ESI Environmental Solutions, Inc.

www.esi4u.com (410)-867-6262

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	Tayac Academy Elementary School 47,858 square feet	Bryan Harrington Certified Indoor Environmentalist Environmental Solutions, Inc. 6114 Drum Point Rd Deale, MD 20751 410-867-6262 Bryan@esi4u.com

Property Location

8600 Allentown Road, Fort Washington, MD 20744

Date of Inspection 3/18/2019

Prepared By: Bryan Harrington

Certified Indoor Environmentalist (CIE)

Dear Mr. Baylor,

The results of the inspection and testing performed at Tayac Academy Elementary School, which is located at 8600 Allentown Road, Fort Washington, MD 20744, 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 3/18/2019 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 Historically elevated levels of humidity, condensation from pipes, periodic steam leaks, and outdated HVAC systems may have contributed to water damaged ceiling tiles and colonization of mold spores in various areas of the school.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/or 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 in 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.

Location	IAQ Sample #	Swab	R/H	Temp	CO2	CO	Cubic feet of air.	
Room #1	2378143	N/A	21.1%	77.5	**1420**	000	8,250	
Inspected								
Ceiling Tiles	Walls	Teacher's Desk	Children's Desk	Tables	Cabinets Shelving	Convector	HVAC Diffusors	Sinks
3×8'	CMU	1	0	7	12	1	0	1
NO	NO	NO	NO	NO	NO	NO	NO	Locked
Observation Notes								
• There were no signs of visible mold growth in this location. • There were amplified levels of Carbon dioxide (1420 ppm) in this location. • The airborne fungal spores (120 Count/M^3) and Carbon monoxide (000 ppm) should not pose environmental or exposure risks at these levels.								
Recommendations								
• Increase air exchanges to reduce Carbon dioxide (CO2) levels within this location.								

Location	IAQ Sample #	Swab	R/H	Temp	CO2	CO	Cubic feet of air.	
Room #24	2378137	N/A	19.6%	71.7	776	000	8,550	
Inspected								
Ceiling Tiles	Walls	Teacher's Desk	Children's Desk	Tables	Cabinets Shelving	Convector	HVAC Diffusors	Sinks
2×4'	CMU and Sheetrock	1	0	2	6	0	4	1
NO	NO	NO	NO	NO	NO	NO	NO	NO
Observation Notes								
• There were no signs of visible mold growth in this location. • The airborne fungal spores (0 Count/M^3), Carbon dioxide (776 ppm) and Carbon monoxide (000 ppm) should not pose environmental or exposure risks at these levels.								
Recommendations								
NONE								

Location	IAQ Sample #	Swab	R/H	Temp	CO2	CO	Cubic feet of air.	
Room C	2378142	N/A	28.1%	71.6	**1501**	000	6,936	
Inspected								
Ceiling Tiles	Walls	Teacher's Desk	Children's Desk	Tables	Cabinets Shelving	Convector	HVAC Diffusors	Sinks
2×4'	CMU	1	31	3	10	0	4	0
NO	NO	NO	NO	NO	NO	NO	NO	NO
Observation Notes								
• There were no signs of visible mold growth in this location. • There were amplified levels of Carbon dioxide (1501 ppm) in this location. • The airborne fungal spores (0 Count/M^3) and Carbon monoxide (000 ppm) should not pose environmental or exposure risks at these levels.								
Recommendations								
• Increase air exchanges to reduce Carbon dioxide (CO2) levels within this location.								

Location	IAQ Sample #	Swab	R/H	Temp	CO2	CO	Cubic feet of air.	
Room #10	2378133	N/A	29.9%	71.0	990	000	11,962.5	
Inspected								
Ceiling Tiles	Walls	Teacher's Desk	Children's Desk	Tables	Cabinets Shelving	Convector	HVAC Diffusors	Sinks
3×8'	CMU	1	12	6	9	1	0	1
NO	NO	NO	NO	NO	NO	NO	NO	**YES**
Observation Notes								
• There were no signs of visible mold growth in this location. • There was pre-existing water damage within the sink cabinet. • The airborne fungal spores (40 Count/M^3), Carbon dioxide (990 ppm) and Carbon monoxide (000 ppm) should not pose environmental or exposure risks at these levels.								
Recommendations								
• Clean/treat the sink cabinet as needed.								

