

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	Robert Frost Elementary School 48,852 Ft ²	Zack Butcher Certified Indoor Environmentalist Environmental Solutions, Inc. 6114 Drum Point Rd Deale, MD 20751 410-867-6262 Zack@esi4u.com
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Property Location

6419 85th Avenue, New Carrollton, MD 20784

Date of Inspection: 3/19/2019



Prepared By: Zack Butcher

Certified Indoor Environmentalist (CIE)

Dear Mr. Baylor,

The results of the inspection and testing performed at Robert Frost 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 recommendations from ESI's 03/19/2019 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 Historically elevated levels of humidity, condensation from pipes, periodic steam leaks and outdated HVAC systems, may have contributed to water damaged ceiling tiles and colonization of mold spores in various area of the school.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.	
003	2376769	N/A	27.6%	62.7°	900	0.00	12,000	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	HVAC Diffusors	Windows/ Doors
2x4	CMU+ VOG	1	24	5	5	N/A	2	3
YES	NO	NO	NO	NO	YES	N/A	NO	NO
Observation Notes								
<ul style="list-style-type: none"> Most of the ceiling tiles were sagging severely. This is most likely due to elevated relative humidity during the warmer months of the year. There were three water stained ceiling tiles. There was an active water leak under the sink as well as water staining in the sink cabinet. The indoor air quality should not pose health or environmental risks, as there were no fungi detected in the breathable air space. 								
Recommendations								
<ul style="list-style-type: none"> Make any necessary repairs to fix the active leak from the sink. HEPA vacuum, then damp-wipe the sink cabinetry with an anti-microbial agent to remove water staining and suspected microbial contamination. Remove, discard, and replace the sagging ceiling tiles. 								

Location	IAQ Sample #	Swab	R/H	Temp	CO2	Co	Cubic feet of air.	
006	2376774	N/A	26.9%	65.3°	1069	0.00	12,000	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	HVAC Diffusors	Windows/ Doors
2x4	CMU+ VOG	1	1	12	6	N/A	2	4
YES	NO	NO	NO	NO	NO	N/A	NO	NO
Inspected								
<ul style="list-style-type: none"> Most of the ceiling tiles were sagging severely. This is most likely due to elevated relative humidity during the warmer months of the year. The Carbon Dioxide (CO2) level in this room was slightly elevated at 1,069 ppm (parts per million). The indoor air quality should not pose health or environmental risks, as the total spore count was 40 spores/M³ of breathable air space. 								
Recommendations								
<ul style="list-style-type: none"> Remove, discard, and replace the sagging ceiling tiles. To reduce Carbon Dioxide (CO2) levels, increase air exchange within this classroom. 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.	
008	2376779	N/A	26.5%	66.9°	1081	0.00	12,000	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	HVAC Diffusors	Windows/ Doors
2x4	CMU+ VOG	1	20	4	6	N/A	3	3
YES	NO	NO	NO	NO	YES	NO	YES	NO
Observation Notes								
<ul style="list-style-type: none"> • The Carbon Dioxide (CO2) level in this room was slightly elevated at 1,081 ppm (parts per million). • There were rust stains on the diffusers. • There was an active water leak under the sink as well as water staining in the sink cabinet. • Most of the ceiling tiles were sagging severely. This is most likely due to elevated relative humidity during the warmer months of the year. There was also a water stained ceiling tile around a diffuser. • The indoor air quality should not pose health or environmental risks, as the total spore count was 40 spores/M³ of breathable air space. 								
Recommendations								
<ul style="list-style-type: none"> • Remove, discard, and replace the sagging ceiling tiles. • To reduce Carbon Dioxide (CO2) levels, increase air exchange within this classroom. Ventilating, or circulating the air with a fan will also reduce Carbon Dioxide (CO2) levels. • Make any necessary repairs to fix the active leak from the sink. • HEPA vacuum, then damp-wipe the sink cabinetry with an anti-microbial agent to remove water staining and suspected microbial contamination. • Clean diffusers with an antimicrobial to remove dust and discolorations. 								

