



October 5, 2018

Centennial School District
48 Swan Way
Warminster, PA 18974
Attn: Mr. Tom Golden

RE: Airborne Fungal Spore Sampling
Log College Middle School
730 North Norristown Road
Warminster, Pennsylvania 18974
Hillmann Project Number: PH0528

Dear Mr. Golden:

Thank you for retaining Hillmann Consulting, LLC (Hillmann) to address your environmental concerns. On September 27, 2018, Mr. John Emmi, conducted airborne fungal spore sampling at the above mentioned areas within Log College Middle School.

Hillmann selected the sampling parameters based on consultations with the client (Centennial School District), the laboratory performing the analysis and our in-house experts. The sampling was performed at the request of Centennial School District as a general screening for airborne fungal spore concentrations and was not intended to be a microbial investigation related to a specific area of concern(s). The parameters for this sampling event were limited to the collection of airborne fungal spore samples.

Airborne fungal spores were collected by drawing air through an Air-O-Cell® cassette utilizing a Zefon Bio-Pump. 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 appropriately experienced 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 determined that the subject space may be facilitating microbial growth. It should be noted that raw spore counts less than ten (10) do not represent a statistically significant number.

OBSERVATIONS AND FINDINGS

Hillmann was met on site by Mr. Tom Golden, who provided access and directed Hillmann to the areas that were to be sampled (subject areas) within the school, which consisted of: Hallway around Vending Machine, Cafeteria, Room 18, Hallway outside Room 19, Hallway outside of Room 22, Hallway outside of Room 24, Hallway outside of Room 29, Hallway outside of Room 36, Alcove Area 43 and 44, Outside of and outside of Mara's Office. Mr. Golden had stated that there have been no reports of any recent water intrusion within the subject areas.

CONCLUSIONS

A total of eleven (11) airborne fungal spore samples were collected in the subject areas; both total indoor fungal spore concentrations and individual fungal genera were lower and/or comparable to the outdoor reference levels in all sampled locations; with the exception of elevated levels of *Penicillium/Aspergillus* group found in the samples collected within the Hallway outside of Room 29.

If you have any questions, or need additional information, please feel free to contact our office at (908) 721-2302.

Regards,
Hillmann Consulting, LLC



Craig Downs
Director of Operations, Philadelphia Regional Office

File: PH0528
Enclosed: Laboratory Results

**Airborne Fungal Spore Sample Results
Collected on September 27, 2018**

Location	Fungal ID	Concentration (Spores/m³)	Outdoor Concentration (Spores/ m³)
Hallway Vending Machine	Ascospores	61	1900/2000
	Basidiospores	310	20600/20000
	Coprinus	61	670/430
	Myxo./Periconia/Rusts/Smuts	61	310/430
	Penicillium /Aspergillus	61	310/980
	Total:550		
Cafeteria – Midpoint	Ascospores	61	1900/2000
	Basidiospores	310	20600/20000
	Xylariaceae	61	920/1200
	Total: 430		
Room 18 – East Area of Classroom	Ascospores	180	1900/2000
	Basidiospores	610	20600/20000
	Cladosporium	61	2100/120
	Coprinus	61	670/430
	Curvularia	61	ND/ND
	Myxo./Periconia/Rusts/Smuts	61	310/430
	Penicillium /Aspergillus	61	310/980
	Total: 1100		
Hallway Outside Room 19	Alternaria	61	ND/ND
	Ascospores	120	1900/2000
	Basidiospores	980	20600/20000
	Cladosporium	310	2100/120
	Coprinus	310	670/430
	Hyphal Fragments	61	120/ND
	Myxo./Periconia/Rusts/Smuts	240	310/430
	Penicillium /Aspergillus	61	310/980
	Pitomyces	61	ND/ND
	Xylariaceae	61	920/1200
Total: 2300			
Hallway Outside Room 22	Ascospores	240	1900/2000
	Basidiospores	2100	20600/20000
	Cladosporium	120	2100/120
	Coprinus	120	670/430
	Myxo./Periconia/Rusts/Smuts	61	310/430
	Penicillium /Aspergillus	120	310/980
	Total: 2761		
Hallway Outside Room 24	Ascospores	180	1900/2000
	Basidiospores	790	20600/20000
	Cladosporium	120	2100/120
	Coprinus	120	670/430
	Myxo./Periconia/Rusts/Smuts	120	310/430
	Penicillium /Aspergillus	61	310/980
	Total: 1400		
Hallway Outside Room 29	Ascospores	61	1900/2000
	Basidiospores	920	20600/20000
	Myxo./Periconia/Rusts/Smuts	61	310/430
	Penicillium /Aspergillus	4100	310/980
	Total: 5100		
Hallway Outside Room 36	Ascospores	240	1900/2000
	Basidiospores	790	20600/20000
	Cladosporium	120	2100/120
	Coprinus	61	670/430

