



Environmental Resources Group

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

January 30, 2025

Brian Lieber
Director of Operations
Okemos Public Schools
4000 Okemos Road
Okemos, Michigan 48864

**RE: Bioaerosol Sampling, Kinawa Middle School, Rooms 304-307
1900 Kinawa Drive, Okemos, Michigan
ERG Project No.: 240440**

Dear Mr. Leiber:

Environmental Resources Group, LLC. (ERG) is pleased to provide the following report of findings.

On January 22 and 24, 2025 ERG staff conducted mold in air final clearance sampling within Rooms 304-307 at Kinawa Middle School. As part of the testing, observations were collected in select areas and bioaerosol final clearance samples were collected. All bioaerosol samples were collected using Air-O-Cell cassettes, tubing, a calibrated rotameter and a high-volume vacuum pump. All bioaerosol (air) samples were submitted to and analyzed in the ERG Indoor Air Quality Laboratory pursuant to the requirements of ASTM International Standard D-7391. The testing was performed following the removal and encapsulation of over 100 square feet of mold found on the walls, ceilings, roof deck, and objects in the work area. The remediation was performed by GFL Environmental of Lansing.

INTERPRETATION OF DATA

Fungal Spores

Indoor airborne spore concentrations in “clean” commercial buildings generally total less than 2,650 s/m³. *Aspergillus/Penicillium* together comprise less than 750 s/m³ and spores of the groups Ascospores and Basidiospores generally make up less than 1,000 s/m³. The total of all other spores should not exceed 900 s/m³ (Baxter, Journal of Occupational Environmental Hygiene, January 2005). In addition, highly allergenic spores (i.e. – *Pithomyces*, *Stemphyllium*, *Stachybotrys*) should not be present in a statistically significant number (a raw count of 10 or more spores). Although the work area passed a detailed visual inspection by ERG, the 1st set of samples collected on 1/22/25 did not pass the Baxter Criteria due to the presence of an elevated concentrations of *Aspergillus/Penicillin* spores in one sample (sample #1 from Room 304). ERG instructed GFL Environmental to reclean the work area which was done on 1/23/25. The final clearance sample set collected on January 24, 2025, were indicative of clean conditions.



The bioaerosol air samples from all locations sampled on 1/24 were within the school were indicative of “clean” conditions and were below the limits established as the Baxter Criteria.

Pollen and Other Particulate

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 air samples on either day of testing.

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 on both days of testing.

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 on either day of testing.

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 the desired threshold on either day of testing.

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

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 on either day of testing.

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 air samples on either day of testing.



Conclusions

Based on the results of testing, the following conclusions were drawn:

- The bioaerosol (air) samples collected in the school on 1/24/25 were indicative of “clean” conditions, and were below the Baxter Criteria requirements.

Recommendations

Based on the conclusions above the following recommendations are offered:

1. Rebuild the space and allow re-occupancy.

Should you have any questions or need additional information feel free to contact us.

Sincerely,

ENVIRONMENTAL RESOURCES GROUP

A handwritten signature in blue ink that reads "Kristin Peterson".

Kristin Peterson

Senior Industrial Hygienist

Enc

APPENDIX A

Air Sample Data Sheet and Laboratory Data





PROJECT NUMBER 240440 DATE 1/22/2025

PROJECT Kinawa MS-Rooms 304-307

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
1	BA	Room 304 10' from entry near sink cabinet	9:05	5	15.8	15.8	79	See attached data sheets
			9:10		15.8			
2	BA	Room 305 10' from mold remediated south wall	9:12	5	15.8	15.8	79	See attached data sheets
			9:17		15.8			
3	BA	Room 306 near center of the room	9:19	5	15.8	15.8	79	See attached data sheets
			9:24		15.8			
4	BA	Room 307 near cabinets 6' from north wall	9:28	5	15.8	15.8	79	See attached data sheets
			9:33		15.8			
5	FB	Field Blank	9:40	5	15.8	15.8	79	See attached data sheets
			9:45		15.8			