Location	IAQ Sample #	Swab	R/H	Temp	CO2	Co	Cubic feet of air.	
16	2376784	N/A	23.8%	68.7°	974	0.00	9,000	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	HVAC Diffusors	Windows/ Doors
2x4	CMU+ VOG	2	0	4	3	NO	2	3
YES	NO	NO	N/A	NO	YES	N/A	NO	NO
Observation Notes								
<ul style="list-style-type: none"> • Most of the ceiling tiles were sagging severely. This is most likely due to elevated relative humidity during the warmer months of the year. • There was water staining in the sink cabinet. • The indoor air quality should not pose health or environmental risks, as the total spore count was 40 spores/M³ of breathable air space. 								
Recommendations								
<ul style="list-style-type: none"> • HEPA vacuum, then damp-wipe the sink cabinetry with an anti-microbial agent to remove water staining and any suspected microbial contamination. • Ensure there are no active leaks from the sink. • Remove, discard, and replace the sagging ceiling tiles. 								

Location	IAQ Sample #	Swab	R/H	Temp	CO2	Co	Cubic feet of air.	
10	2376789	N/A	19.1%	70.7°	985	0.00	9,000	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	HVAC Diffusors	Windows/ Doors
2x4	CMU+ VOG	1	24	4	4	NO	2	3
YES	NO	NO	NO	NO	YES	N/A	NO	NO
Observation Notes								
<ul style="list-style-type: none"> • There was 1 water stained ceiling tile. • There was evidence of previous moisture activity in the sink cabinet as there were moisture stains inside. • The indoor air quality should not pose health or environmental risks, as there were no fungi detected in the breathable air space. 								
Recommendations								
<ul style="list-style-type: none"> • Remove, discard, and replace the water stained ceiling tile. • HEPA vacuum, then damp-wipe the sink cabinetry with an anti-microbial agent to remove water staining and any suspected microbial contamination. 								

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 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.

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: 6419 85th Avenue
P.O. Number: JZB
Project Name: Robert Frost Elementary School
Collected Date: 3/19/2019
Received Date: 3/20/2019 9:50:00 AM

SanAir ID Number
19012833
 FINAL REPORT
 3/21/2019 4:32:50 PM

Analyst: Acharya, Uttam

Air Cassette Analysis

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

SanAir ID Number	19012833-001			19012833-002			19012833-003			19012833-004		
Analysis Using STL	107C			107C			107C			107C		
Sample Number	2376764			2376765			2376774			2376779		
Sample Identification	Control - Outside			Room 003			Room 006			Room 008		
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+			1+			2		
Other	Raw Count	Count/M³	%	Raw Count	Count/M³	%	Raw Count	Count/M³	%	Raw Count	Count/M³	%
Dander	5	200	n/a	41	1640	n/a	58	2320	n/a	140	5600	n/a
Fibers	ND			1	40	n/a	1	40	n/a	5	200	n/a
Fungal Identification	Raw Count	Count/M³	%	Raw Count	Count/M³	%	Raw Count	Count/M³	%	Raw Count	Count/M³	%
Ascospores	ND			ND			1	40	>99	ND		
Basidiospores	4	160	>99	ND			ND			1	40	>99
TOTAL	4	160		ND	ND		1	40		1	40	

Signature:

Date: 3/21/2019

Reviewed:

Date: 3/21/2019



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Analyst: Acharya, Uttam

Air Cassette Analysis

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

SanAir ID Number	19012833-005			19012833-006		
Analysis Using STL	107C			107C		
Sample Number	2376784			2376789		
Sample Identification	Room 16			Room 10		
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	26	1040	n/a	66	2640	n/a
Fibers	2	80	n/a	ND		
Fungal Identification	Raw Count	Count/M³	%	Raw Count	Count/M³	%
Ascospores	ND			ND		
Basidiospores	1	40	>99	ND		
TOTAL	1	40		ND	ND	

Signature:

Date: 3/21/2019

Reviewed:

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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.

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.

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.

Conclusions/Recommendations

The samples in this report do not indicate elevated airborne mold spores detected in the testing locations.

Although there were no elevated concentrations of airborne mold spores in the breathable air space of the test locations, several rooms still need attention. This is mainly due to sagging or water stained ceiling tiles located throughout the school and slightly elevated levels of CO₂. Please refer to all the recommendations listed above.

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,



Zack Butcher (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)**