores	ND		ND			ND		
Total	ND		ND			5	60	

Pollen

Grass	ND		ND			ND		
Tree	ND		ND			ND		
Other/Unknown Pollen	ND		ND			ND		
Total	ND		ND			ND		

Other Particulate

Cellulose Fibers	5	60	20.3%	ND		10	100	20.3%	
Fibrous Glass	ND			ND		ND			
Synthetic Fibers	15	200	20.3%	ND		30	400	20.3%	
Mineral Fibers	ND			ND		ND			
Opaque Particles	25	300	20.3%	10	100	20.3%	143	1800	20.3%
Insect Fragments	ND			ND			ND		
Total	45	560		10	100		183	2300	
*Debris rating		1			1			1	

Notes:

All samples prepared and analyzed per the modified ASTM D7391-09.



IAQ Bioaerosol Analytical Report

ERG Project Number: 250608

Client Name: Okemos Public Schools
Project Name: Chippewa Middle School Gym

Date of Sample Collection: 4/25/2025 Report Date: 4/25/2025
 Date of Submittal: 4/25/2025 Analyst: Kaila Schwanitz
 Date of Analysis: 4/25/2025 Minimum Reporting Limit: 60 s/m³

Sample #
Sample Location

4			5					
Near NW corner of gym			Out-of-doors outside door 38					
structures/ sample	s/m ³	% trace scanned	structures/ sample	s/m ³	% trace scanned	structures/ sample	s/m ³	% trace scanned
Alternaria	ND		ND					
Ascospore	ND		15	200	20.3%			
Aspergillus/Penicillium	ND		ND					
Basidiospore	ND		ND					
Botrytis	ND		ND					
Chaetomium	ND		ND					
Cladosporium	ND		25	300	20.3%			
Curvularia	ND		ND					
Drechslera/Bipolaris	ND		ND					
Epicoccum	ND		ND					
Erysiphae/Oidium	ND		ND					
Fusarium	ND		ND					
Hyphal Fragments	ND		ND					
Nigrospora	ND		ND					
Periconia/Myxomycete/Smut	ND		ND					
Ulocladium/Pithomyces	ND		ND					
Rhizopus	ND		ND					
Stachybotrys	ND		ND					
Stemphyllium	ND		ND					
Torula	ND		ND					
Miscellaneous/Unidentified Spores	ND		ND					
Total	ND		40	500				

Pollen

Grass	ND		ND					
Tree	ND		ND					
Other/Unknown Pollen	ND		39	500	20.3%			
Total	ND		39	500				

Other Particulate

Cellulose Fibers	ND		15	200	20.3%			
Fibrous Glass	ND		ND					
Synthetic Fibers	5	60	20.3%	ND				
Mineral Fibers	ND		ND					
Opaque Particles	30	400	20.3%	123	1500	20.3%		
Insect Fragments	ND		ND					
Total	35	460		138	1700			
*Debris rating	1		1					

Notes:

All samples prepared and analyzed per the modified ASTM D7391-09.



Comments

*Debris rating (% obstructed by particulate matter): 0= no particulate matter detected, 1= >0-5%, 2= 6%-25%, 3= 26%-76%, 4= 75%-90%, 5= >90%. Where debris rating =5, fungal/pollen/other particulate are reported as "present." For debris ratings 2-4, negative bias is expected. The degree of negative bias increases with the percent of the trace that is obstructed.

Samples were received in acceptable condition, unless otherwise indicated. Results relate only to items tested. Results are reported in units of structures per cubic meter of air (s/m³), except blank samples, where the actual number of observed particles are reported. Spore types listed without a count or other data indicate that the specific analyte was not detected during the course of sample analysis. Spores of the genera *Aspergillus* and *Penicillium* are categorized together due to their small size and spherical shape with few distinguishing characteristics. Other similar spores will be categorized as *Aspergillus/Penicillium* unless fruiting bodies allow more precise identifications.

ND= none detected (minimum of 20.3% trace scanned) unless otherwise reported .

Minimum Reporting Limit represents the lowest calculated limit in this report.

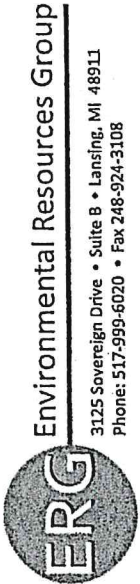
This report shall not be reproduced, except in full, without written approval of the laboratory.

Flow Rate is in liters per minute. Time is reported in minutes.

The enclosed data from Environmental Resources Group, LLC (ERG) is for sample(s) collected by our client. The client bears all risk relative to the use of this data, including any course of action or inaction. Further, ERG asserts that the data pertains only to the submitted sample(s). ERG makes no representation or guarantee about the source of the material analyzed, the suitability of the sample size, sample frequency or sample distribution, or the relationship of the submitted sample(s) to the area sampled.

