INDOOR AIR QUALITY TESTING REPORT

Report Prepared For:
Grand Rapids Public Schools

Project Site:
Grand Rapids Montessori Academy

Project Dates:
August 22nd, 2023

***MicroAir Project No.*: MA-157-23**

August 22nd, 2023
Project No.: MA-157-23

Mr. Alex Smart, RA
Executive Director of Facilities and Operations
Facilities & Operations
Grand Rapids Public Schools
900 Union, NE
Grand Rapids, MI 49503

13351 Oakcrest Avenue
Gowen, MI 49326
Phone: 616-302-0819
Web: microairconsulting.com
Email: microairconsulting@gmail.com

RE: Indoor Air Quality Assessment
Grand Rapids Montessori Academy

Dear Mr. Smart:

MicroAir Consulting, LLC (MicroAir) is pleased to submit this indoor air quality (IAQ) testing report for the Grand Rapids Montessori Academy located at 159 College, NE in Grand Rapids, Michigan. The IAQ testing was conducted on August 19th, 2023.

Please find the enclosed Indoor Air Quality (IAQ) assessment report and supporting documents including our testing procedures, findings, testing results, and conclusions. This report is for the explicit use of Grand Rapids Public Schools.

MicroAir is glad to be of service to you and your team. If you have any questions or require additional information, please contact me at 616-302-0819 or microairconsulting@gmail.com.
Thank you.

Sincerely,

MicroAir Consulting, LLC

Christian T. Decker

Christian T. Decker, MS
Industrial Hygienist

1.0 INTRODUCTION

MicroAir Consulting was retained by Grand Rapids Public Schools (GRPS) to conduct indoor air quality testing for nuisance dust (total particulate), lead-in-air, and asbestos-in-air by transmission electron microscopy (TEM) laboratory analysis. The IAQ testing was conducted on August 19th, 2023.

2.0 TOTAL PARTICULATES (Nuisance Dust) IN AIR

2.1 Testing Procedures

Air testing was performed in accordance with NIOSH Method 0500 using sampling pumps calibrated to operate at a flow rate of 1.0 liters per minute. Each pump was calibrated before and after sampling with a representative pre-weighed 5.0-micron polyvinyl chloride filter (housed within a 3-piece, 37-millimeter protective plastic cowling) in-line. The samples were analyzed by Eurofins-Analytics Laboratory in Ashland, VA on a rush turnaround time.

2.2 Exposure Limits

The OSHA permissible exposure limit (PEL) for total dust particulates is 15 milligrams per cubic meter of air (mg/m^3) averaged over an 8-hour workday or time-weighted average (TWA). The TWA means the employee's average airborne exposure in any 8-hour work shift of a 40-hour work week that shall not be exceeded.

3.0 ASBESTOS FIBERS IN AIR (TEM)

3.1 Testing Procedures

TEM samples were collected on 0.45-micron pore size, 25-millimeter (mm) diameter, mixed cellulose ester filter membranes. Aggressive air sampling was conducted during the TEM sampling collection at 10 liters of air per minute for a total of 1,200 liters. The samples were analyzed by EMSL Laboraotry in Cinnaminson, NJ on a rush turnaround time.

3.2 Exposure Limits

The OSHA permissible exposure limit (PEL) for asbestos fibers is 0.1 fibers per cubic centimeter of air (f/cc) averaged over an 8-hour workday or time-weighted average (TWA). The TWA means the exposed persons average airborne exposure in any 8-hour work shift of a 40-hour work week that shall not be exceeded. The EPA's allowable concentration of asbestos fibers in a school is 0.01 f/cc (PCM method) or less than 70 structures per square millimeter (S/mm^2 – TEM method).

4.0 LEAD IN AIR

4.1 Testing Procedures

Lead-In-Air samples were collected on 0.80-micron pore size, 37-millimete diameter, 2-piece mixed cellulose ester filter membranes. The air testing was performed in accordance with NIOSH Method 7300m (as modified by the laboratory) using sampling pumps calibrated to operate at a flow rate of 4.0 liters per minute. The samples were analyzed by EMSL Laboraotry in Cinnaminson, NJ on a rush turnaround time.

4.2 Exposure Limits

The action limit of the standard is triggered when airborne concentration of lead are 30 micrograms per cubic meter of air (30 µg/m^3), or higher, calculated as an 8-hour time-weighted average. The OSHA Permissible Exposure Limit (PEL) of 50 micrograms per cubic meter of air collected.

5.0 FINDINGS

5.1 Total Particulates (Nuisance Dust)

Indoor air quality testing results indicate that airborne concentrations of total particulates or nuisance dust, in the areas tested on the three floors of the Grand Rapids Montessori Academy (GRMA), at the time of sampling, were not detected above the analytical reporting limit (detection limit). These results are summarized in the table below. The analytical laboratory report is also included in this report.

