

April 21, 2021

Eric Derin, MBA, MSA
Director of Operations
Chesapeake Education Services, LLC.
Chesapeake Lighthouse Foundation
Via email: ederin@clfmd.org

RE: Indoor Air Quality Inspection Report – CMIT Academy North High School

Global Job #: 21-010

Dear Mr. Derin,

On March 26th, 2021, Global, Inc. (GLOBAL), performed an indoor air quality (IAQ) inspection at CMIT Academy North Middle School located at 14800 Sweitzer Lane, Laurel, MD 20707. The Operations Manager - Mr. Memet Elmaci provided building floor plans, and facilitated access. This report elaborates on the inspection methodology, observations, measurements of indoor air quality parameters, mold sample analysis, conclusions, and recommendations (if any).

Methodology

The inspection conducted by GLOBAL included a visual assessment, indoor air quality instrumentation screening, and sampling for non-viable mold and visible mold growth. The specific locations for screening of IAQ parameters and mold spores in air were selected to represent different functional spaces, including Multi-purpose Room, Auditorium, Gymnasium, Cafeteria, Library, Health/Nurse Room, Class Rooms/ Activity Rooms/Labs, and Office Rooms spread across the school.

Visual inspection: A walkthrough of all occupied locations within the school was performed to document the status of general cleanliness and issues that could affect healthy indoor air quality. All restrooms were inspected for cleanliness, and the functionality of ‘P-traps’ in drain lines and sinks.

Real-time Measurement of IAQ Parameters: Real-time measurements of comfort parameters (i.e., temperature, relative humidity, carbon monoxide, and carbon dioxide) and respirable particulate matter in air (PM_{2.5}µm and PM₁₀µm size classes) were obtained using calibrated portable digital instruments. The measurements were compared with relevant industry standards and guidelines.

Air sampling for mold spores: Air samples for non-viable fungal spores were collected in representative locations where IAQ screening was performed. Additionally, one ambient set of IAQ measurements and an air sample was collected for comparison. Non-viable fungal spore samples were collected on *Air-O-Cell* cassettes using a Buck BioAire® calibrated pump. The air samples were taken within the breathing zone and no closer than three feet from the ground.

Swab sampling for mold: If any signs of visible and/or suspected mold growth was observed, a composite swab sample was collected with a sterilized swab.

Mold sample analysis: Microbial samples (including a field blank for quality assurance) were shipped under strict chain-of-custody procedures to Hayes Microbial Consulting, an AIHA-accredited laboratory in Midlothian, Virginia, for analysis.

Observations

The floor tiles underneath sink cabinets in Room 212 (Lounge), 335 (Chemistry Lab) and 338 (Lounge) showed signs of water leaks and suspected mold growth. All other locations inspected were in a clean condition, without any signs of visible microbial growth. No musty odors were detected. All restrooms were in a clean condition, with properly functioning P-traps and no sewer gas odor. Some locations had water-stained ceiling tiles.

Measurements of Indoor Comfort Parameters and Respirable Particulates

The real-time measurements of comfort parameters and respirable particulates in each location tested, including the relevant standards are summarized in **Table 1** below. The specific locations screened are indicated in the floor plans in **Attachment I**.

Table 1: Measurements of Indoor Air Quality Parameters on 03/26/2021 (9.30 am- 1.30 pm)

IAQ Parameter	Temp °F	RH%	CO Ppm	CO2 ppm	PM 2.5 ug/m ³	PM 10 ug/m ³
Indoor Standards	ASHRAE 68-79°F	ASHRAE <65%	NAAQS <9	ASHRAE <1361	NAAQS 12	NAAQS 150
Ambient	70	71	0	661	10.7	15.2
104: Office	73	53	0	658	4.0	5.1
Gymnasium	72	52	0	669	2.1	2.5

IAQ Parameter	Temp °F	RH%	CO Ppm	CO2 ppm	PM 2.5 ug/m ³	PM 10 ug/m ³
Indoor Standards	ASHRAE 68-79°F	ASHRAE <65%	NAAQS <9	ASHRAE <1361	NAAQS 12	NAAQS 150
122: Principal's Office	72	54	0	573	3.0	3.9
126: Conference Room	74	52	0	578	3.2	4.6
137: Classroom	74	53	0	589	2.1	3.3
140 Class Room	75	53	0	535	1.5	1.9
146: Classroom	76	52	0	524	1.6	2.1
142: Classroom	75	53	0	576	4.3	.6.5
Cafeteria	74	56	0	592	2.0	2.9
200: Library	74	52	0	527	0.6	0.8
201: Classroom	75	50	0	521	0.8	0.5
203: Office	77	49	0	536	0.5	0.5
209: Classroom	77	48	0	527	0.7	0.7
208: Classroom	76	49	0	509	1.1	1.8
212: Lounge	76	48	0	521	1.0	1.4
211: Classroom	75	48	0	533	1.0	1.2
217: Classroom	75	49	0	596	0.9	1.1
221: Classroom	75	49	0	536	0.6	0.6
219: Classroom	75	49	0	495	0.9	1.4

IAQ Parameter	Temp °F	RH%	CO Ppm	CO2 ppm	PM 2.5 ug/m ³	PM 10 ug/m ³
Indoor Standards	ASHRAE 68-79°F	ASHRAE <65%	NAAQS <9	ASHRAE <1361	NAAQS 12	NAAQS 150
224: Classroom	76	46	0	487	0.8	0.5
234: Operations Room	76	46	0	487	0.7	1.2
233: Che Science Lab	75	46	0	490	0.7	1.8
231: Bio Science Lab	74	46	0	490	0.5	0.5
335: Che Science Lab	75	44	0	475	0.6	0.7
333: Bio Science Lab	73	41	0	493	0.5	0.7
326: Classroom	76	45	0	495	0.9	1.2
323: Art Classroom	75	44	0	479	0.8	1.3
324: Classroom	76	45	0	489	1.4	1.7
320: Music Room	77	41	0	507	0.4	0.7
338: Lounge	76	43	0	500	0.4	0.6
312: Storage Room	76	40	0	427	0.4	0.4
306: Counselor Office	75	39	0	474	0.3	0.4
303: Game Room	72	42	0	483	0.2	0.5
302: Storage Room	73	42	0	496	0.4	0.5

Comfort Parameters

Temperature: The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) have published recommendations for year-round acceptable temperatures in Standard 55-2010 (*Thermal Environmental Conditions for Human Occupancy*). The winter comfort range is 20 to 24°C (68 to 75°F) and 23 to 26°C (73 to 79°F) is the summer comfort range. The indoor temperature in all locations tested were within the comfort range specified by ASHRAE.

