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January 12, 2023

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
Lundahl Middle School – IAQ Room 6**

Pepper Environmental Technologies, Inc. (PET) conducted a mold air sampling study for Crystal Lake Elementary School District 47 at Lundahl Middle School, located at 560 Nash Road in Crystal Lake, Illinois. The sampling was performed on January 5, 2023. Mold air samples were collected inside of Lower-Level Classroom 6. The control sample was collected within the building on the Lower Level near Entrance 2/Stair 1 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 EMSL Analysis, Hillside, Illinois for laboratory analysis.

The primary purpose of the sampling was to determine mold spore concentrations within Classrooms 6. 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.

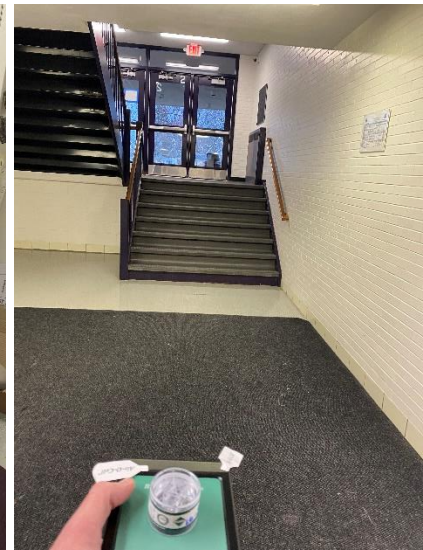
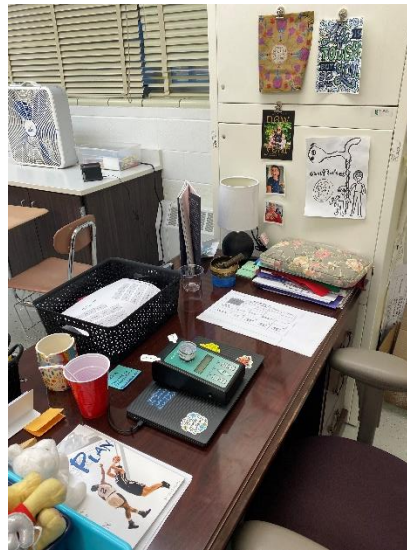
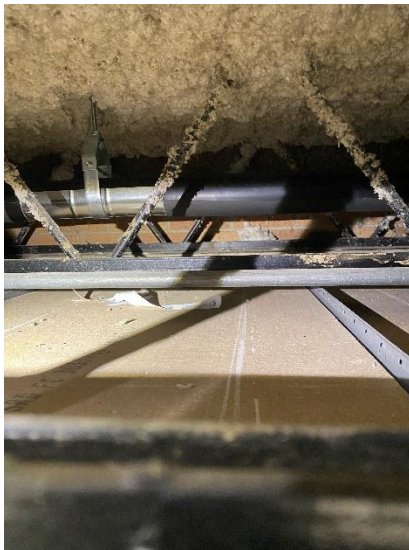
Currently there are no federal, state, or local standards regulating exposure to molds. In lieu of any standard, samples are usually evaluated in one of two ways. The first is by comparing the total airborne concentration of spores found inside the area of concern to those found outside the building or, during the winter months, within a control area inside the building and away from the area of concern. Typically, inside concentrations are less than control sample 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 specie types identified inside a building should be similar to those found on the control sample. 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 laboratory report.

RESULTS

AREA / ROOM SAMPLED	TOTAL FUNGAL SPORE COUNTS	SPORE COUNTS PER CUBIC METER OF AIR	IDENTIFICATIONS
L6-1 Classroom 6, North	10	410	<i>Aspergillus/Penicillium, Unidentifiable Spores</i>
L6-2 Classroom 6, South at Teacher's Desk	8	260	<i>Ascospores, Aspergillus/Penicillium, Cladosporium, Ganoderma</i>
L6-3 Control Sample Lower-Level Hallway Adj. Stair 1/Entrance 2	13	480	<i>Aspergillus/Penicillium, Basidiospores, Cladosporium, Unidentifiable Spores</i>

PICTURES





CONCLUSIONS AND RECOMMENDATIONS

There are no governmental standards for acceptable levels of mold spores. The American Conference of Governmental Industrial Hygienists (ACGIH) agrees that levels from 500 to 1,000 spores per cubic meter of air (sp/m³) could be a concern to those individuals that have a compromised respiratory system. Mold spore concentrations collected from inside Classroom 6 during this study ranged from 260 to sp/m³ to 410 sp/m³. The control sample results, collected in the Lower-Level Hallway near Entrance 2 for comparison purposes, were 480 sp/m³. Air sample results collected during this study were below the ACGIH levels of concern.