Approved Signatory: _____


Date: 4/25/2025






Environmental Resources Group




3125 Sovereign Drive • Suite B • Lansing, MI 48911
 Phone: 517-999-6020 • Fax 248-924-3108

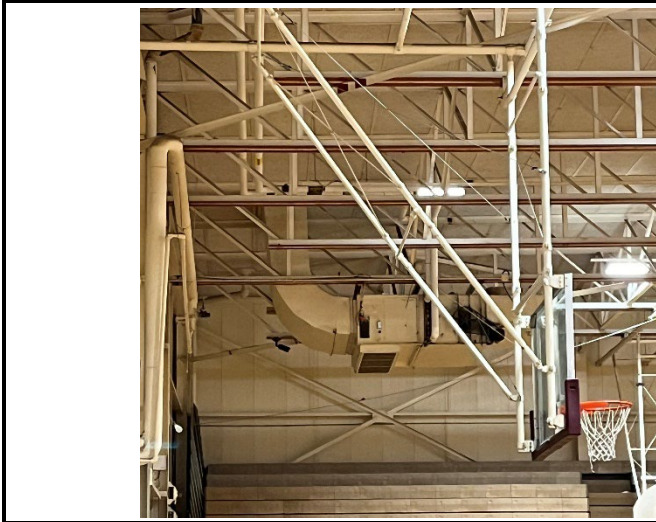
Client Name: Okemos Public Schools		Matrix Code: S Soil, A Air, O Oil, B Bulks		Ground Water, Surface Water, Wastewater, Other: Specify	
Contact Person: K. Peterson		PARAMETERS		HOLD SAMPLE	
Project Name/ Number: 250608		MATRIX (SEE RIGHT CORNER FOR CODE)		Remarks:	
Project Location: Chippewa Middle School, Gym Okemos, MI		# OF CONTAINERS		BA-80.5L	
Email Distribution List:		IAQ		OL	
Phone No.:				BA-80.5L	
Purchase Order No.:				BA-80.5L	
Date	Time	Sample #	Client Sample Descriptor		
4/25/05		-01	Gym 20' from girls locker room door	A	1
		-02	Field Blank	A	1
		-03	Hallway of concessions	A	1
		-04	Near NW corner of gym	A	1
		-05	out-of-doors outside door 30	A	1
Comments: Samples received in acceptable condition <input checked="" type="checkbox"/>					
Sampled/Relinquished By: [Signature]		Date/ Time	Received By:	LAB USE ONLY	
Relinquished By:		4/25/05 @ 8:21	Received By:	ERG project number: 250608/0001/0003	
Relinquished By:			Received By Laboratory:	Temperature upon receipt at Lab (if applicable):	
Turnaround Time ALL RESULTS WILL BE SENT BY THE END OF THE BUSINESS DAY					
X Same day 1 bus. day				4 bus. days	
5-7 bus. days (standard)				3 bus. days	
Other (specify time/date requirement):					
Please see back for terms and conditions					

APPENDIX B
Digital Photograph Log

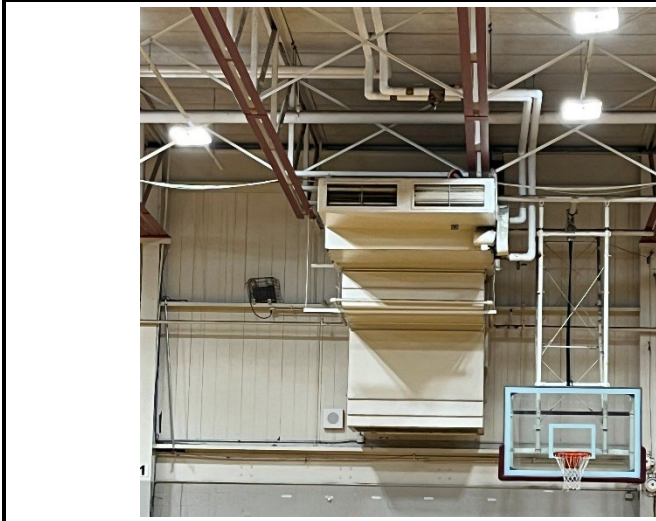


	<p>1. Outside of Mechanical system above the bleachers.</p>
	<p>2. Dirty metal filter was observed in the system above the bleachers.</p>
	<p>3. It was observed to dirty inside the mechanical ventilation system above the bleachers.</p>

	<p>4. On filter in unit by the south end.</p>
	<p>5. Inside the unit on the near the Women's Locker Room.</p>
	<p>6. The filters were observed to be dirty inside the unit above the locker room.</p>



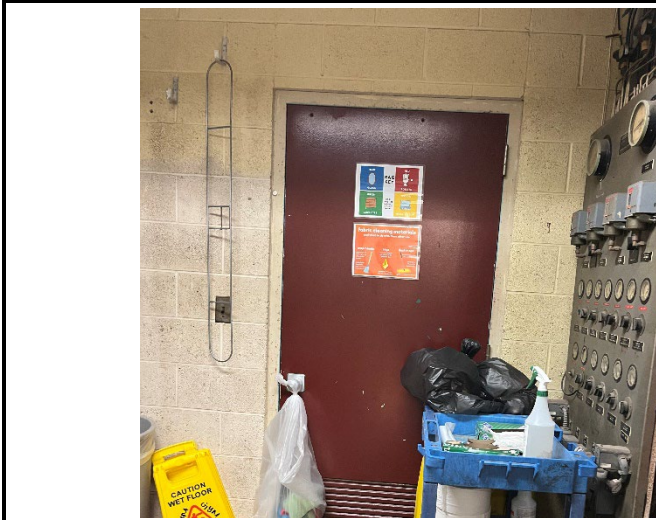
7. This south system was not accessible due to the basketball hoop structure being in the way.



8. South unit near back wall.



9. The unit above the door to the women's locker room.



10. Inside the Janitor's closet.



11. Water stains were observed on the ceiling in the Janitor's closet near the Gym.