Relative Humidity: Relative humidity is a key factor for mold growth. Mold has the potential of growing on suitable surfaces with humidity levels above 60%. ASHRAE standard 62.1-2010 (*Ventilation for Acceptable Indoor Air Quality*) recommends a maximum indoor relative humidity of 65% to preclude the likelihood of condensation of cool surfaces encouraging mold growth. The relative humidity readings in all locations tested were within the ASHRAE recommended range.

Carbon Dioxide: Under conditions of maximum occupancy, ASHRAE Standard 62.1-2010, Appendix C, infers that the acceptable carbon dioxide upper limit is the prevailing outdoor carbon dioxide concentration plus 700 parts per million (ppm). On the day of the space evaluation, the outdoor (ambient) carbon dioxide concentration was approximately 661 ppm so indoor concentrations should not exceed approximately 1361 ppm. The indoor carbon dioxide concentration in all locations tested was within the ASHRAE standard.

Carbon Monoxide: Carbon monoxide (CO) is a colorless and odorless gas that is produced by the incomplete combustion of carbon containing fuels. Oil, gasoline, diesel fuels, wood, coke, and coal are the major sources of CO. All registered indoor CO concentrations were below the EPA National Ambient Air Quality Standard (NAAQS) of 9 ppm.

Respirable Particulates

The respirable particulate concentrations under the PM_{2.5} and PM₁₀ size classes in all indoor locations tested were within the National Ambient Air Quality Standard (NAAQS) levels. The highest average PM_{2.5} concentration during the monitoring period was 4.2 µg/m³ in the Classroom#142. This is compared to the NAAQS primary standard for PM_{2.5} of 12 µg/m³ annual mean. The highest average PM₁₀ concentration during the same period was 6.5 µg/m³, in Classroom #142. This is compared to NAAQS standard for PM₁₀ of 150µg/m³ 24 hr. average.

Mold in Indoor Locations

There are no definitive regulations or standardized guidelines for addressing airborne mold in an indoor setting. If building systems (ventilation, envelope) are functioning properly, the indoor population profile should mimic what is encountered outdoors and the concentrations (spore count/m³) should be below the ambient levels.

The total mold spore concentrations in all indoor air samples collected from the representative functional spaces were below the outdoor mold spore concentration. The mold population profiles and spore counts in all indoor air samples indicated normal fungal ecology. The swab samples collected from the water-damaged floor tiles underneath sink cabinets in Room 212 (Lounge), 335 (Chemistry Lab) and 338 (Lounge) confirmed mold growth. The sample analytical results and chain-of-custody forms are provided in **Attachment II**.

Conclusions and Recommendations

The comfort parameters and respirable particulate matter (PM2.5 and PM10 size classes) in all indoor locations screened were within the relevant ASHRAE and/or NAAQS standards. The air sample analytical results for mold indicated normal fungal ecology in air for all the indoor locations sampled at CMIT Academy North High School on March 26, 2021. The water leaks associated with sink plumbing in Room 212 (Lounge), 335 (Chemistry Lab) and 338 (Lounge) had been corrected by a contractor, who had also cleaned and disinfected mold growth and replaced water-damaged floor tiles. A verification visit made by PLI's Certified Industrial Hygienist on April 20th, 2021 confirmed that the water leaks and associated mold growth in the above locations had been corrected in an efficient manner.

Thank you for the opportunity to provide indoor air quality inspection services for CMIT Academy North High School. If you have any questions, please contact me at 443-691-0455 (mobile).