Grand Rapids Montessori Academy Total Particulate - August 19th, 2023		
Sample Location	**Particulate Concentration**	**Units**
Room 307	<0.385	mg/m^3
Room 202	<0.385	mg/m^3
Hallway near Room 107	<0.385	mg/m^3

5.2 Asbestos Fibers in Air (TEM)

Indoor air quality testing results indicate that airborne concentrations of asbestos, in the areas tested on three floors of the Grand Rapids Montessori Academy (GRMA). At the time of the sampling, asbestos was not detected above the analytical reporting limit (detection limit). These results are summarized in the table below. The analytical laboratory report is also included in this report.

Grand Rapids Montessori Academy Asbestos In Air (TEM) - August 19th, 2023		
Sample Location	**Asbestos Fiber Concentration**	**Units**
Room 307	<15 (none detected)	S/mm^2
Room 302	<15 (none detected)	S/mm^2
Room 216	<15 (none detected)	S/mm^2
Room 202	<15 (none detected)	S/mm^2
Room 106	sample occlusion	S/mm^2
Hallway near Room 101	sample occlusion	S/mm^2

5.3 Lead In Air

Indoor air quality testing results indicate that airborne concentrations of lead in the air, in the areas tested on three floors of the Grand Rapids Montessori Academy (GRMA), at the time of sampling were not detected above the analytical reporting limit (detection limit). These results are summarized in the table below. The analytical laboratory report is also included in this report.

Grand Rapids Montessori Academy Lead In Air - August 19th, 2023		
Sample Location	**Lead In Air Concentration**	**Units**
Room 302	<4 (non detected)	µg/filter
Room 216	<4 (non detected)	µg/filter
1st Floor storage room	<4 (non detected)	µg/filter

6.0 CONCLUSIONS

On August 19th, 2023 MicroAir Consulting, LLC (MicroAir) conducted IAQ testing on the three floors of GRMA. The testing was requested by GRPS due to parent concerns of acceptable IAQ conditions after construction activities. The indoor air quality samples were collected classrooms and in common areas.

The sampling and the laboratory analytical results, airborne concentrations of particulates, asbestos fibers in air, and lead in air were below current Michigan EGLE, EPA, and OSHA levels. Based on this information, the conditions at the time of sampling, would not be considered unusual However, nuisance dust concentrations can be reduced quickly using HEPA filtered air machines and wet wiping cleaning techniques.

7.0 LIMITATIONS

The testing procedures, findings, conclusions, and recommendations presented in this report are based on the scope of work defined herein and have been made to assist in making a reasonable assessment of risk with respect to the possible presence of lead-based paint, particulates, or asbestos in the specific areas of the building. This testing has been performed in accordance with standards of care and diligence, which are considered to be representative of environmental engineering practices at the present time. Any conclusions made are based on limited sampling and visual observations and were derived in accordance with generally accepted standards of industrial hygiene practice. No other warranty, either expressed or implied, is made. In addition, the conclusions presented in the report were based solely upon the services described, and not on scientific tasks or procedures beyond the intended scope of services.

If you have any questions or require additional information, please contact me at 616-302-0819 or microairconsulting@gmail.com. Thank you.

End of report

LABORATORY ANALYTICAL REPORTS

(See attachments)

Eurofins Analytics, LLC
10329 Stony Run Lane
Ashland, Va 23005
Phone: (804) 365-3000 Fax: (804) 365-3002
AIHA LAP, LLC Accreditation ID 100531

August 22, 2023

CHRIS DECKER
MICRO AIR CONSULTING, LLC
13351 OAKCREST AVE
GOWEN, MI 49326

Laboratory Workorder ID: B234073

Client Project ID:	GR MONT.
Received:	August 22, 2023
Reported:	August 22, 2023

Attached are the results we obtained on the analysis of your samples submitted to Analytics. Any Chains-of-Custody associated by this sample group are enclosed. Air concentrations are calculated as a convenience to the client and the overall accuracy of this result depends on both the accuracy of the air volume and the amount found by analysis. Theoretical air volumes for passive monitors are calculated using the sampling time submitted and the manufacture's listed sampling rate for each compound. Results provided in this report relate only to the items tested.

For blanks and non-detects the results indicated with a '<' value represents the reporting limit for the analysis. Unless otherwise noted results are not corrected for blank values.

Unless the signature of the appropriate manager(s) appears on this report, this report should be considered PRELIMINARY and is subject to change.

We appreciate your confidence in allowing Analytics to be your testing laboratory. Any questions regarding this report can be addressed by calling our customer services department at (800) 888-8061.

Andrew L. Teague, CIH
Technical Director

Enclosures

Eurofins Analytics, LLC
10329 Stony Run Lane
Ashland, Va 23005
Phone: (804) 365-3000 Fax: (804) 365-3002
AIHA LAP, LLC Accreditation ID 100531

Final Report

MICRO AIR CONSULTING, LLC
13351 OAKCREST AVE
GOWEN, MI 49326

Customer: 21109105
Attention: CHRIS DECKER
PO Number CHRIS DECKER

Date Received: 08/22/23
Client Project ID GR MONT.

