

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	Greenbelt Elementary School 67,500Ft ²	Vinny Gigliotti Certified Indoor Environmentalist Environmental Solutions, Inc. 6114 Drum Point Rd Deale, MD 20751 410-867-6262 Vinny@esi4u.com
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Property Location

66 Ridge Road, Greenbelt, MD 20770

Date of Inspection: 3/6/2019



Prepared By: Vinny Gigliotti and Ryan Fitzgerald

Certified Indoor Environmentalist (CIE)

Dear Mr. Baylor,

The results of the inspection and testing performed at Greenbelt Elementary School 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 3/6/2019 inspection and testing.

Background Information

The Prince Georges 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 and biological 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 Historically elevated levels of humidity, condensation from pipes, periodic steam leaks and outdated HVAC systems, may have contributed to water damage ceiling tiles and colonization of mold spores in various area of the school.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 dioxide and carbon monoxide, in addition to measuring the relative humidity and temperature. Microbial / biological hazards within the breathable air space 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. Some of the fields may not be filled in due to not being applicable during the time of the inspection. You will notice either a 'YES' or 'NO' in the table. 'YES' indicates that mold and /or water damage was detected and 'NO' indicates it was not. If 'YES' is noted, remediation recommendation will be included for the area inspected. Please note that the cubic feet of air in the rooms inspected is an approximate number.

Location	IAQ Sample #	Swab	R/H	Temp	CO2	Co	Cubic feet of air.	
Health Room	2377984	N/A	11.1	67.2	1,941	000	2,905	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	HVAC Diffusors	Windows
2x4	CMU	1	0	2	4	0	1	0
Yes	No	No	N/A	No	No	N/A	No	N/A
Observation Notes								
<ul style="list-style-type: none"> • One ceiling tile was water stained. • The ceiling tiles were sagging. • The Carbon Dioxide CO2 level in this room was elevated at 1,941 ppm. The CO2 level may have been increased due to the room being occupied. • The total spore count was 80 Count/M³ and should not pose environmental or exposure risks at these levels. 								
Recommendations								
<ul style="list-style-type: none"> • Remove and replace the water damaged ceiling tile. The contaminated ceiling tile should be placed in a sealed plastic bag for disposal. • To reduce Carbon dioxide (CO2) levels, increase air exchange within this room. Ventilating or circulating the air with a fan will also reduce Carbon dioxide (CO2) levels. • Monitor the relative humidity during warm/humid summer months to prevent the ceiling tiles from sagging. 								

Location	IAQ Sample #	Swab	R/H	Temp	CO2	Co	Cubic feet of air.	
Room #3	2377969	N/A	14.8	71.6	1,929	000	8,370	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	HVAC Diffusors	Windows
2x4	CMU	2	27	3	4	2	1	8
No	No	No	No	No	No	No	No	No
Inspected								
<ul style="list-style-type: none"> • There were no signs of visible mold growth or elevated levels of moisture detected within this location. • The Carbon Dioxide CO2 level in this room was elevated at 1,929 ppm. The CO2 level may have been increased due to the room being occupied. • The total spore count was 400 Count/M³ and should not pose environmental or exposure risks at these levels. 								
Recommendations								
<ul style="list-style-type: none"> • To reduce Carbon dioxide (CO2) levels, increase air exchange within this room. Ventilating or circulating the air with a fan will also reduce Carbon dioxide (CO2) levels. 								

Location	IAQ Sample #	Swab	R/H	Temp	CO2	Co	Cubic feet of air.	
Room #11	2377203	N/A	7.4	63.6	1,875	000	8,650	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convactor	HVAC Diffusors	Windows
2x4	CMU	0	35	6	4	2	1	8
No	No	N/A	No	No	No	No	No	No
Observation Notes								
<ul style="list-style-type: none"> The ceiling tiles were slightly sagging. The Carbon Dioxide CO2 level in this room was elevated at 1,875 ppm. The indoor air quality had slightly elevated levels of Aspergillus/Penicillium at 920 spores per cubic meter of air. 								
Recommendations								
<ul style="list-style-type: none"> Engage HEPA filtered air scrubber in this location for approximately 4-6 hours. Damp wipe all horizontal surfaces with an antimicrobial, then fog the breathable air space. To reduce Carbon dioxide (CO2) levels, increase air exchange within this room. Ventilating or circulating the air with a fan will also reduce Carbon dioxide (CO2) levels. Monitor the relative humidity during warm/humid summer months to prevent the ceiling tiles from sagging. 								

Location	IAQ Sample #	Swab	R/H	Temp	CO2	Co	Cubic feet of air.	
Art Room #14	2377208	N/A	7.8	72.5	603	000	9,720	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convactor	HVAC Diffusors	Windows
2x4	CMU	1	0	11	6	2	2	6
No	No	No	N/A	No	No	No	No	No
Observation Notes								
<ul style="list-style-type: none"> Light rust was seen on the diffusors. There were no signs of visible mold growth detected within this location. 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								
None								

Location	IAQ Sample #	Swab	R/H	Temp	CO2	Co	Cubic feet of air.	
Room #18	2377213	N/A	9.4	69.8	452	000	9,720	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	HVAC Diffusors	Windows
2x4	CMU	1	0	9	4	2	1	6
Yes	No	No	No	No	No	No	No	No
Observation Notes								
<ul style="list-style-type: none"> Four ceiling tiles were water stained. Rust was seen on the convectors. The indoor air quality should not pose environmental or exposure risks at these levels. The total spore count was 360 Count/M³ and no elevated levels of Carbon monoxide or Carbon dioxide were detected. 								
Recommendations								
<ul style="list-style-type: none"> Remove and replace the water damaged ceiling tiles. The contaminated ceiling tiles should be placed in a sealed plastic bag for disposal. 								

