

Discovery Environmental Inspection Report

Project Contact Information

Alex Baylor Environmental Specialists Environmental Safety Office 13306 Old Marlboro Pike Upper Marlboro, MD 20772 301-952-6760 alex.baylor@pgcps.org	John H. Bayne Elementary School 49,779 square feet	Bryan Harrington Certified Indoor Environmentalist Environmental Solutions, Inc. 6114 Drum Point Rd Deale, MD 20751 410-867-6262 Bryan@esi4u.com
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Property Location

7010 Walker Mill Road, Capitol Heights, MD 20743

Date of Inspection 3/11/2019



Prepared By: Bryan Harrington

Certified Indoor Environmentalist (CIE)

Dear Mr. Baylor,

The results of the inspection and testing performed at John H. Bayne Elementary School, which is located at 7010 Walker Mill Road, Capitol Heights, MD 20743, are concluded and the findings are enclosed. I want to thank you for allowing ESI the opportunity to service your indoor environmental needs. Included in this report are the observations, lab results, and recommendation from ESI's 3/11/2019 inspection and testing.

Background Information

The Prince George's County Public School Environmental Team has taken a proactive approach in cleaning the above-mentioned school to ensure there are no health or environmental risks related to microbial hazards. Historically, elevated levels of humidity, condensation from pipes, periodic steam leaks, and outdated HVAC systems may have contributed to water damage ceiling tiles and colonization of mold spores in various areas of the school.

Purpose

ESI was engaged to inspect the school in a random sufficient manner. Classrooms, administration offices and common area building materials and contents, will be visually inspected for water damage and microbial growth.

In each location inspected, the indoor air quality will be tested for elevated levels of carbon monoxide and carbon dioxide, in addition to measuring the relative humidity and temperature. Microbial hazards within the breathable airspace will also be tested.

Based upon the visual assessment, instrument readings and lab results, ESI will determine if additional remediation is required.

Observations and instrument readings

The following table is designed for this project. You will notice either a '**YES**' or 'NO' in the table. '**YES**' indicates water damage and/or suspected microbial growth was detected and 'NO' indicates it was not. If '**YES**' is noted, remediation recommendation will be included for the area inspected. Please note, the cubic feet of air per room is an approximate number.

Location	IAQ Sample #	Swab	R/H	Temp	CO2	CO	Cubic feet of air.	
Room 103	2378162	N/A	17.0	77.9	767	000	9,610	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	HVAC Diffusors	Sinks
1x2'	CMU	1	26	5	14	1	0	1
NO	NO	NO	NO	NO	NO	NO	NO	NO
Observation Notes								
<ul style="list-style-type: none"> • There were no signs of visible mold growth in this location. • The indoor air quality should not pose environmental or exposure risks at these levels. The total spore count was 760 Count/M³ and no elevated levels of Carbon monoxide or Carbon dioxide were detected. 								
Recommendations								
NONE								

Location	IAQ Sample #	Swab	R/H	Temp	CO2	CO	Cubic feet of air.	
Room 108	2378160	N/A	28.9	76.4	728	000	10,370	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	HVAC Diffusors	Sinks
1x2'	CMU	1	1	11	11	1	0	1
NO	NO	NO	NO	NO	NO	NO	NO	NO
Observation Notes								
<ul style="list-style-type: none"> • There were no signs of visible mold growth in this location. • Discolorations on the underside of the rectangular tables was found to be cosmetic damage to the finish. • The indoor air quality should not pose environmental or exposure risks at these levels. The total spore count was 720 Count/M³ and no elevated levels of Carbon monoxide or Carbon dioxide were detected. 								
Recommendations								
NONE								

Location	IAQ Sample #	Swab	R/H	Temp	CO2	CO	Cubic feet of air.	
Room 209	2378163	23.6	24.4	74.8	744	000	9,607.5	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convactor	HVAC Diffusors	Sinks
1x2'	CMU	1	25	2	14	1	0	1
YES	NO	NO	NO	NO	NO	NO	NO	NO
Observation Notes								
<ul style="list-style-type: none"> • There were 8-10 water damaged ceiling tiles in rear left corner of room, along the exterior wall. • The indoor air quality should not pose environmental or exposure risks at these levels. The total spore count was 240 Count/M³ and no elevated levels of Carbon monoxide or Carbon dioxide were detected. 								
Recommendations								
<ul style="list-style-type: none"> • Remove the water damaged ceiling tiles and place in contractor's bag for disposal. Replace ceiling tiles as needed. 								