Location	Fungal ID	Concentration (Spores/m ³)	Outdoor Concentration (Spores/ m ³)
	Ganoderma	61	310/180
	Hyphal Fragments	61	120/ND
	Penicillium /Aspergillus	61	310/980
	Xylariaceae	61	920/1200
		Total: 1500	
Alcove Area Room 44	Ascospores	180	1900/2000
	Basidiospores	920	20600/20000
	Cladosporium	120	2100/120
	Coprinus	61	670/430
	Ganoderma	61	310/180
	Hyphal Fragments	61	120/ND
	Myxo./Periconia/Rusts/Smuts	180	310/430
	Penicillium /Aspergillus	120	310/980
		Total: 1700	
Alcove Area Room 43	Ascospores	61	1900/2000
	Basidiospores	550	20600/20000
	Hyphal Fragments	61	120/ND
	Myxo./Periconia/Rusts/Smuts	120	310/430
		Total: 790	
Outside of Robin Mara's Office	Ascospores	61	1900/2000
	Basidiospores	610	20600/20000
	Hyphal Fragments	61	120/ND
	Myxo./Periconia/Rusts/Smuts	180	310/430
	Nigrospora	61	ND/ND
	Penicillium /Aspergillus	61	310/980
		Total: 1000	
Outside 1 – Main Entrance Area	Ascospores	1900	
	Basidiospores	20600	
	Cladosporium	2100	
	Coprinus	670	
	Ganoderma	310	
	Hyphal Fragments	120	
	Myxo./Periconia/Rusts/Smuts	310	
	Penicillium /Aspergillus	310	
	Xylariaceae	920	
		Total: 27200	
Outside 2 – Faculty Visitor Parking Lot	Ascospores	2000	
	Basidiospores	20000	
	Cladosporium	120	
	Coprinus	430	
	Diatrypaceae	490	
	Ganoderma	180	
	Myxo./Periconia/Rusts/Smuts	430	
	Penicillium /Aspergillus	980	
	Xylariaceae	1200	
		Total: 25800	

Numbers are round based on significant figures of the raw count of fungal spores.

NSD= No Spores Detected

ND = Not Detected

NA = Not Available

Date of Sampling: 09/27/2018 **Job #:** PH-0528
Date of Sample Receipt: 09/28/2018 **Order#:** 1018010
Client: CENTENNIAL SCHOOL DISTRICT
 48 SWAN WAY
 WARMINSTER, PA 18974



HILLMANN CONSULTING, L.L.C.
 ENVIRONMENTAL CONSULTING, LAB SERVICES
 1600 ROUTE 22 EAST
 P.O. BOX 1597
 UNION, NEW JERSEY 07083-1597
 PHONE: (908) 688-7800 FAX: (908) 686-2636
 www.hillmannconsulting.com

Attn:
Collection Site: JOHN LOG COLLEGE MIDDLE SCHOOL


Field Technician: John Emmi
Date of Analysis: 09/28/2018
Date of Issue: 10/01/2018
Sampling Method: Air-O-Cell

SPORE TRAP REPORT: Method (Fungal Spore SOP)

Location:	Hallway Vending Machines			Cafeteria Midpoint			Room 18/ East Area of Classroom		
Lab ID#:	F45931			F45932			F45933		
Volume (Liters):	75			75			75		
Background Debris: *	Light			Light			Light		
	raw ct.	spores/m3	%**	raw ct.	spores/m3	%**	raw ct.	spores/m3	%**
Ascospores	1	61	11%	1	61	14%	3	180	16%
Basidiospores	5	310	56%	5	310	72%	10	610	56%
Cladosporium							1	61	6%
Coprinus	1	61	11%				1	61	6%
Curvularia							1	61	6%
Myxo./Periconia/Rusts/Smuts	1	61	11%				1	61	6%
Penicillium/Aspergillus	1	61	11%				1	61	6%
Xylariaceae				1	61	14%			
Total Spores/m3	550			430			1,100		
Analytical Sensitivity ***	61			61			61		

* 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.
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Signature: _____


 Angelo Tango Laboratory Manager



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Date of Issue: 10/01/2018
Sampling Method: Air-O-Cell

SPORE TRAP REPORT: Method (Fungal Spore SOP)