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



IAQ Bioaerosol Analytical Report

ERG Project Number: 240440

Client Name: Okemos Public School
Project Name: Kinawa Middle School, Okemos

Date of Sample Collection: 1/22/2025 Report Date: 1/22/2025
Date of Submittal: 1/22/2025 Analyst: Kaila Schwanitz
Date of Analysis: 1/22/2025 Minimum Reporting Limit: 60 s/m³

Sample #

Sample Location

Spores

Alternaria
Ascospore
Aspergillus/Penicillium
Basidiospore
Botrytis
Chaetomium
Cladosporium
Curvularia
Drechslera/Bipolaris
Epicoccum
Erysiphae/Oidium
Fusarium
Hyphal Fragments
Nigrospora
Periconia/Myxomycete/Smut
Ulocladium/Pithomyces
Rhizopus
Stachybotrys
Stemphyllum
Torula
Miscellaneous/Unidentified Spores

1			2			3		
Room 304, 10 feet from entry, near sink			Room 305, 10 feet from wall removal			Room 306, near center of room		
structures/ sample	s/m³	% trace scanned	structures/ sample	s/m³	% trace scanned	structures/ sample	s/m³	% trace scanned
ND			ND			ND		
ND			ND			ND		
153	1900	20.3%	39	500	20.3%	49	620	20.3%
ND			ND			ND		
ND			ND			ND		
ND			ND			ND		
ND			ND			ND		
ND			ND			ND		
ND			ND			ND		
ND			ND			ND		
ND			ND			ND		
ND			ND			ND		
ND			ND			ND		
ND			ND			ND		
ND			ND			ND		
ND			ND			ND		
ND			5	60	20.3%	ND		
ND			ND			ND		
ND			ND			ND		
ND			ND			ND		
ND			ND			ND		
Total	153	1900	44	560		49	620	

Pollen

Grass
Tree
Other/Unknown Pollen

ND			ND			ND		
ND			ND			ND		
ND			ND			ND		
Total	ND		ND			ND		

Other Particulate

Cellulose Fibers
Fibrous Glass
Synthetic Fibers
Mineral Fibers
Opaque Particles
Insect Fragments

ND			5	60	20.3%	ND		
ND			ND			ND		
15	200	20.3%	59	750	20.3%	15	200	20.3%
ND			ND			ND		
94	1200	20.3%	143	1800	20.3%	59	750	20.3%
ND			ND			ND		
Total	109	1400	207	2610		74	950	
*Debris rating	1		1			1		

Notes:

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



IAQ Bioaerosol Analytical Report

ERG Project Number: 240440

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Project Name: Kinawa Middle School, Okemos

Date of Sample Collection: 1/22/2025 Report Date: 1/22/2025
 Date of Submittal: 1/22/2025 Analyst: Kaila Schwanitz
 Date of Analysis: 1/22/2025 Minimum Reporting Limit: 60 s/m³

Sample #

Sample Location

Spores

	4			6					
	Room 307, near cabinets, 10 feet from N wall			Field Blank					
	structures/sample	s/m ³	% trace scanned	structures/sample	s/m ³	% trace scanned	structures/sample	s/m ³	% trace scanned
<i>Alternaria</i>	ND			ND					
Ascospore	5	60	20.3%	ND					
<i>Aspergillus/Penicillium</i>	54	680	20.3%	ND					
Basidiospore	ND			ND					
<i>Botrytis</i>	ND			ND					
<i>Chaetomium</i>	ND			ND					
<i>Cladosporium</i>	ND			ND					
<i>Curvularia</i>	ND			ND					
<i>Drechslera/Bipolaris</i>	ND			ND					
<i>Epicoccum</i>	ND			ND					
<i>Erysiphae/Oidium</i>	ND			ND					
<i>Fusarium</i>	ND			ND					
Hyphal Fragments	ND			ND					
<i>Nigrospora</i>	ND			ND					
<i>Periconia/Myxomycete/Smut</i>	ND			ND					
<i>Ulocladium/Pithomyces</i>	ND			ND					
Rhizopus	ND			ND					
<i>Stachybotrys</i>	ND			ND					
<i>Stemphyllium</i>	ND			ND					
<i>Torula</i>	ND			ND					
Miscellaneous/Unidentified Spores	ND			ND					
Total	59	740		ND					