Location	IAQ Sample #	Swab	R/H	Temp	CO2	CO	Cubic feet of air.	
Room 206	2378161	N/A	19.5	74.6	675	000	9,455	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convactor	HVAC Diffusors	Sinks
1x2'	CMU	1	25	3	11	1	0	1
NO	NO	NO	NO	NO	NO	NO	NO	NO
Observation Notes								
<ul style="list-style-type: none"> • There were no signs of visible mold growth in this location. • The indoor air quality should not pose environmental or exposure risks at these levels. The total spore count was 680 Count/M³ and no elevated levels of Carbon monoxide or Carbon dioxide were detected. 								
Recommendations								
NONE								

Location	IAQ Sample #	Swab	R/H	Temp	CO2	CO	Cubic feet of air.	
Room 201	2378157		21.3	76.2	640	000	9,610	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convectector	HVAC Diffusors	Sinks
1x2'	CMU	1	28	4	15	1	0	1
NO	NO	NO	NO	NO	NO	NO	NO	NO
Observation Notes								
<ul style="list-style-type: none"> • There were no signs of visible mold growth in this location. • The indoor air quality should not pose environmental or exposure risks at these levels. The total spore count was 120 Count/M³ and no elevated levels of Carbon monoxide or Carbon dioxide were detected. 								
Recommendations								
NONE								

Location	IAQ Sample #	Swab	R/H	Temp	CO2	CO	Cubic feet of air.	
Outdoor	2378158	N/A	12.5	59.7	399	000	N/A	
Observation Notes								
<ul style="list-style-type: none"> • The total spore count was 2,520 Count/M³ with the prominent genus being Aspergillus/Penicillium at 2,280 Count/M³. • Carbon monoxide recorded at 000 ppm. • Carbon dioxide recorded at 399 ppm. 								

Interpretation of Lab Results

In the enclosed Air Cassette Analysis report, you will notice Fungal Identification, which is the genera detected in the breathable airspace, both indoors and/or outdoors (control sample). The Raw Count is the actual number of spores counted on the slide, and the Count/M³ are the spores per cubic meter of air. The Other particles are non-living particles such as dander, mycelial fragments, pollens, etc.

In order for humans to be exposed indoors, fungal spores, fragments, or metabolites must be released into the air and inhaled, physically contacted (dermal exposure), or ingested. Whether symptoms develop in people exposed to fungi depends on the nature of the fungal material (e.g., allergenic, toxic, or infectious), the amount of exposure, and the susceptibility of exposed persons.

Susceptibility varies with genetic predisposition (e.g., allergic reactions do not always occur in all individuals), age, state of health, and concurrent exposures.

Air Sampling Lab Results



Name: Environmental Solutions, Inc
 Address: 534-A Deale Road
 Deale, MD 20751
 Phone: 410-867-6262

Project Number: 7010 Walker Mill
 P.O. Number:
 Project Name: John Bayne Elementary School
 Collected Date: 3/11/2019
 Received Date: 3/12/2019 10:10:00 AM

SanAir ID Number
19011189
 FINAL REPORT
 3/14/2019 3:10:30 PM

Analyst: Smith, Kiersten

Air Cassette Analysis

ND - None Detected. Blank spaces indicate no spores detected.

SanAir ID Number	19011189-001			19011189-002			19011189-003			19011189-004		
Analysis Using STL	107C			107C			107C			107C		
Sample Number	2378162			2378160			2378163			2378161		
Sample Identification	Room 103			Room 108			Room 209			Room 206		
Sample Type	Air Cassette - Micro-5			Air Cassette - Micro-5			Air Cassette - Micro-5			Air Cassette - Micro-5		
Volume	25 Liters			25 Liters			25 Liters			25 Liters		
Analytical Sensitivity	40 Count/M ³			40 Count/M ³			40 Count/M ³			40 Count/M ³		
Background Density	2			2+			1+			2+		
Other	Raw Count	Count/M ³	%	Raw Count	Count/M ³	%	Raw Count	Count/M ³	%	Raw Count	Count/M ³	%
Dander	57	2280	n/a	206	8240	n/a	42	1680	n/a	146	5840	n/a
Fibers	2	80	n/a	3	120	n/a	2	80	n/a	4	160	n/a
Pollen												
Fungal Identification	Raw Count	Count/M ³	%	Raw Count	Count/M ³	%	Raw Count	Count/M ³	%	Raw Count	Count/M ³	%
Ascospores										1	40	6
Aspergillus/Penicillium	5	200	26	7	280	39	3	120	50	4	160	24
Basidiospores	4	160	21	6	240	33	3	120	50	9	360	53
Cladosporium species	10	400	53	3	120	17				3	120	18
Smuts/Myxomycetes				2	80	11						
TOTAL	19	760		18	720		6	240		17	680	

Signature:

K. Smith

Date: 3/14/2019

Reviewed:

Johnathan Wilson

Date: 3/14/2019



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Analyst: Smith, Kiersten

Air Cassette Analysis

ND - None Detected. Blank spaces indicate no spores detected.