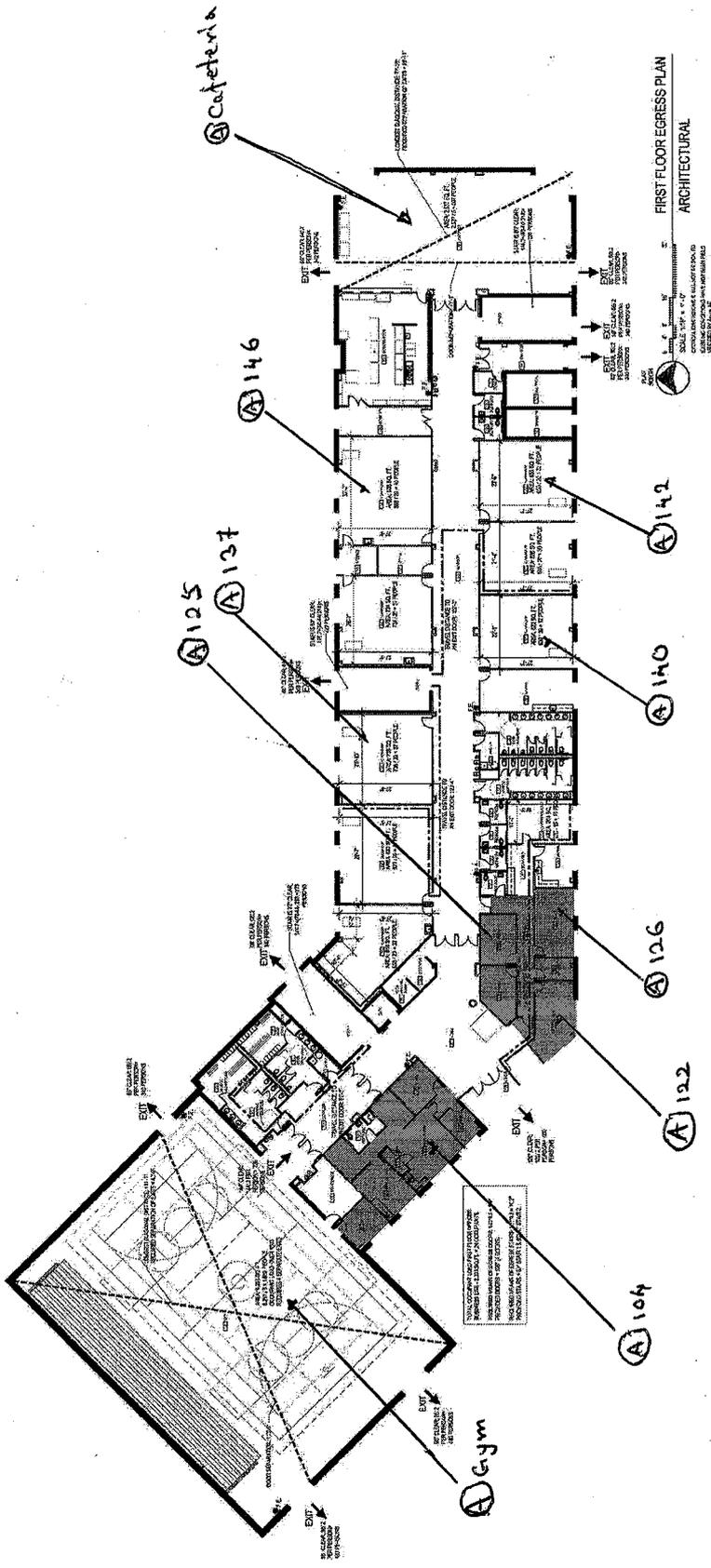
Sincerely,



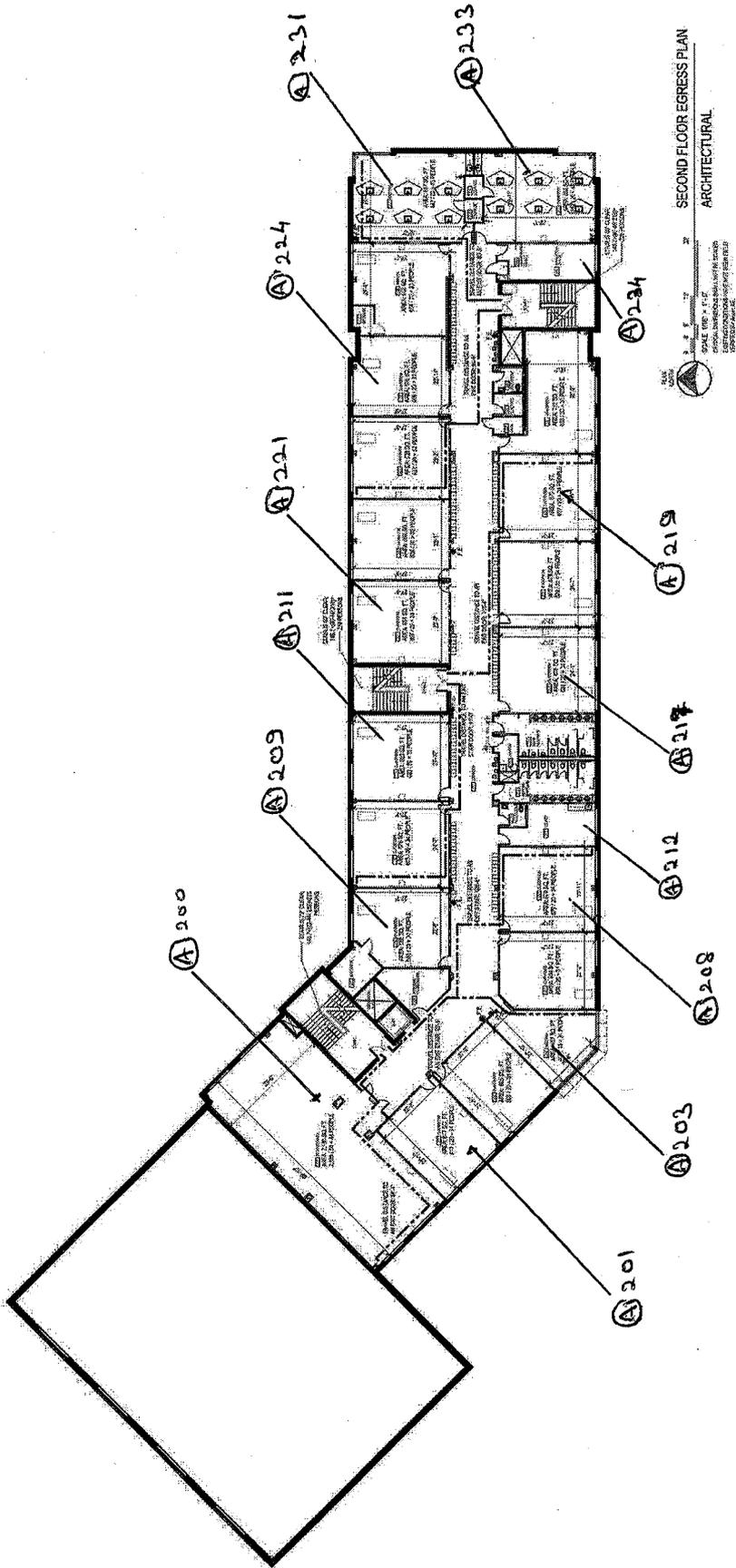
Channa Bambaradeniya, PhD, CIH, CSP, CHMM, PMP
Certified Industrial Hygienist

Attachment I:

