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August 21, 2024

Mr. David Schuh
Director of Operations
Crystal Lake School District 47
221 Liberty Road
Crystal Lake, IL 60014

E-mail: dsschuh@d47.org

RE: Mold Indoor Air Quality Sampling North Elementary School – IAQ for Lower Level Classrooms 42, 43, 44, 45.

Pepper Environmental Technologies, Inc. (PET) conducted a mold air sampling study for Crystal Lake North Elementary School located at 500 W Woodstock Street in Crystal Lake, Illinois. The sampling was performed on August 14, 2024. Mold air samples were collected inside of the Lower-Level Classrooms 42,43,44,45. Control samples were collected outdoors for comparison purposes.

The mold sampling was conducted using a Calibrated High Volume Air Sampling Pump and Air-O-Cell cassettes. All samples were collected at 15 liters per minute rate for 5 minutes. All samples were transported to Sterling Labs, Chicago Illinois for laboratory analysis.

The primary purpose of the sampling was to determine mold spore concentrations within Classrooms. Mold spores are like microscopic seeds. Virtually all molds produce spores. Each species of mold produces spores that are unique to its species. This morphology is used to identify and, in the case of air samples, identify the mold specie types and quantities that might be present. Spores are found in both indoors and outdoors.

Currently there are no federal, state, or local standards regulating exposure to molds. In lieu of any standard, samples are usually evaluated in one of two ways. The first is by comparing the total airborne concentration of spores found inside the building to those found outside the building. Typically, inside concentrations are less than outdoor concentrations. If the opposite occurs, it may be an indication of a concern. The second method is to evaluate the genus/species of the mold spores identified. This is typically done for both air and surface samples. In general, airborne mold species identified inside a building should be similar to those found outside the building. If significant variations are observed, it may also be an indication of a potential mold problem.

Please see the results from this study on the next page and in the attached report.

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RESULTS

AREA / ROOM SAMPLED	TOTAL FUNGAL SPORE COUNTS	SPORE COUNTS PER CUBIC METER OF AIR	IDENTIFICATIONS
CL-1 Classroom 42	2	27	<i>Aspergillus/Penicillium,</i>
CL-2 Classroom 43	1	13	<i>Aspergillus/Penicillium,</i>
CL-3 Classroom 44	1	13	<i>Smuts / Myxomycetes</i>
CL-4 Classroom 45	6	80	<i>Aspergillus / Penicilliu Smuts / Myxomycetes</i>
CL-5 North Outside B.	44	587	<i>Alternaria Ascospores Aspergillus / Penicillium, Basidiospores Cladosporium Epicoccum Pithomycetes Rusts Smuts / Myxomycetes</i>
CL-6 South Outside B.	72	960	<i>Alternaria Ascospores Aspergillus / Penicillium, Basidiospores Cladosporium Epicoccum Rusts Smuts / Myxomycetes</i>

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CONCLUSIONS AND RECOMMENDATIONS

There are no governmental standards for acceptable levels of mold spores. The American Industrial Hygiene Association (AIHA) recommends the "clean building" to have less than 2,000 spores per cubic meter of air (spores/m³) total for all spore types and less than 700 spores/m³ of Penicillium/Aspergillus. Further interpretations define "possible indoor amplification" at 1,000 to 5,000 spores/m³, with "amplification likely present" at 5,000 to 10,000 spores/m³. All indoor samples collected during this study showed mold spore concentrations below the AIHA threshold limits referenced in this paragraph.

Results from the air samples collected inside classrooms 42, 43, 44 and 45 showed concentrations ranging from 13 to 80 spores/m³. The outdoor samples results were 587-960 spores/m³. The indoor average spore concentration was 30.7 spores/m³.

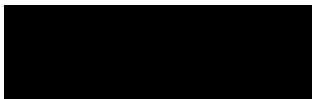
At the time of air testing, no moldy or musty odors were noted. All air samples collected in classrooms showed lower total spore counts than the outdoor concentrations, which is a normal finding. Inside classroom mold species found during this study were present in the outdoor sample, which is also a normal finding.