Location	IAQ Sample #	Swab	R/H	Temp	CO2	Co	Cubic feet of air.	
Room #21	2377198	N/A	8.5	64.4	395	000	9,720	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	HVAC Diffusors	Windows
2x4	CMU	1	0	8	4	2	1	6
No	No	No	N/A	No	No	No	No	No
Observation Notes								
<ul style="list-style-type: none"> There were accumulations of dust on the chair legs. There were no signs of visible mold growth or elevated levels of moisture detected within this location. The indoor air quality should not pose environmental or exposure risks at these levels. The total spore count was 1,040 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 #26	2377193	N/A	6.8	70.5	616	000	8,650	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	HVAC Diffusors	Windows
2x4	CMU	1	26	3	3	2	1	8
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 or elevated levels of moisture detected within this location. • The indoor air quality should not pose environmental or exposure risks at these levels. The total spore count was 280 Count/M³ and no elevated levels of Carbon monoxide or Carbon dioxide were detected. 								
Recommendations								
None								

Interpretation of Lab Results

In the enclosed Air Cassette Analysis report, you will notice Fungal Identification, which is the species detected in the breathable airspace inside, and outside. 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: 66 Ridge Rd
P.O. Number:
Project Name: Greenbelt Elementary
Collected Date: 3/6/2019
Received Date: 3/7/2019 9:25:00 AM

SanAir ID Number
19010457
FINAL REPORT
 3/7/2019 5:21:24 PM

Analyst: Shepperson, Josh

Air Cassette Analysis

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

SanAir ID Number	19010457-001			19010457-002			19010457-003			19010457-004		
Analysis Using STL	107C			107C			107C			107C		
Sample Number	2377212			2377984			2377969			2377203		
Sample Identification	Outdoors			Health Room			Classroom #3			Classroom #11		
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	1+			2			2			1+		
Other	Raw Count	Count/M ³	%	Raw Count	Count/M ³	%	Raw Count	Count/M ³	%	Raw Count	Count/M ³	%
Dander				32	1280	n/a	50	2000	n/a	12	480	n/a
Fibers				4	160	n/a	10	400	n/a			
Fungal Identification	Raw Count	Count/M ³	%	Raw Count	Count/M ³	%	Raw Count	Count/M ³	%	Raw Count	Count/M ³	%
Aspergillus/Penicillium				1	40	50	8	320	80	23	920	88
Basidiospores	1	40	33	1	40	50				1	40	4
Cladosporium species	2	80	67				2	80	20	2	80	8
TOTAL	3	120		2	80		10	400		26	1040	

Signature:

Date: 3/7/2019

Reviewed:

Date: 3/7/2019



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Analyst: Shepperson, Josh

Air Cassette Analysis

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

SanAir ID Number	19010457-005			19010457-006			19010457-007			19010457-008		
Analysis Using STL	107C			107C			107C			107C		
Sample Number	2377208			2377213			2377198			2377193		
Sample Identification	Art Room #14			Classroom #18			Classroom #21			Classroom #26		
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	1+			1+			2			2		
Other	Raw Count	Count/M³	%	Raw Count	Count/M³	%	Raw Count	Count/M³	%	Raw Count	Count/M³	%
Dander	14	560	n/a	13	520	n/a	12	480	n/a	33	1320	n/a
Fibers	1	40	n/a	1	40	n/a	1	40	n/a	1	40	n/a
Fungal Identification	Raw Count	Count/M³	%	Raw Count	Count/M³	%	Raw Count	Count/M³	%	Raw Count	Count/M³	%
Aspergillus/Penicillium	5	200	83	9	360	>99	18	720	69	5	200	71
Basidiospores							3	120	12	1	40	14
Cladosporium species	1	40	17				5	200	19	1	40	14
TOTAL	6	240		9	360		26	1040		7	280	

Signature:

Date: 3/7/2019

Reviewed:

Date: 3/7/2019



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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.

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.

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 phaeoohyphomycosis, 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.

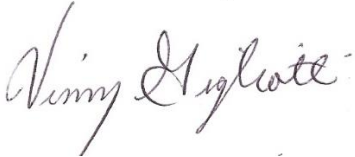
Conclusions/Recommendations

The school was relatively clean during the inspection. Only a few rooms had water stained ceiling tiles. However, elevated carbon dioxide was detected in several rooms which may have been due to the rooms being occupied. The carbon dioxide should be monitored, and the recommendations should be followed as needed. Of the inspected rooms, only Classroom 11 contained slightly elevated airborne mold spores. Cleaning recommendations are listed above.

The samples for the other rooms tested in this report do not indicate the presence of elevated airborne mold spores and should not pose health or environmental risks. Please refer to the attached lab results for identification and spore count per location.

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,



Vinny Gigliotti (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)**