Lab ID: B234073001 Sample ID: P-1 Media: 5um Preweighed PVC Filter Sample Date: 08/19/2023 12:00 AM

Analyte	Method	Analysis Date	Volume		Reporting Limit	Front	Rear	Total	Concentration
Total Dust	NIOSH 0500	08/22/23	130	L	.05 mg			< 0.05 mg	< 0.385 mg/M3

Lab ID: B234073002 Sample ID: P-2 Media: 5um Preweighed PVC Filter Sample Date: 08/19/2023 12:00 AM

Analyte	Method	Analysis Date	Volume		Reporting Limit	Front	Rear	Total	Concentration
Total Dust	NIOSH 0500	08/22/23	130	L	.05 mg			< 0.05 mg	< 0.385 mg/M3

Lab ID: B234073003 Sample ID: P-3 Media: 5um Preweighed PVC Filter Sample Date: 08/19/2023 12:00 AM

Analyte	Method	Analysis Date	Volume		Reporting Limit	Front	Rear	Total	Concentration
Total Dust	NIOSH 0500	08/22/23	130	L	.05 mg			< 0.05 mg	< 0.385 mg/M3

Eurofins Analytics, LLC
10329 Stony Run Lane
Ashland, Va 23005
Phone: (804) 365-3000 Fax: (804) 365-3002
AIHA LAP, LLC Accreditation ID 100531

Final Report

General Laboratory Comments

Abbreviations:
ug = micrograms; mg=milligrams; g = grams, ppm=parts per million (volume), ppb = parts per billion (volume), mg/M3=milligrams per cubic meter of air, ug/M3=micrograms per cubic meter of air; Min=minutes, Qual=Qualifiers

EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

http://www.EMSL.com / cinnasblab@EMSL.com

EMSL Order: 042320606
Customer ID: MICR65
Customer PO:
Project ID:

Attention: Chris Decker
Micro Air Consulting ,LLC
P.O.Box 908
Greenville, MI 48838

Project: 6 R Mont

Phone: (616) 302-0819
Fax:
Received Date: 08/21/2023 09:55 AM
Analysis Date: 08/21/2023
Collected Date:

Test Report: Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) Performed by EPA 40 CFR Part 763 Appendix A to Subpart E

Sample	Location	Volume (Liters)	Area Analyzed (mm²)	Non Asb	Asbestos Type(s)	#Structures ≥0.5µ < 5µ	#Structures ≥5µ	Analytical Sensitivity (S/cc)	Asbestos Concentration (S/mm²)	Asbestos Concentration (S/cc)
TEM-1	1st Floor	1200.00			Overloaded					N/A
042320606-0001										
Particulate loading greater than 10%.										
TEM-2	1st Floor	1200.00			Overloaded					N/A
042320606-0002										
Particulate loading greater than 10%.										
TEM-3	2nd Floor	1200.00	0.0650	0	None Detected	0	0	0.0049	<15.00	<0.0049
042320606-0003										
TEM-4	2nd Floor	1200.00	0.0650	0	None Detected	0	0	0.0049	<15.00	<0.0049
042320606-0004										
TEM-5	3rd Floor	1200.00	0.0650	0	None Detected	0	0	0.0049	<15.00	<0.0049
042320606-0005										
TEM-6	3rd Floor	1200.00	0.0650	0	None Detected	0	0	0.0049	<15.00	<0.0049
042320606-0006										

Analyst(s)

Sarah Richey (4)

Samantha Rundstrom, Laboratory Manager
or other approved signatory

Initial report from: 08/21/2023 14:31 PM

EMSL Analytical, Inc.
200 Route 130 North, Cinnaminson, NJ 08077
Phone/Fax: (856) 303-2500 / (856) 786-5974
http://www.EMSL.com cinnaminsonleadlab@emsl.com

EMSL Order:	202306845
CustomerID:	MICR65
CustomerPO:	
ProjectID:	

Attn: **Chris Decker**
Micro Air Consulting ,LLC
P.O.Box 908
Greenville, MI 48838

Phone: (616) 302-0819
Fax:
Received: 8/21/2023 11:10 AM
Collected: 8/19/2023

Project: **GR Mont**

Test Report: Lead in Air by Flame AAS (NIOSH 7082)*

Client Sample Description	*Lab ID*	*Collected*	*Analyzed*	*Volume*	*Lead Concentration*
Pb-1	*202306845-0001*	8/19/2023	8/21/2023	480 L	<4.0 µg/filter
	Site: 1st Fl				
Pb-2	*202306845-0002*	8/19/2023	8/21/2023	480 L	<4.0 µg/filter
	Site: 2nd Fl				
Pb-3	*202306845-0003*	8/19/2023	8/21/2023	480 L	<4.0 µg/filter
	Site: 3rd Fl				

Owen Mckenna, Lead Laboratory Director
or other approved signatory

* Analysis following Lead in Air by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 4 µg/filter. ug/filter = µg/m³ x volume sampled (m³). OSHA PEL - 50 µg/m³. OSHA action level - 30 µg/m³. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. Definitions of modifications are available upon request.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NELAP Certifications: NJ 03036, PA 68-00367, AIHA LAP, LLC-ELLAP Accredited #100194, A2LA Accredited - Certificate #2845.01, NY 10872

Initial report from 08/21/2023 14:10:14