At the time of air testing, no moldy or musty odors were noted. Visual inspections above drop ceilings or on exterior walls did not show signs of moisture, standing water or water infiltration. All air samples collected in Lower-Level Classroom 6 showed lower total spore counts than the control area concentrations, which is a normal finding. The mold species found inside Classroom 6 during this study were also similarly present in the specie types found on the control sample, which is also a normal finding.

Based on the air monitoring results obtained at the time of this study, Lower-Level Classrooms 6 does not appear to harbor an active mold-growth reservoir. Please find the attached laboratory report and field drawing outlining the results and sampling locations, respectively.

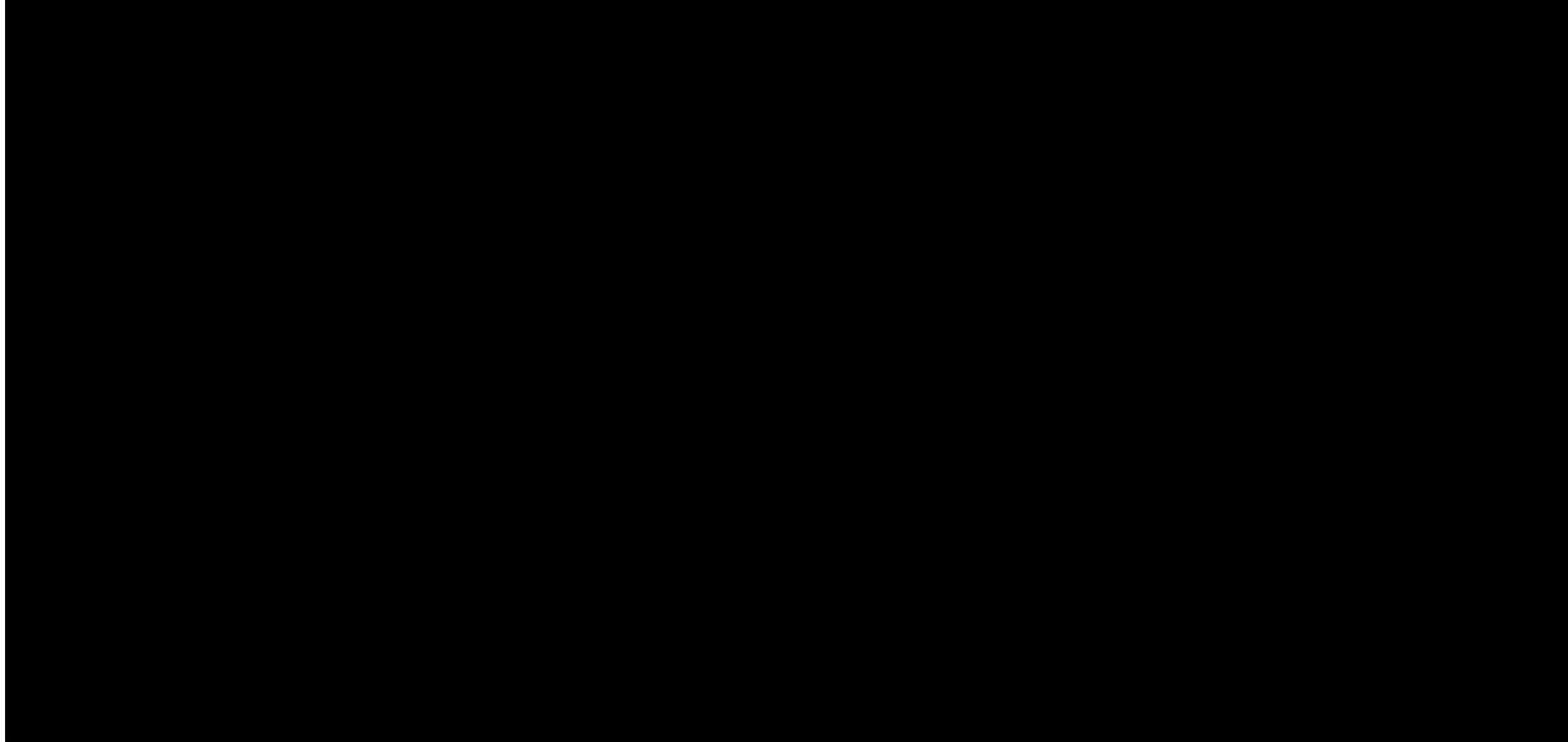
If you have any questions, please let us know.