Location:	Hallway Outside Room 19			Hallway Outside Room 22			Hallway Outside Room 24		
Lab ID#:	F45934			F45935			F45936		
Volume (Liters):	75			75			75		
Background Debris: *	Light			Light			Light		
	raw ct.	spores/m3	%**	raw ct.	spores/m3	%**	raw ct.	spores/m3	%**
Alternaria	1	61	3%						
Ascospores	2	120	5%	4	240	9%	3	180	13%
Basidiospores	16	980	43%	34	2,100	76%	13	790	57%
Cladosporium	5	310	14%	2	120	4%	2	120	9%
Coprinus	5	310	14%	2	120	4%	2	120	9%
Hyphal Fragments	1	61	3%						
Myxo./Periconia/Rusts/Smuts	4	240	11%	1	61	2%	2	120	9%
Penicillium/Aspergillus	1	61	3%	2	120	4%	1	61	4%
Pithomyces	1	61	3%						
Xylariaceae	1	61	3%						
Total Spores/m3	2,300			2,800			1,400		
Analytical Sensitivity ***	61			61			61		

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Field Technician: John Emmi
Date of Analysis: 09/28/2018
Date of Issue: 10/01/2018
Sampling Method: Air-O-Cell

SPORE TRAP REPORT: Method (Fungal Spore SOP)

Location:	Hallway Outside Room 29			Hallway Outside Room 36			Alcove Area Room 43 & 44		
Lab ID#:	F45937			F45938			F45939		
Volume (Liters):	75			75			75		
Background Debris: *	Light			Light			Light		
	raw ct.	spores/m3	%**	raw ct.	spores/m3	%**	raw ct.	spores/m3	%**
Ascospores	1	61	1%	4	240	16%	3	180	11%
Basidiospores	15	920	18%	13	790	54%	15	920	54%
Cladosporium				2	120	8%	2	120	7%
Coprinus				1	61	4%	1	61	4%
Ganoderma				1	61	4%	1	61	4%
Hyphal Fragments				1	61	4%	1	61	4%
Myxo./Periconia/Rusts/Smuts	1	61	1%				3	180	11%
Penicillium/Aspergillus	68	4,100	80%	1	61	4%	2	120	7%
Xylariaceae				1	61	4%			
Total Spores/m3	5,100			1,500			1,700		
Analytical Sensitivity ***	61			61			61		

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Date of Analysis: 09/28/2018
Date of Issue: 10/01/2018
Sampling Method: Air-O-Cell

SPORE TRAP REPORT: Method (Fungal Spore SOP)

Location:	Outside of Rubin Mara's Office						Outside/ Outdoor Sample/ Main Entrance Area		
Lab ID#:	F45940			F45941			F45942		
Volume (Liters):	75			75			75		
Background Debris: *	Light			Light			Light		
	raw ct.	spores/m3	%**	raw ct.	spores/m3	%**	raw ct.	spores/m3	%**
Ascospores	1	61	8%	1	61	6%	31	1,900	7%
Basidiospores	9	550	69%	10	610	59%	338	20,600	76%
Cladosporium							35	2,100	8%
Coprinus							11	670	2%
Ganoderma							5	310	1%
Hyphal Fragments	1	61	8%	1	61	6%	2	120	0%
Myxo./Periconia/Rusts/Smuts	2	120	15%	3	180	17%	5	310	1%
Nigrospora				1	61	6%			
Penicillium/Aspergillus				1	61	6%	5	310	1%
Xylariaceae							15	920	3%
Total Spores/m3	790			1,000			27,200		
Analytical Sensitivity ***	61			61			61		

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Field Technician: John Emmi
Date of Analysis: 09/28/2018
Date of Issue: 10/01/2018
Sampling Method: Air-O-Cell

SPORE TRAP REPORT: Method (Fungal Spore SOP)

Location:	Outside/ Outdoor Sample/ Faculty Visitor Parking Lot								
Lab ID#:	F45943								
Volume (Liters):	75								
Background Debris: *	Light								
	raw ct.	spores/m3	%**	raw ct.	spores/m3	%**	raw ct.	spores/m3	%**
Ascospores	33	2,000	8%						
Basidiospores	328	20,000	77%						
Cladosporium	2	120	0%						
Coprinus	7	430	2%						
Diatrypaceae	8	490	2%						
Ganoderma	3	180	1%						
Myxo./Periconia/Rusts/Smuts	7	430	2%						
Penicillium/Aspergillus	16	980	4%						
Xylariaceae	19	1,200	5%						
Total Spores/m3	25,800								
Analytical Sensitivity ***	61								

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