Location	IAQ Sample #	Swab	R/H	Temp	CO2	CO	Cubic feet of air.	
Room #16	2478127	N/A	31.4%	72.6	883	000	8,250	
Inspected								
Ceiling Tiles	Walls	Teacher's Desk	Children's Desk	Tables	Cabinets Shelving	Convector	HVAC Diffusors	Sinks
3×8'	CMU	0	28	3	8	1	0	1
NO	NO	NO	NO	NO	NO	NO	NO	**YES**
Observation Notes								
• There were no signs of visible mold growth in this location. • There was pre-existing water damage within the sink cabinet and on the sink cabinet doors. • The airborne fungal spores (160 Count/M^3), Carbon dioxide (883 ppm) and Carbon monoxide (000 ppm) should not pose environmental or exposure risks at these levels.								
Recommendations								
• Clean/treat the sink cabinet and doors as needed.								

Location	IAQ Sample #	Swab	R/H	Temp	CO2	CO	Cubic feet of air.
Outdoors	2478147	N/A	33.0%	46.3	647	000	N/A
Observation Notes							
• The total spore count was 120 Count/M^3 with the prominent genera being Ascospores, Aspergillus/Penicillium, and Basidiospores at 40 Count/M^3 each. • Carbon monoxide recorded at 000 ppm. • Carbon dioxide recorded at 647 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/M^3 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

SanAir Technologies Laboratory

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

Project Number: 8600 Allentown Road
P.O. Number:
Project Name: TAYAC Academy E.S.
Collected Date: 3/18/2019
Received Date: 3/20/2019 9:50:00 AM

SanAir ID Number
19012846
FINAL REPORT
3/22/2019 9:54:27 AM

Analyst: Acharya, Uttam

Air Cassette Analysis

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

SanAir ID Number	19012846-001			19012846-002			19012846-003			19012846-004		
Analysis Using STL	107C			107C			107C			107C		
Sample Number	2378143			2378137			2378142			2378133		
Sample Identification	Room # 1			Room # 24			Room C			Room #10		
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/M³			40 Count/M³			40 Count/M³			40 Count/M³		
Background Density	2			1+			1+			1+		
Other	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**
Dander	123	4920	n/a	30	1200	n/a	35	1400	n/a	66	2640	n/a
Fibers	4	160	n/a	1	40	n/a	1	40	n/a	4	160	n/a
Fungal Identification	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**
Ascospores										1	40	>99
Aspergillus/Penicillium												
Basidiospores	1	40	33									
Bispora species	1	40	33									
Smuts/Myxomycetes	1	40	33									
TOTAL	**3**	**120**								**1**	**40**	

Signature: Uttam Acharya Date: 3/22/2019 Reviewed: Johnathan Wilson Date: 3/22/2019

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Analyst: Acharya, Uttam

Air Cassette Analysis

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

SanAir ID Number	19012846-005			19012846-006				
Analysis Using STL	107C			107C				
Sample Number	2378127			2378147				
Sample Identification	Room # 16			Outdoors				
Sample Type	Air Cassette - Micro-5			Air Cassette - Micro-5				
Volume	25 Liters			25 Liters				
Analytical Sensitivity	40 Count/M³			40 Count/M³				
Background Density	1+			1+				
Other	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**		
Dander	58	2320	n/a	6	240	n/a		
Fibers	1	40	n/a					
Fungal Identification	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**		
Ascospores				1	40	33		
Aspergillus/Penicillium	4	160	>99	1	40	33		
Basidiospores				1	40	33		
Bispora species								
Smuts/Myxomycetes								
TOTAL	**4**	**160**		**3**	**120**			

Signature: Uttam Acharya Date: 3/22/2019 Reviewed: Johnathan Wilson Date: 3/22/2019

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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.

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 excercised 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 dispurse 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.

Bispora species - Bispora is a ubiquitous anamorphic fungus and may be isolated from decaying wood.
Health Effects: There has been no known research on the health effects, toxicity, or allergens to this fungi.
References: C.J. K. Wang, R.A. Zabel, Identification Manual for Fungi from Utility Poles in the Eastern United States, American Type Culture Collection 1990

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.

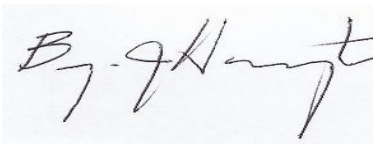
Conclusions/Recommendations

There was no visible mold growth in the above test locations. Pre-existing water damage was identified within the sink cabinets in Rooms #10 and #16. The water damage appears to be cosmetic as no three-dimensional mold growth was detected. ESI recommends cleaning and treating the sink cabinetry as needed.

The amplified levels of Carbon dioxide in Room #1 and Room C can be reduced by increasing air exchanges/ventilation.

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)**