



August 13, 2019

Ms. Rebecca Lopez
East Stroudsburg Area School District
50 Vine Street
East Stroudsburg, Pennsylvania 18301

RE: Microbial Investigation – Air Quality Sampling
Bushkill Elementary School
131 North School Drive
Dingmans Ferry, Pennsylvania 18328
Hillmann Project Number: PH-0867

Dear Ms. Lopez:

Thank you for retaining Hillmann Consulting, LLC (Hillmann) to address your environmental concerns. On July 30, 2019, Ian Hinterleiter conducted a Microbial Investigation and Air Quality Sampling of the Library and Classrooms 17, 24, 31, 35, 41, and 50 located within the Bushkill Elementary School. This investigation is part of a biannual sampling plan in order to document air quality within the Bushkill Elementary School. The parameters for the investigation included a visual inspection and the collection of one airborne fungal spore sample within the subject spaces listed above.

Hillmann selected the sampling parameters based on consultations with the client (East Stroudsburg Area School District), the laboratory performing the analysis, and our in-house experts. The inspection was a general screening to randomly assess indoor airborne spore concentrations within the subject spaces.

Airborne fungal spores were collected by drawing air through an Air-O-Cell® cassette utilizing a Zefon BioPump. Samples were collected for a time period of five (5) minutes at a calibrated flow rate of 15 L/min yielding a total sample volume of 75 liters. These cassettes were then sent to an AIHA EMLAP accredited laboratory where fungal spores were identified by genera and concentration. Fungal spores are present in normal indoor settings. If found in excess amounts, these spores can produce allergy-like symptoms as well as asthmatic reactions in those who are sensitive to them. If the indoor samples are found to have a greater diversity of genera, and/or higher amounts of fungal spores than outdoor samples, it can be presumed that the subject space may be facilitating microbial growth.

OBSERVATIONS AND FINDINGS

Hillmann was met on site by facility personnel, who escorted Hillmann through the subject spaces to conduct airborne microbial quality assurance sampling.

The Bushkill Elementary School is primarily composed of a combination of masonry block units and wallboard walls, carpet and vinyl tile flooring, and drop ceiling tiles. Hillmann did not observe water staining or visible microbial growth on accessible surfaces.

Average temperature and relative humidity readings were 71.7°F and 33.9% respectively.

Seven (7) airborne fungal spore samples were collected from the Library, and Classrooms 17, 24, 31, 35, 41, and 50 located within the Bushkill Elementary School. Laboratory analysis showed total indoor fungal spore concentrations and individual fungal genera were lower and/or comparable to the outdoor reference levels.

In the absence of health-based federal standards, Hillmann has adopted industry standard practice and recommended practices by the ACGIH to compare indoor/outdoor fungal concentrations. Samples are deemed “comparable” or “acceptable” when the following criteria are met:

- Overall indoor/outdoor fungal genera identified are similar on the day of sampling. Raw spore counts less than ten (10) do not represent a statistically significant number. Therefore, the presence of one (1) spore of certain indicator genera (i.e. *Stachybotrys*) will not be grounds for failure.
- Common outdoor genera identified indoors are similar to or less than outdoor concentrations.
- Common water intrusion indicator genera including but not limited to: *Penicillium/Aspergillus group*, *Chaetomium*, etc. are similar to outdoor concentrations and/or within one order of magnitude (10 times difference). Exceptions will be made depending on conditions, fungal genera identified, and outlying factors.
- Hillmann also recommends that common water intrusion indicator genera be below a level of 1,000 CFU/m³ of air. Exceptions will be made depending on conditions, fungal genera identified, and outlying factors.

CONCLUSIONS & RECOMMENDATIONS

Based upon the findings and laboratory results, the subject spaces do not appear to be facilitating microbial growth at this time.

If you have any questions, or need additional information, please feel free to contact our office at (856) 581-9055.

Regards,
Hillmann Consulting, LLC



Rafael L. Torres, III
Director of Operations
Philadelphia Area Regional Office



Ian Hinterleiter
Industrial Hygienist

File: PH-0867
Enclosed: Laboratory Results

Date of Sampling: 07/31/2019 **Job #:** PH-0867
Date of Sample Receipt: 07/31/2019 **Order#:** 0719533
Client: EAST STROUDSBURG AREA SCHOOL DISTRICT
 50 VINE STREET
 EAST STROUDSBURG, PA 18301 **#Received:** 9



HILLMANN CONSULTING, L.L.C.
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 PHONE: (908) 688-7800 FAX: (908) 686-2636
 www.hillmannconsulting.com

Attn:
Collection Site: BUSHKILL ELEMENTARY SCHOOL/ EAST STROUDSBURG/ PA
Field Technician: Ian Hinterleiter
Date of Analysis: 07/31/2019
Date of Issue: 07/31/2019
Sampling Method: Air-O-Cell

SPODE TRAP REPORT: Method (Fungal Spore SOD)