Based on the air monitoring results obtained at the time of this study the Lower-Level Classrooms 42, 43, 44 and 45 do not appear to harbor an active mold-growth reservoir. Concentrations show 12x increase in concentration outside the building vs inside the building environment. Please find the attached laboratory report outlining the results and sampling locations, respectively.

If you have any questions, please let us know.

Sincerely,

Pepper Environmental Technologies. Inc.



Michael J. Grant – CIEC, CMI
Vice President



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August 21, 2024

Pepper Environmental Technologies
411 Lake Zurich Road
Barrington, IL 60610
Telephone: (847) 304-1326
Fax: (847) 304-0121

Analytical Report for Work Order: 24080227 Revision 0

RE: D-47 Elementary, 500 Woodstock

Dear Pepper Environmental Technologies:

Sterling Labs received 6 samples for the referenced project on 8/16/2024 12:58:00 PM. The analytical results are presented in the following report.

Enclosed are the analytical results for the above referenced project. The samples were analyzed as per the enclosed chain of custody.

All analyses were performed in accordance with established microbiology methodology. All Quality Control criteria as specified in the methods have been met. QA/QC documentation and raw data will remain on file for future reference. Sample acceptance criteria has been met unless noted in the Case Narrative or Sample Receipt Checklist. If required, an estimate of uncertainty for the analyses can be provided.

Thank you for the opportunity to serve you and I look forward to working with you in the future. If you have any questions about the enclosed materials, please contact me at (312) 733-0551.

Sincerely,



Daniel Mikos
Microscopist

The information contained in this report and any attachments is confidential information intended only for the use of the individual or entities named above. The results of this report relate only to the samples as received and tested. Sterling labs is not responsible for customer provided information found in the report that is used to calculate final results. If you have received this report in error, please notify us immediately by phone. This report shall not be reproduced, except in its entirety, unless written approval has been obtained from the laboratory. This analytical report shall become property of the Customer upon payment in full. Otherwise, Sterling Labs will be under no obligation to support, defend or discuss the analytical report.



Analytical Report for Microbiological Analysis - Fungal Spores in Air

Client: Pepper Environmental Technologies
 Project ID: D-47 Elementary, 500 Woodstock
 STAT Project No.: 24080227

Date/Time Received: 8/16/24 12:58
 Date Analyzed: 8/21/2024
 Analyzed By: DM
 QC By: AZ

Client Sample No.:	CL-1				CL-2				CL-3				CL-4			
Sample Description:																
Date Sampled:	8/14/2024				8/14/2024				8/14/2024				8/14/2024			
STAT Sample No.:	24080227-001				24080227-002				24080227-003				24080227-004			
Volume (m ³):	0.075				0.075				0.075				0.075			
	Total Count	Count/m ³	DL	%	Total Count	Count/m ³	DL	%	Total Count	Count/m ³	DL	%	Total Count	Count/m ³	DL	%
Total Fungal Spores:	2	27	13	100	1	13	13	100	1	13	13	100	6	80	13	100
<i>Alternaria</i>																
<i>Ascospores</i>																
<i>Aspergillus/Penicillium</i>	2	27		100.0	1	13		100.0					3	40		50.0
<i>Basidiospores</i>																
<i>Botrytis</i>																
<i>Cercospora</i>																
<i>Chaetomium</i>																
<i>Cladosporium</i>																
<i>Curvularia</i>																
<i>Drechslera/Bipolaris</i>																
<i>Epicoccum</i>													1	13		16.7
<i>Fusarium</i>																
<i>Nigrospora</i>																
<i>Oidium/Erysiphe</i>																
<i>Periconia</i>																
<i>Phoma</i>																
<i>Pithomyces</i>																
<i>Pleospora</i>																
<i>Polythrincium</i>																
<i>Rhizopus/Mucor</i>																
<i>Rusts</i>													1	13		16.7
<i>Smuts/Myxomycetes</i>									1	13		100.0	1	13		16.7
<i>Stachybotrys</i>																
<i>Stemphylium</i>																
<i>Torula</i>																
<i>Ulocladium</i>																
Unidentified Fungi																
Other																
Mycelial Fragments																
Debris Level	Low				Low				Moderate				Moderate			
Organic Material	Present				Present				Present				Present			