SanAir ID Number	19011189-005			19011189-006		
Analysis Using STL	107C			107C		
Sample Number	2378157			2378158		
Sample Identification	Room 201			Outdoors		
Sample Type	Air Cassette - Micro-5			Air Cassette - Micro-5		
Volume	25 Liters			25 Liters		
Analytical Sensitivity	40 Count/M ³			40 Count/M ³		
Background Density	1+			1+		
Other	Raw Count	Count/M³	%	Raw Count	Count/M³	%
Dander	16	640	n/a	6	240	n/a
Fibers				4	160	n/a
Pollen				4	160	n/a
Fungal Identification	Raw Count	Count/M³	%	Raw Count	Count/M³	%
Ascospores				1	40	2
Aspergillus/Penicillium	2	80	67	57	2280	90
Basidiospores	1	40	33	3	120	5
Cladosporium species				2	80	3
Smuts/Myxomycetes						
TOTAL	3	120		63	2520	

Signature:

K. Smith

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Organism Descriptions

The descriptions of the organisms presented are derived from various reference materials. The laboratory report is based on the data derived from the samples submitted and no interpretation of the data, as to potential, or actual, health effects resulting from exposure to the numbers of organisms found, can be made by laboratory personnel. Any interpretation of the potential health effects of the presence of this organism must be made by qualified professional personnel with first hand knowledge of the sample site, and the problems associated with that site.

Dander - Comprised of human and/or animal skin cells. Counts may be higher in carpeted rooms and in rooms with more traffic.
Health Effects: May cause allergies.

Fibers - This category can include clothing, carpet, and insulation fibers.

Pollen - Produced by trees, flowers, weeds and grasses. The level of pollen production can depend on water availability, precipitation, temperature, and light. Pollen is usually dispersed by either insects or the wind.
Health Effects: Mostly effects the respiratory tract with hay fever symptoms but has also been shown to trigger asthma in some people.

Ascospores - From the fungal Subphylum Ascomycotina. Ascospores are ubiquitous in nature and are commonly found in the outdoor environment. This class contains the "sac fungi" and yeasts. Some ascospores can be identified by spore morphology, however; some care should be exercised with regard to specific identification. They are identified on tape lifts and non-viable analysis by the fact that they have no attachment scars and are sometimes enclosed in sheaths with or without sacs. Ascomycetes may develop both sexual and asexual stages. Rain and high humidity may help asci to release, and disperse ascospores, which is why during these weather conditions there is a great increase in counts.
Health Effects: This group contains possible allergens.

Aspergillus/Penicillium - These spores are easily aerosolized. Only through the visualization of reproductive structures can the genera be distinguished. Also included in this group are the spores of the genera Acremonium, Phialophora, Verticillium, Paecilomyces, etc. Small, round spores of this group lack the necessary distinguishing characteristics when seen on non-viable examination.
Health Effects: Can cause a variety of symptoms including allergic reactions. Most symptoms occur if the individual is immunocompromised in some way (HIV, cancer, etc). Both Penicillium and Aspergillus spores share similar morphology on non-viable analysis and therefore are lumped together into the same group.

Basidiospores - From the Subphylum Basidiomycotina which contains the mushrooms, shelf fungi, and a variety of other macrofungi. They are saprophytes, ectomycorrhizal fungi or agents of wood rot, which may destroy the structure wood of buildings. It is extremely difficult to identify a specific genera of mushrooms by using standard culture plate techniques. Some basidiomycete spores can be identified by spore morphology; however, some care should be exercised with regard to specific identification. The release of basidiospores is dependant upon moisture, and they are dispersed by wind.
Health Effects: Many have the potential to produce a variety of toxins. Members of this group may trigger Type I and III fungal hypersensitivity reactions. Rarely reported as opportunistic pathogens.



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Cladosporium species - The most commonly identified outdoor fungus. The outdoor numbers are reduced in the winter and are often high in the summer. Often found indoors in numbers less than outdoor numbers. It is commonly found on the surface of fiberglass duct liner in the interior of supply ducts. A wide variety of plants are food sources for this fungus. It is found on dead plants, woody plants, food, straw, soil, paint and textiles. Often found in dirty refrigerators and especially in reservoirs where condensation is collected, on moist window frames it can easily be seen covering the whole painted area with a velvety olive green layer.