Pollen

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

Other Particulate

Cellulose Fibers	5	60	20.3%	ND					
Fibrous Glass	ND			ND					
Synthetic Fibers	25	300	20.3%	5		20.3%			
Mineral Fibers	ND			ND					
Opaque Particles	59	750	20.3%	ND					
Insect Fragments	ND			ND					
Total	89	1110		5					
*Debris rating	1			1					

Notes:

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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: 1/22/2025



Environmental Resources Group

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

Client Name: Okemos Public School		Matrix Code				
Contact Person: K. Petersen		S Soil	GW Ground Water			
Project Name/ Number: 240440		A Air	SW Surface Water			
Project Location: 1519awa M.S. Okemos		O Oil	W Wastewater			
Email Distribution List:		B Bulks	X Other: Specify			
Phone No.:		PARAMETERS				
Purchase Order No.:						
Date	Time	Sample #	Client Sample Descriptor	# OF CONTAINERS	HOLD SAMPLE	Remarks:
1/22/24		-01	Room 304, 10 feet from entry near sink	1		BA-79L
		-02	Room 305 10' from wall near wall	1		BA-79L
		-03	Room 306 Near center of room	1		BA-79L
		-04	Room 307 Near cabinets	1		BA-79L
		-05	Hallway off room 304	1		BA-79L
		-06	Field Blank	1		OL-BA
Comments:						
Samples received in acceptable condition <input checked="" type="checkbox"/>						
Settled/Relinquished By: <i>[Signature]</i>		Date/Time	Received By:	LAB USE ONLY		
Relinquished By:		1/22/25 9:46	240440	Temperature upon receipt at Lab (if applicable):		
Relinquished By:				ERG project number: 240440		
Relinquished By:				Turnaround Time ALL RESULTS WILL BE SENT BY THE END OF THE BUSINESS DAY.		
				Same day _____ 1 bus. day _____ 2 bus. days _____ 3 bus. days _____ 4 bus. days		
				Other (specify time/date requirement): end of 1/22/24		
Please see back for terms and conditions						



PROJECT NUMBER 240440 DATE 1/24/2025

PROJECT Kinawa MS-Rooms 304-307

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
1	BA	Room 304 near center of the room	8:54	5	15.8	15.8	79	See attached data sheets
			8:59		15.8			
2	FB	Field Blank						See attached data sheets
3	BA	10' from TV, near center of Room 305	9:01	5	15.8	15.8	79	See attached data sheets
			9:06		15.8			
4	BA	Center of Room 306	9:08	5	15.8	15.8	79	See attached data sheets
			9:13		15.8			

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



IAQ Bioaerosol Analytical Report

ERG Project Number: 240440

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

Date of Sample Collection: 1/24/2025 Report Date: 1/24/2025
 Date of Submittal: 1/24/2025 Analyst: Kaila Schwanitz
 Date of Analysis: 1/24/2025 Minimum Reporting Limit: 60 s/m³

Sample #

Sample Location

Spores

structures/ sample	s/m ³	% trace scanned	structures/ sample	s/m ³	% trace scanned	structures/ sample	s/m ³	% trace scanned
Alternaria	ND		ND			ND		
Ascospore	ND		ND			ND		
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			ND		

1			2			3		
Center of Room 304			Field Blank			10 feet from TV, near center of Room 305		

Pollen

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

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

Other Particulate

Cellulose Fibers	ND		ND			15	200	20.3%
Fibrous Glass	ND		ND			ND		
Synthetic Fibers	15	200	20.3%	ND		10	100	20.3%
Mineral Fibers	ND		ND			ND		
Opaque Particles	64	810	20.3%	20	20.3%	49	620	20.3%
Insect Fragments	ND		ND			ND		
Total	79	1010		20		74	920	
*Debris rating	1		1		1			