Location:	Library			Room 50			Room 35		
Lab ID#:	F49044			F49045			F49046		
Volume (Liters):	75			75			75		
Background Debris: *	Light			Light			Light		
	raw ct.	spores/m3	%**	raw ct.	spores/m3	%**	raw ct.	spores/m3	%**
Ascospores							1	64	4%
Basidiospores				2	130	41%			
Cladosporium							24	1,500	86%
Penicillium/Aspergillus	2	130	100%	3	190	59%	3	190	11%
Total Spores/m3	130			320			1,800		
Analytical Sensitivity ***	64			64			64		

* Background debris may affect analysis of sample causing results to be reported lower than actually present in the air.
 Background debris are expressed qualitatively: heavy > medium > light.
 ** Percentages may not equal 100% due to rounding.
 *** Analytical sensitivity is based on 1000X magnification and 15% of trace analyzed.
 Samples arrived in acceptable condition unless otherwise noted.
 Uncertainty of measurement available upon request.
 This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by Hillmann Consulting, LLC.

Signature: 
 Mina Beshay Senior TEM Analyst #Analyzed: 9



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Attn:
Collection Site: BUSHKILL ELEMENTARY SCHOOL/ EAST STROUDSBURG/ PA
Field Technician: Ian Hinterleiter
Date of Analysis: 07/31/2019
Date of Issue: 07/31/2019
Sampling Method: Air-O-Cell

SPODE TRAP REPORT: Method (Fungal Spore SOD)

Location:	Room 41			Room 24			Room 31		
Lab ID#:	F49047			F49048			F49049		
Volume (Liters):	75			75			75		
Background Debris: *	Light			Light			Light		
	raw ct.	spores/m3	%**	raw ct.	spores/m3	%**	raw ct.	spores/m3	%**
Basidiospores	2	130	34%	2	130	100%	1	64	20%
Cladosporium	3	190	49%				3	190	60%
Ganoderma							1	64	20%
Penicillium/Aspergillus	1	64	17%						
Total Spores/m3	380			130			320		
Analytical Sensitivity ***	64			64			64		

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 Mina Beshay Senior TEM Analyst #Analyzed: 9



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Attn:

Collection Site: BUSHKILL ELEMENTARY SCHOOL/ EAST STROUDSBURG/ PA

Field Technician: Ian Hinterleiter

Date of Analysis: 07/31/2019

Date of Issue: 07/31/2019

Sampling Method: Air-O-Cell

SPODE TRAP REPORT: Method (Fungal Spore SOD)

Location:	Room 17			Outside			Outside		
Lab ID#:	F49050			F49051			F49052		
Volume (Liters):	75			75			75		
Background Debris: *	Light			Light			Light		
	raw ct.	spores/m3	%**	raw ct.	spores/m3	%**	raw ct.	spores/m3	%**
Ascospores				4	260	8%	4	260	10%
Basidiospores	1	64	100%	12	770	23%	7	450	18%
Cladosporium				14	900	26%	1	64	3%
Coprinus				3	190	6%	17	1,100	44%
Ganoderma				4	260	8%	1	64	3%
Myxo./Periconia/Rusts/Smuts				1	64	2%			
Penicillium/Aspergillus				12	770	23%	6	380	15%
Pithomyces							1	64	3%
Xylariaceae				3	190	6%	2	130	5%
Total Spores/m3	64			3,400			2,500		
Analytical Sensitivity ***	64			64			64		

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Background debris are expressed qualitatively: heavy > medium > light.

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Samples arrived in acceptable condition unless otherwise noted.

Uncertainty of measurement available upon request.

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Signature: _____

Mina Beshay

Mina Beshay Senior TEM Analyst #Analyzed: 9



Fungal Spore Chain-of-Custody and Analysis Request Form

Date of Sampling: 7/31/19

Job #: PH0967

Date of Sample Receipt: _____

Order #: 0719533

Client: East Stroudsburg Univ SD

Location: Pushkill Elementary School

Field Hygienist: JZM Hiltzleiter



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Sample ID Lab ID	Sample Type (Air, Bulk, Tape)	Air-Flow Time		Air-Flow Rate		Air Volume(L) or Area (In) ²	Sample Location Description	Turnaround Time					Comments	
		Start	End	Start	End			3-6hr	8-12hr	24hr	48hr	72hr		5-7 day
F49044 45 46 47 48 49 50 IH 27	Air	11:30	11:35	15	15	75L	Library							
IH 28		11:37	11:42				50							
IH 29		11:44	11:49				35							
IH 30		11:50	11:55				41							
IH 31		12:00	12:05				24							
IH 32		12:06	12:11				37							
IH 33		12:19	12:23				17							
S1 IH 34		12:30	12:35				outside							
S2 IH 35		12:39	12:40				outside							

Sampled By:	Transported By:	Received By:	Prepared By:	Analyzed By:
Name: <u>JZM Hiltzleiter</u>		900	<u>Alina Berhony</u>	<u>Alina Berhony</u>
Signature: <u>[Signature]</u>				
Date:		7-31-19	7-31-19	