Sincerely,



Pepper Environmental Technologies. Inc.
Steve Soloma
Senior Project Manager

January 5, 2023 - IAQ Mold Spore Air Sample Locations



 LOWER LEVEL FLOOR PLAN
SCALE: 1/16" = 1'-0"

FOR REFERENCE
ONLY

LUNDAHL MIDDLE
560 NASH RD
CRYSTAL LAKE, IL 60014

BUREAU ADDRESS
200 COMMERCE DRIVE
CRYSTAL LAKE, IL 60014

LOWER LEVEL FLOOR PLAN
LUNDAHL MIDDLE SCHOOL
2020 HEALTH/LIFE SAFETY WORK

A1.0
22-19144-00
12/09/19
REVISIONS

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Architecture Engineering Planning Interiors
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EMSL Analytical, Inc.

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EMSL Order: 262300197
Customer ID: PEPE25
Customer PO:
Project ID:

Attention: Steve Soloma
Pepper Environmental
411 Lake Zurich Road
Barrington, IL 60010

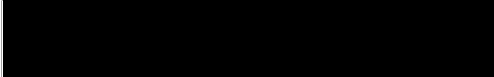
Phone: (630) 710-3834
Fax:
Collected Date: 01/05/2022
Received Date: 01/05/2023 04:40 PM
Analyzed Date: 01/12/2023

Project: 2200797 DDD-LUNDAHL LAQ

Test Report: Air-O-Cell™ Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods MICRO-SOP-201, ASTM D7391)

Lab Sample Number:	262300197-0001			262300197-0002			262300197-0003		
Client Sample ID:	L6-1			L6-2			L6-3		
Volume (L):	75			75			75		
Sample Location:	RM 6 NORTH			RN 6 SOUTH			LL HALL ADJUST 2		
Spore Types	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	1*	10*	3.8	-	-	-
Aspergillus/Penicillium	9	400	97.6	5	200	76.9	8	300	62.5
Basidiospores	-	-	-	-	-	-	1	40	8.3
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium++	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	1	40	15.4	3	100	20.8
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium++	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	1*	10*	3.8	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	1*	10*	2.4	-	-	-	1	40	8.3
Zygomycetes	-	-	-	-	-	-	-	-	-
Total Fungi	10	410	100	8	260	100	13	480	100
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	1	40	-
Pollen	1*	10*	-	-	-	-	2*	30*	-
Analyt. Sensitivity 600x	-	44	-	-	44	-	-	44	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	3	-	-	3	-	-	3	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	2	-	-	1	-	-	1	-

++ Includes other spores with similar morphology; see EMSL's fungal glossary for each specific category.



**Andrei Poluchowicz, Microbiology Technical Manager
or other Approved Signatory**

No discernable field blank was submitted with this group of samples.

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted. High levels of background particulate can obscure spores and other particulates, leading to underestimation. Background levels of 5 indicate an overloading of background particulates, prohibiting accurate detection and quantification. Present = Spores detected on overloaded samples. Results are not blank corrected unless otherwise noted. The detection limit is equal to one fungal spore, structure, pollen, fiber particle or insect fragment. "" Denotes particles found at 300X. "-" Denotes not detected. Due to method stopping rules, raw counts in excess of 100 are extrapolated based on the percentage analyzed. Skin & Fibrous ratings: 1 (1-25%), 2 (26-50%), 3 (51-75%), 4 (76-100%) of the background particles.
Samples analyzed by EMSL Analytical, Inc. Hillside, IL AIHA LAP, LLC-EMLAP Accredited #102992

Initial report from: 01/12/2023 01:23 PM

For information on the fungi listed in this report, please visit the Resources section at www.emsl.com