Health Effects: It is a common allergen. It can cause mycosis. Common cause of extrinsic asthma (immediate-type hypersensitivity: type I). Acute symptoms include edema and bronchospasms, chronic cases may develop pulmonary emphysema. Illnesses caused by this genus can include phaeohyphomycosis, chromoblastomycosis, hay fever and common allergies.

References: Flannigan, Brian, Robert A. Samson, and J. David Miller, eds. Microorganisms in Home and Indoor Work Environments: Diversity, Health Impacts, Investigation, and Control. London and New York: Taylor & Francis, 2001.

Smuts/Myxomycetes - Smuts and Myxomycetes are parasitic plant pathogens. They are typically grouped together due to their association with plants, the outdoors and because they share similar microscopic morphology.

Health Effects: Can produce type I fungal hypersensitivity reactions.

References: Martin, G.W., C.J. Alexopoulos, and M.L. Farr. The Genera of Myxomycetes. Iowa City, Iowa: University of Iowa Press, 1983.

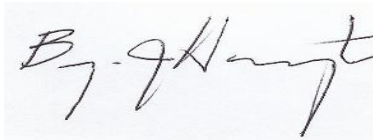
Conclusions/Recommendations

The inspected locations were free of any visible mold growth or heavy accumulations of dust/debris. No elevated levels of airborne mold spores, Carbon monoxide, or Carbon dioxide were detected in the inspected rooms.

The water damaged ceiling tiles in Room 209 should be properly removed and discarded. After which, new ceiling tiles can be installed as needed.

I hope you found our service beneficial. If you have any questions or concerns, please feel free to contact me at 410-867-6262.

Respectfully,



Bryan Harrington (CIE)
Environmental Solutions, Inc.



Industry References

Since the 1993 New York City Department of Health (NYCDOH) document (Assessment and remediation of *Stachybotrys Atra* in Indoor Environments) was produced, several other guidance documents have been written. This report was developed in accordance with and including:

- *Fungal Contamination in Buildings: A Guide to Recognition and Management* (Health Canada, 1995).
- *Control of Moisture Problems Affecting Biological Indoor Air Quality* (Flannigan and Morey, 1996).
- *Bioaerosols: Assessment and Control* (American Conference of Government Industrial Hygienists [ACGIH], 1999).
- *Guidelines on Assessment and Remediation of Fungi in Indoor Environments* (NYCDOH, 2000).
[external link]
- *Mold Remediation in Schools and Commercial Buildings* (U.S. EPA, 2001).
- *Report of the Microbial Growth Task Force* (The American Industrial Hygiene Association, 2001).
- *Fungal Contamination: A manual for investigation, remediation and control (BECi) 2005.*
- *29 CFR 1910, Occupational Safety and Health Standards for General Industry, U.S. Department of Labor*
- Institute of Inspection, Cleaning and Restoration Certification Standard IICRC S520 *29 CFR 1926, Occupational Safety and Health Standards for the Construction Industry, U.S. Department of Labor*
- *40 CFR 61, National Emission Standards for Hazardous Air Pollutants (NESHAP), U.S. Environmental Protection Agency*
- *ACR 2006, Assessment, Cleaning and Restoration of HVAC Systems, National Air Duct Cleaners Association, 2006**
- *ASHRAE Standards 62.1 or 62.2*
- *ASTM D-1653, Standard Test Methods for Water Vapor Transmission of Organic Coating Films*
- *Bioaerosols: Assessment and Control, American Conference of Governmental Industrial Hygienists, 1999*
- *Field Guide for Determination of Biological Contaminants in Environmental Samples, American Industrial Hygiene Association, 2005*
- *A Guide for Mold Remediation in Schools and Commercial Buildings, US Environmental Protection Agency, 2001 Protecting the Built Environment: Cleaning for Health, Michael A. Berry Ph.D., 1993*
- *IICRC S100 Standard and Reference Guide for Professional Carpet Cleaning, Fourth Edition, Institute of Inspection, Cleaning and Restoration Certification, (S100)**
- *IICRC S300 Standard and Reference Guide for Professional Upholstery Cleaning, First Edition, Institute of Inspection, Cleaning and Restoration Certification, (S300)**
- *ANSI/IICRC S500 Standard and Reference Guide for Professional Water Damage Restoration, Third Edition, Institute of Inspection, Cleaning and Restoration Certification, (S500)**