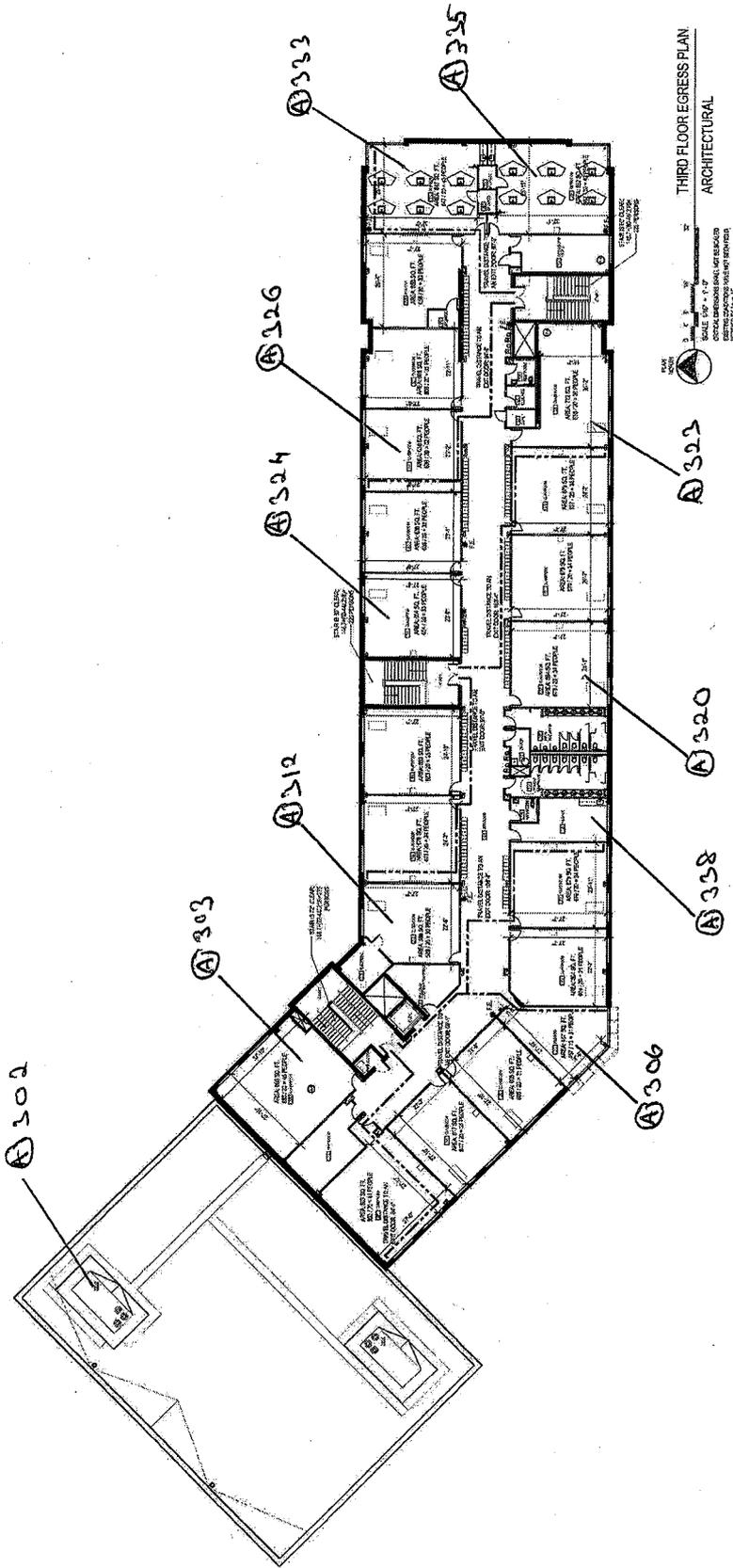
Floor Plans with Sample Locations



Axxx Air Sample Locations (1st floor)



Axxx Air Sample Locations (2nd floor)



Axxx Air Sample Location (3rd Floor)



1818 New York Av NE, Suite 217
Washington, DC 20002

Telephone: (443) 691-0455

Attachment II:

Laboratory Analytical Results and Chain-of-custody Forms



Company: Global Inc
 Address: 1818 New York Ave NE Suite 217
Washington DC 20002

N
 SHIP: FEDEX - BOX 50
 DATE: 03-31-2021
 7732 3493 6140

MOLD

 21010834

Job Number: 21-010
 Collector: Channa Bambaradeniya
 Date Collected: 3/26/2021
 Job Name: IAQ Survey -CMIT Academy High School
 (14800 Sweitzer Lane, Laurel, MD 20707)

Mobile: 443-691-0455
 Email: Channab@globalincusa.net
 Note: Page 2

Analysis Type	Analysis Description	Turnaround	Accepted Media Types
Spore Trap	S XX	24 Hour XX	Air Cassettes, Impact Slides
	S+	24 Hour	Air Cassettes, Impact Slides
Direct ID	D	24 Hour	Bio-Tape, Tape, Swab, Bulk, Agar Plate
	D+	24 Hour	Bio-Tape, Tape, Swab, Bulk, Agar Plate
Culture	C1	7 Day	Air Plate, Agar Plate, Swab, Bulk
	C2	4 Day	Air Plate, Agar Plate, Swab, Bulk
	C3	7 Day	Air Plate, Agar Plate, Swab, Bulk
	C5	2 Day	Agar Plate, Swab, Bulk
Particle	TPA	24 Hour	Air Cassettes, Impact Slides, Bio-Tape

#	Number	Sample	Analysis	Volume	Notes
1	14800-1	Ambient	S	75L	
2	14800-2	104 - office	↓	↓	
3	14800-3	Gymnasium			
4	14800-4	122 - Principal's office			
5	14800-5	126 - conference room			
6	14800-6	137 - Classroom			
7	14800-7	140 - Classroom			
8	14800-8	146 - classroom			
9	14800-9	142 - Classroom			
10	14800-10	Cafeteria			
11	14800-11	200 - Library			
12	14800-12	201 - Classroom			
13	14800-13	203 - office			
14	14800-14	209 - Classroom			
15	14800-15	208 - Classroom			
16	14800-16	212 - Lounge			

Released by: Channa Bambaradeniya Date: 3/26/2021 Received By: CEP Date: 3/31/21



Company: Global Inc
 Address: 1818 New York Ave NE Suite 217
 Washington DC 20002