Cellulose Fibers	ND		ND			15	200	20.3%
Fibrous Glass	ND		ND			ND		
Synthetic Fibers	15	200	20.3%	ND		10	100	20.3%
Mineral Fibers	ND		ND			ND		
Opaque Particles	64	810	20.3%	20	20.3%	49	620	20.3%
Insect Fragments	ND		ND			ND		
Total	79	1010		20		74	920	
*Debris rating	1		1		1			

Notes:

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



IAQ Bioaerosol Analytical Report

ERG Project Number: 240440

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

Date of Sample Collection: 1/24/2025 Report Date: 1/24/2025
 Date of Submittal: 1/24/2025 Analyst: Kaila Schwanitz
 Date of Analysis: 1/24/2025 Minimum Reporting Limit: 60 s/m³

Sample #

Sample Location

Spores

structures/ sample	s/m ³	% trace scanned	structures/ sample	s/m ³	% trace scanned	structures/ sample	s/m ³	% trace scanned
Alternaria	ND							
Ascospore	ND							
Aspergillus/Penicillium	ND							
Basidiospore	ND							
Botrytis	ND							
Chaetomium	ND							
Cladosporium	ND							
Curvularia	ND							
Drechslera/Bipolaris	ND							
Epicoccum	ND							
Erysiphae/Oidium	ND							
Fusarium	ND							
Hyphal Fragments	ND							
Nigrospora	ND							
Periconia/Myxomycete/Smut	ND							
Ulocladium/Pithomyces	ND							
Rhizopus	ND							
Stachybotrys	ND							
Stemphyllium	ND							
Torula	ND							
Miscellaneous/Unidentified Spores	ND							
Total	ND							

Pollen

Grass	ND							
Tree	ND							
Other/Unknown Pollen	ND							
Total	ND							

Other Particulate

Cellulose Fibers	5	60	20.3%					
Fibrous Glass	ND							
Synthetic Fibers	15	200	20.3%					
Mineral Fibers	ND							
Opaque Particles	49	620	20.3%					
Insect Fragments	ND							
Total	69	880						
*Debris rating	1							

Notes:

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



Comments

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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.

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

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Approved Signatory: _____ 

Date: 1/24/2025

Environmental Resources Group

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



Client Name: OKemos Public Schools Contact Person: K. Peterson Project Name/ Number: 240140 Project Location: Kinawa Middle School, Okemos, MI Email Distribution List:		Matrix Code S Soil A Air O Oil B Bulks		Ground Water Surface Water Wastewater Other: Specify	
Phone No.: Purchase Order No.:		HOLD SAMPLE		Remarks: BA-79L BA-0L BA-79L BA-79L	
MATRIX (SEE RIGHT CORNER FOR CODE) # OF CONTAINERS		PARAMETERS		Samples received in acceptable condition <input checked="" type="checkbox"/>	
Date: 1/24/25 Time: 9:15 Sample #: 01 Client Sample Descriptor: Center of Room 304 Date: 1/24/25 Time: 13:00 Sample #: 02 Client Sample Descriptor: Field Blank Date: 1/24/25 Time: 13:00 Sample #: 03 Client Sample Descriptor: 10' from tv near center of room 305 Date: 1/24/25 Time: 13:00 Sample #: 04 Client Sample Descriptor: Center of Room 306		Date/Time: 1/24/25 @ 9:15 Date/Time: Date/Time:		Received By: Received By: Received By Laboratory: <i>[Signature]</i> LAB USE ONLY	
Comments:		Turnaround Time ALL RESULTS WILL BE SENT BY THE END OF THE BUSINESS DAY Some day _____ 1 bus. day _____ 2 bus. days _____ 3 bus. days _____ 4 bus. days		ERG project number: Temperature upon receipt at Lab (if applicable):	
Relinquished by:		Other (specify time/date requirement): by 13:00 1/24/25		Please see back for terms and conditions	