Analytical Report for Microbiological Analysis - Fungal Spores in Air

Client: Pepper Environmental Technologies
 Project ID: D-47 Elementary, 500 Woodstock
 STAT Project No.: 24080227

Date/Time Received: 8/16/24 12:58
 Date Analyzed: 8/21/2024
 Analyzed By: DM
 QC By: AZ

Client Sample No.:	CL-5				CL-6							
Sample Description:												
Date Sampled:	8/14/2024				8/14/2024							
STAT Sample No.:	24080227-005				24080227-006							
Volume (m ³):	0.075				0.075							
	Total Count	Count/m ³	DL	%	Total Count	Count/m ³	DL	%	Total Count	Count/m ³	DL	%
Total Fungal Spores:	44	587	13	100	72	960	13	100				
<i>Alternaria</i>	1	13		2.3	1	13		1.4				
<i>Ascospores</i>	6	80		13.6	8	107		11.1				
<i>Aspergillus/Penicillium</i>	3	40		6.8	11	147		15.3				
<i>Basidiospores</i>	7	93		15.9	14	187		19.4				
<i>Botrytis</i>												
<i>Cercospora</i>												
<i>Chaetomium</i>												
<i>Cladosporium</i>	15	200		34.1	20	267		27.8				
<i>Curvularia</i>												
<i>Drechslera/Bipolaris</i>												
<i>Epicoccum</i>	3	40		6.8	4	53		5.6				
<i>Fusarium</i>												
<i>Nigrospora</i>												
<i>Oidium/Erysiphe</i>												
<i>Periconia</i>												
<i>Phoma</i>												
<i>Pithomyces</i>	4	53		9.1								
<i>Pleospora</i>												
<i>Polythrincium</i>	1	13		2.3								
<i>Rhizopus/Mucor</i>												
<i>Rusts</i>	2	27		4.5	5	67		6.9				
<i>Smuts/Myxomycetes</i>	2	27		4.5	9	120		12.5				
<i>Stachybotrys</i>												
<i>Stemphylium</i>												
<i>Torula</i>												
<i>Ulocladium</i>												
Unidentified Fungi												
Other												
Mycelial Fragments												
Debris Level	Moderate				Moderate							
Organic Material	Present				Present							



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 info@thesterlinglab.com

CHAIN OF CUSTODY RECORD

Page: 1 of 1

Company: Pepper Environmental
 Project Number: D-47 Environmental
 Project Name: SUB WINDS HCK
 Project Location: MKS SWANT
 Sampler(s):
 Report To:
 Phone:
 Fax:
 e-mail:

P.O. No.:
 Quote No.:
 Turn Around Time (Days):
 1 2 3 4 5-7 10
 Results Needed:

Client Sample Number/Description:	Date Taken	Time Taken	Matrix	Comp.	Grab	Preserv.	No. of Containers
SL-1 Room 42	8/14/24						
SL-2 Room 43							
SL-3 Room 44							
SL-4 Room 45							
SL-5 N-outside							
SL-6 S-outside							

Remarks	Lab No.:
SPANS Temp 25F	001
75 Xides	002
	003
	004
	005
	006

Relinquished by: (Signature) [Redacted]
 Received by: (Signature) [Redacted]
 Relinquished by: (Signature) [Redacted]
 Received by: (Signature) [Redacted]
 Relinquished by: (Signature) [Redacted]
 Received by: (Signature) [Redacted]

Date/Time: 8/15/24 11:22
 Date/Time: 8-16-24 09:11
 Date/Time: 8-16-24 9:11
 Date/Time: 8-16-24 12:58
 Date/Time: 8/16/24 12:58

Laboratory Work Order No.: 24080227
 Received on Ice: Yes No
 Temperature: Amb. °C