N

SHIP: FEDEX - BOX 50
 DATE: 03-31-2021



Job Number: 21-010
 Collector: Channa Bambaradeniya
 Date Collected: 3/26/2021
 Job Name: IAQ Survey -CMIT Academy High School
 (14800 Sweitzer Lane, Laurel, MD 20707)

Mobile: 443-691-0455
 Email: Channab@globalincusa.net
 Note: Page 2

Analysis Type	Analysis Description	Turnaround	Accepted Media Types
Spore Trap	S XX	24 Hour XX	Air Cassettes, Impact Slides
	S+	24 Hour	Air Cassettes, Impact Slides
Direct ID	D	24 Hour	Bio-Tape, Tape, Swab, Bulk, Agar Plate
	D+	24 Hour	Bio-Tape, Tape, Swab, Bulk, Agar Plate
Culture	C1	7 Day	Air Plate, Agar Plate, Swab, Bulk
	C2	4 Day	Air Plate, Agar Plate, Swab, Bulk
	C3	7 Day	Air Plate, Agar Plate, Swab, Bulk
	C5	2 Day	Agar Plate, Swab, Bulk
Particle	TPA	24 Hour	Air Cassettes, Impact Slides, Bio-Tape

#	Number	Sample	Analysis	Volume	Notes
1	14800-17	211 - Classroom	S	75L	
2	14800-18	217 - Classroom	↓	↓	
3	14800-19	221 - Classroom			
4	14800-20	219 - Classroom			
5	14800-21	224 - Classroom			
6	14800-22	234 - Classroom / Asst. principal's			
7	14800-23	233 - Science Lab - Chemistry			
8	14800-24	231 - Science Lab - Biology			
9	14800-25	335 - Science Lab - C			
10	14800-26	333 - Science Lab - Bio			
11	14800-27	326 - Classroom			
12	14800-28	323 - Classroom / Art			
13	14800-29	324 - Classroom			
14	14800-30	320 - Music room			
15	14800-31	338 - Lounge			
16	14800-32	312 - Storage / IT room			

Released by: Channa Bambaradeniya
 Date: 3/26/2021
 Received By: *CBP*
 Date: 3/31/21



Company: Global Inc
 Address: 1818 New York Ave NE Suite 217
 Washington DC 20002

N

SHIP: FEDEX - BOX 50
 DATE: 03-31-2021



Job Number: 21-010
 Collector: Channa Bambaradeniya
 Date Collected: 3/26/2021
 Job Name: IAQ Survey -CMIT Academy High School
 (14800 Sweitzer Lane, Laurel, MD 20707)

Mobile: 443-691-0455
 Email: Channab@globalincusa.net
 Note: Page 2

Analysis Type	Analysis Description	Turnaround	Accepted Media Types
Spore Trap	S XX	24 Hour XX	Air Cassettes, Impact Slides
	S+	24 Hour	Air Cassettes, Impact Slides
Direct ID	D	24 Hour	Bio-Tape, Tape, Swab, Bulk, Agar Plate
	D+	24 Hour	Bio-Tape, Tape, Swab, Bulk, Agar Plate
Culture	C1	7 Day	Air Plate, Agar Plate, Swab, Bulk
	C2	4 Day	Air Plate, Agar Plate, Swab, Bulk
	C3	7 Day	Air Plate, Agar Plate, Swab, Bulk
	C5	2 Day	Agar Plate, Swab, Bulk
Particle	TPA	24 Hour	Air Cassettes, Impact Slides, Bio-Tape

#	Number	Sample	Analysis	Volume	Notes
1	14800-33	306 - Counselor office	S	75L	
2	14800-34	303 - Game room	↓	↓	
3	14800-35	302 - Storage room	↓	↓	
4	FB	Field blank	↓	↓	
5					
6	Sw-1	146 - classroom	D		
7	Sw-2	212 - Lounge	D		
8	Sw-3	335 - Science lab (chemistry)	D		
9	Sw-4	338 - Lounge	D		
10					
11					
12					
13					
14					
15					
16					

Released by: Channa Bambaradeniya
 Date: 3/26/2021
 Received By: *CDP*
 Date: 3/31/21

Analysis Report prepared for

Global, Inc.

1818 New York Ave.
Suite 217
Washington, DC, 20002

Phone: (443) 691-0455

21-010
IAQ Survey - CMIT Academy High School
14800 Sweitzer Lane
Laurel, MD 20707

Collected: **March 26, 2021**
Received: **March 31, 2021**
Reported: **March 31, 2021**

We would like to thank you for trusting Hayes Microbial for your analytical needs!
We received 40 samples by FedEx in good condition for this project on March 31st, 2021.

The results in this analysis pertain only to this job, collected on the stated date, and should not be used in the interpretation of any other job. This report may not be duplicated, except in full, without the written consent of Hayes Microbial Consulting, LLC..

This laboratory bears no responsibility for sample collection activities, analytical method limitations, or your use of the test results. Interpretation and use of test results are your responsibility. Any reference to health effects or interpretation of mold levels is strictly the opinion of Hayes Microbial. In no event, shall Hayes Microbial or any of its employees be liable for lost profits or any special, incidental or consequential damages arising out of the use of these test results.



Steve Hayes, BSMT(ASCP)
Laboratory Director
Hayes Microbial Consulting, LLC.



EPA Laboratory ID: VA01419



Lab ID: #188863



DPH License: #PH-0198

Sample Number	1 14800-1			2 14800-2			3 14800-3			4 14800-4		
Sample Name	Ambient			104 - Office			Gymnasium			122 - Principal's Office		
Sample Volume	75.00 liter											
Reporting Limit	13 spores/m ³											
Background	2			2			2			2		
Fragments	ND			ND			ND			ND		
Organism	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total
Alternaria												
Ascospores	672	8960	76.6%	3	40	75.0%	2	27	100.0%	2	27	100.0%
Aspergillus Penicillium	3	40	<1%									
Basidiospores	160	2133	18.2%	1	13	25.0%						
Bipolaris Drechslera												
Chaetomium												
Cladosporium	40	533	4.6%									
Curvularia												
Epicoccum	1	13	<1%									
Fusarium												
Memnoniella												
Myxomycetes	1	13	<1%									
Pithomyces												
Stachybotrys												
Stemphylium												
Torula												
Ulocladium												
Total	877	11692	100%	4	53	100%	2	27	100%	2	27	100%

Water Damage Indicator	Common Allergen	Slightly Higher than Baseline	Significantly Higher than Baseline	Ratio Abnormality
------------------------	-----------------	-------------------------------	------------------------------------	-------------------

Collected: Mar 26, 2021

Received: Mar 31, 2021

Reported: Mar 31, 2021



Project Analyst:
Ramesh Poluri, PhD

P. Ramesh

Date:
03 - 31 - 2021

Reviewed By:
Steve Hayes, BSMT

Stephen N. Hayes

Date:
03 - 31 - 2021

Sample Number	5 14800-5			6 14800-6			7 14800-7			8 14800-8		
Sample Name	126 - Conference Room			137 - Classroom			140 - Classroom			146 - Classroom		
Sample Volume	75.00 liter											
Reporting Limit	13 spores/m ³											
Background	2			2			2			2		
Fragments	ND			ND			ND			ND		
Organism	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total
Alternaria												
Ascospores	1	13	33.3%	1	13	100.0%	2	27	66.7%	1	13	100.0%
Aspergillus Penicillium												
Basidiospores	1	13	33.3%				1	13	33.3%			
Bipolaris Drechslera												
Chaetomium												
Cladosporium												
Curvularia												
Epicoccum												
Fusarium												
Memnoniella												
Myxomycetes	1	13	33.3%									
Pithomyces												
Stachybotrys												
Stemphylium												
Torula												
Ulocladium												
Total	3	39	100%	1	13	100%	3	40	100%	1	13	100%

Water Damage Indicator	Common Allergen	Slightly Higher than Baseline	Significantly Higher than Baseline	Ratio Abnormality
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Collected: Mar 26, 2021

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Project Analyst:
Ramesh Poluri, PhD

P. Ramesh

Date:
03 - 31 - 2021

Reviewed By:
Steve Hayes, BSMT

Stephen N. Hayes

Date:
03 - 31 - 2021

Sample Number	9 14800-9			10 14800-10			11 14800-11			12 14800-12		
Sample Name	142 - Classroom			Cafeteria			200 - Library			201 - Classroom		
Sample Volume	75.00 liter											
Reporting Limit	13 spores/m ³											
Background	2			2			2			2		
Fragments	ND			ND			ND			ND		
Organism	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total
Alternaria												
Ascospores	3	40	100.0%	1	13	50.0%	1	13	100.0%	2	27	66.7%
Aspergillus Penicillium												
Basidiospores										1	13	33.3%
Bipolaris Drechslera												
Chaetomium												
Cladosporium												
Curvularia												
Epicoccum												
Fusarium												
Memnoniella												
Myxomycetes				1	13	50.0%						
Pithomyces												
Stachybotrys												
Stemphylium												
Torula												
Ulocladium												
Total	3	40	100%	2	26	100%	1	13	100%	3	40	100%

Water Damage Indicator	Common Allergen	Slightly Higher than Baseline	Significantly Higher than Baseline	Ratio Abnormality
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Project Analyst:
Ramesh Poluri, PhD

P. Ramesh

Date:
03 - 31 - 2021

Reviewed By:
Steve Hayes, BSMT

Stephen N. Hayes

Date:
03 - 31 - 2021

Sample Number	13 14800-13			14 14800-14			15 14800-15			16 14800-16		
Sample Name	203 - Office			209 - Classroom			208 - Classroom			212 - Lounge		
Sample Volume	75.00 liter											
Reporting Limit	13 spores/m ³											
Background	2			2			2			2		
Fragments	ND			ND			ND			ND		
Organism	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total
Alternaria												
Ascospores	3	40	75.0%	1	13	100.0%	1	13	50.0%	3	40	75.0%
Aspergillus Penicillium												
Basidiospores	1	13	25.0%				1	13	50.0%	1	13	25.0%
Bipolaris Drechslera												
Chaetomium												
Cladosporium												
Curvularia												
Epicoccum												
Fusarium												
Memnoniella												
Myxomycetes												
Pithomyces												
Stachybotrys												
Stemphylium												
Torula												
Ulocladium												
Total	4	53	100%	1	13	100%	2	26	100%	4	53	100%

Water Damage Indicator	Common Allergen	Slightly Higher than Baseline	Significantly Higher than Baseline	Ratio Abnormality
------------------------	-----------------	-------------------------------	------------------------------------	-------------------

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Reported: Mar 31, 2021



Project Analyst:
Ramesh Poluri, PhD

P. Ramesh

Date:
03 - 31 - 2021

Reviewed By:
Steve Hayes, BSMT

Stephen N. Hayes

Date:
03 - 31 - 2021

Sample Number	17	14800-17		18	14800-18		19	14800-19		20	14800-20	
Sample Name	211 - Classroom			217 - Classroom			221 - Classroom			219 - Classroom		
Sample Volume	75.00 liter											
Reporting Limit	13 spores/m ³											
Background	2			2			2			2		
Fragments	ND			ND			ND			ND		
Organism	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total
Alternaria												
Ascospores	1	13	100.0%	1	13	50.0%	2	27	100.0%	2	27	66.7%
Aspergillus Penicillium												
Basidiospores				1	13	50.0%				1	13	33.3%
Bipolaris Drechslera												
Chaetomium												
Cladosporium												
Curvularia												
Epicoccum												
Fusarium												
Memnoniella												
Myxomycetes												
Pithomyces												
Stachybotrys												
Stemphylium												
Torula												
Ulocladium												
Total	1	13	100%	2	26	100%	2	27	100%	3	40	100%

Water Damage Indicator	Common Allergen	Slightly Higher than Baseline	Significantly Higher than Baseline	Ratio Abnormality
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Project Analyst:
Ramesh Poluri, PhD

P. Ramesh

Date:
03 - 31 - 2021

Reviewed By:
Steve Hayes, BSMT

Stephen N. Hayes

Date:
03 - 31 - 2021

Sample Number	21	14800-21		22	14800-22		23	14800-23		24	14800-24	
Sample Name	224 - Classroom			234 - Classroom/Asst. Principal's			233 - Science Lab - Chemistry			231 - Science Lab - Biology		
Sample Volume	75.00 liter			75.00 liter			75.00 liter			75.00 liter		
Reporting Limit	13 spores/m ³			13 spores/m ³			13 spores/m ³			13 spores/m ³		
Background	2			2			1			2		
Fragments	ND			ND			ND			ND		
Organism	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total
Alternaria												
Ascospores	1	13	100.0%	3	40	75.0%	1	13	100.0%	1	13	50.0%
Aspergillus Penicillium												
Basidiospores				1	13	25.0%				1	13	50.0%
Bipolaris Drechslera												
Chaetomium												
Cladosporium												
Curvularia												
Epicoccum												
Fusarium												
Memnoniella												
Myxomycetes												
Pithomyces												
Stachybotrys												
Stemphylium												
Torula												
Ulocladium												
Total	1	13	100%	4	53	100%	1	13	100%	2	26	100%

Water Damage Indicator	Common Allergen	Slightly Higher than Baseline	Significantly Higher than Baseline	Ratio Abnormality
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Collected: **Mar 26, 2021**

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Project Analyst:
Ramesh Poluri, PhD

P. Ramesh

Date:
03 - 31 - 2021

Reviewed By:
Steve Hayes, BSMT

Stephen N. Hayes

Date:
03 - 31 - 2021

Sample Number	25 14800-25			26 14800-26			27 14800-27			28 14800-28		
Sample Name	335 - Science Lab - C			333 - Science Lab - Bio			326 - Classroom			323 - Classroom/Art		
Sample Volume	75.00 liter											
Reporting Limit	13 spores/m ³											
Background	2			2			2			2		
Fragments	ND			ND			ND			ND		
Organism	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total
Alternaria												
Ascospores	2	27	100.0%	2	27	50.0%	3	40	75.0%	1	13	100.0%
Aspergillus Penicillium												
Basidiospores				1	13	25.0%	1	13	25.0%			
Bipolaris Drechslera												
Chaetomium												
Cladosporium				1	13	25.0%						
Curvularia												
Epicoccum												
Fusarium												
Memnoniella												
Myxomycetes												
Pithomyces												
Stachybotrys												
Stemphylium												
Torula												
Ulocladium												
Total	2	27	100%	4	53	100%	4	53	100%	1	13	100%

Water Damage Indicator	Common Allergen	Slightly Higher than Baseline	Significantly Higher than Baseline	Ratio Abnormality
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Date:
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Sample Number	29 14800-29			30 14800-30			31 14800-31			32 14800-32		
Sample Name	324 - Classroom			320 - Music Room			338 - Lounge			312 - Storage/IT Room		
Sample Volume	75.00 liter											
Reporting Limit	13 spores/m ³											
Background	2			2			2			2		
Fragments	ND			ND			ND			ND		
Organism	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total
Alternaria												
Ascospores	4	53	80.0%	1	13	100.0%	2	27	66.7%			
Aspergillus Penicillium												
Basidiospores	1	13	20.0%				1	13	33.3%	1	13	100.0%
Bipolaris Drechslera												
Chaetomium												
Cladosporium												
Curvularia												
Epicoccum												
Fusarium												
Memnoniella												
Myxomycetes												
Pithomyces												
Stachybotrys												
Stemphylium												
Torula												
Ulocladium												
Total	5	66	100%	1	13	100%	3	40	100%	1	13	100%

Water Damage Indicator Common Allergen Slightly Higher than Baseline Significantly Higher than Baseline Ratio Abnormality



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Date:
03 - 31 - 2021

Sample Number	33	14800-33		34	14800-34		35	14800-35		36	FB	
Sample Name	306 - Counselor Office			303 - Game Room			302 - Storage Room			Field Blank		
Sample Volume	75.00 liter			75.00 liter			75.00 liter			0.00 liter		
Reporting Limit	13 spores/m ³			13 spores/m ³			13 spores/m ³			1 spore/m ³		
Background	2			2			2			NBD		
Fragments	ND			ND			ND			ND		
Organism	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total
Alternaria												
Ascospores	3	40	100.0%	1	13	50.0%	1	13	100.0%			
Aspergillus Penicillium												
Basidiospores												
Bipolaris Drechslera												
Chaetomium												
Cladosporium				1	13	50.0%						
Curvularia												
Epicoccum												
Fusarium												
Memnoniella												
Myxomycetes												
Pithomyces												
Stachybotrys												
Stemphylium												
Torula												
Ulocladium												
Total	3	40	100%	2	26	100%	1	13	100%	ND	ND	

Water Damage Indicator Common Allergen Slightly Higher than Baseline Significantly Higher than Baseline Ratio Abnormality



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Project Analyst: Ramesh Poluri, PhD *P. Ramesh* Date: **03 - 31 - 2021** Reviewed By: Steve Hayes, BSMT *Stephen N. Hayes* Date: **03 - 31 - 2021**

#	Swab (1.00 cm2)	Organism	Spore Estimate	Mycelial Estimate
#37	SW-1 - 146 - Classroom	No Fungi Detected		
#38	SW-2 - 212 - Lounge	Aspergillus Penicillium	Moderate	Trace
#39	SW-3 - 335 - Science Lab (Chemistry)	Cladosporium	Light	Few
#40	SW-4 - 338 - Lounge	Cladosporium	Light	Trace



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Reporting Limit	The Reporting Limit is the lowest number of spores that can be detected based on the total volume of the sample collected and the percentage of the slide that is counted. At Hayes Microbial, 100% of the slide is read so the LOD is based solely on the total volume. Raw spore counts that exceed 500 spores will be estimated.										
Blanks	Results have not been corrected for field or laboratory blanks.										
Background	<p>The Background is the amount of debris that is present in the sample. This debris consists of skin cells, dirt, dust, pollen, drywall dust and other organic and non-organic matter. As the background density increases, the likelihood of spores, especially small spores such as those of <i>Aspergillus</i> and <i>Penicillium</i> may be obscured. The background is rated on a scale of 1 to 5 and each level is determined as follows:</p> <p>NBD: No background detected due to possible pump or cassette malfunction. Recollect sample. (Field Blanks will display NBD)</p> <p>1 : <5% of field occluded. No spores will be uncountable.</p> <p>2 : 5-25% of field occluded.</p> <p>3 : 25-75% of field occluded.</p> <p>4 : 75-90% of field occluded.</p> <p>5 : >90% of field occluded. Suggested recollection of sample.</p>										
Fragments	Fragments are small pieces of fungal mycelium or spores. They are not identifiable as to type and when present in very large numbers, may indicate the presence of mold amplification.										
Control Comparisons	There are no national standards for the numbers of fungal spores that may be present in the indoor environment. As a general rule and guideline that is widely accepted in the indoor air quality field, the numbers and types of spores that are present in the indoor environment should not exceed those that are present outdoors at any given time. There will always be some mold spores present in "normal" indoor environments. The purpose of sampling and counting spores is to help determine whether an abnormal condition exists within the indoor environment and if it does, to help pinpoint the area of contamination. Spore counts should not be used as the sole determining factor of mold contamination. There are many factors that can cause anomalies in the comparison of indoor and outdoor samples due to the dynamic nature of both of those environments.										
<table border="1"> <tr> <td style="background-color: #ADD8E6;">Water Damage Indicator</td> <td>Blue: These molds are commonly seen in conditions of prolonged water intrusion and usually indicate a problem.</td> </tr> <tr> <td style="background-color: #90EE90;">Common Allergen</td> <td>Green: Although all molds are potential allergens, these are the most common allergens that may be found indoors.</td> </tr> <tr> <td style="background-color: #FFDAB9;">Slightly Higher than Baseline</td> <td>Orange: The spore count is slightly higher than the outside count and may or may not indicate a source of contamination.</td> </tr> <tr> <td style="background-color: #FFB6C1;">Significantly Higher than Baseline</td> <td>Red: The spore count is significantly higher than the baseline count and probably indicates a source of contamination.</td> </tr> <tr> <td style="background-color: #DDA0DD;">Ratio Abnormality</td> <td>Violet: The types of spores found indoors should be similar to the ones that were identified in the baseline sample. Significant increases (more than 25%) in the ratio of a particular spore type may indicate the presence of abnormal levels of mold, even if the total number of spores of that type is lower in the indoor environment than it was outdoors.</td> </tr> </table>	Water Damage Indicator	Blue: These molds are commonly seen in conditions of prolonged water intrusion and usually indicate a problem.	Common Allergen	Green: Although all molds are potential allergens, these are the most common allergens that may be found indoors.	Slightly Higher than Baseline	Orange: The spore count is slightly higher than the outside count and may or may not indicate a source of contamination.	Significantly Higher than Baseline	Red: The spore count is significantly higher than the baseline count and probably indicates a source of contamination.	Ratio Abnormality	Violet: The types of spores found indoors should be similar to the ones that were identified in the baseline sample. Significant increases (more than 25%) in the ratio of a particular spore type may indicate the presence of abnormal levels of mold, even if the total number of spores of that type is lower in the indoor environment than it was outdoors.	
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Color Coding	Fungi that are present in indoor samples at levels lower than 200 per cubic meter are not color coded on the report, unless they are one of the water damage indicators.										

Spore Estimate		Percentages
ND	None Detected	0%
Rare	Less than 10 spores	< 1%
Light	10 - 99 spores	1-10%
Moderate	100 - 999 spores	11-25%
Heavy	1000 - 9999 spores	26-50%
Very Heavy	10000 or greater spores	51-100%

Mycelial Estimate	
ND	None Detected No active growth at site.
Trace	Very small amount of Mycelium Probably no active growth at site.
Few	Some Mycelium Possible active growth at site.
Many	Large amount of Mycelium Probable active growth at site.

Ascospores	Habitat: A large group consisting of more than 3000 species of fungi. Common plant pathogens and outdoor numbers become very high following rain. Most of the genera are indistinguishable by spore trap analysis and are combined on the report.
	Effects: Health affects are poorly studied, but many are likely to be allergenic.

Aspergillus Penicillium	Habitat: The most common fungi isolated from the environment. Very common in soil and on decaying plant material. Are able to grow well indoors on a wide variety of substrates.
	Effects: This group contains common allergens and many can cause hypersensitivity pneumonitis. They may cause extrinsic asthma, and many are opportunistic pathogens. Many species produce mycotoxins which may be associated with disease in humans and other animals. Toxin production is dependent on the species, the food source, competition with other organisms, and other environmental conditions.

Basidiospores	Habitat: A common group of Fungi that includes the mushrooms and bracket fungi. They are saprophytes and plant pathogens. In wet conditions they can cause structural damage to buildings.
	Effects: Common allergens and are also associated with hypersensitivity pneumonitis.

Cladosporium	Habitat: One of the most common genera worldwide. Found in soil and plant debris and on the leaf surfaces of living plants. The outdoor numbers are lower in the winter and often relatively high in the summer, especially in high humidity. The outdoor numbers often spike in the late afternoon and evening. Indoors, it can be found growing on textiles, wood, sheetrock, moist window sills and in HVAC supply ducts.
	Effects: A common allergen, producing more than 10 allergenic antigens and a common cause of hypersensitivity pneumonitis.

Epicoccum	Habitat: It is found in soil and plant litter and is a plant pathogen. It can grow indoors on a variety of substrates, including paper and textiles and is commonly found on wet drywall.
	Effects: It is a common allergen. No cases of infection have been reported in humans.

Myxomycetes	Habitat: Found on decaying plant material and as a plant pathogen.
	Effects: Some allergenic properties reported, but generally pose no health concerns to humans.
