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	Hyattsville Elementary School 50,345 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

5311 43rd Avenue, Hyattsville, MD 20781

Date of Inspection 3/27/2019

Prepared By: Bryan Harrington

Certified Indoor Environmentalist (CIE)

Dear Mr. Baylor,

The results of the inspection and testing performed Hyattsville Elementary School, which is located at 5311 43rd Avenue, Hyattsville, MD 20781, 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 3/27/2019 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 Historically elevated levels of humidity, condensation from pipes, periodic steam leaks, and outdated HVAC systems may have contributed to water damage ceiling tiles and colonization of mold spores in various areas of the school.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 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 10	2378144	NO	19.6%	69.8	**1665**	000	10,106	
Inspected								
Ceiling	Walls	Teachers Desks	Student Desks	Tables	Cabinets Shelving	Convector	HVAC Diffusors	Sinks
Wallboard	CMU	0	28	4	8	1	0	1
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 (1665 ppm) in this location. • The airborne fungal spores (160 Count/M^3) and Carbon monoxide (000 ppm) should not pose environmental or exposure risks at these levels.								
Recommendations								
• Increase air movement and ventilation to reduce Carbon dioxide (CO2) levels within this location.								

Location	IAQ Sample #	Swab	R/H	Temp	CO2	CO	Cubic feet of air.	
Room 3	2378115	NO	10.2%	74.1	658	000	11,725	
Inspected								
Ceiling	Walls	Teachers Desks	Student Desks	Tables	Cabinets Shelving	Convector	HVAC Diffusors	Sinks
Wallboard	CMU	0	6	7	6	1	0	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 (80 Count/M^3), Carbon monoxide (000 ppm), and Carbon dioxide (658 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 R1	2378139	YES	11.7%	72.6	591	000	5,880	
Inspected								
Ceiling	Walls	Teachers Desks	Student Desks	Tables	Cabinets Shelving	Convector	HVAC Diffusors	Sinks
Wallboard	CMU	0	2	6	7	1	0	1
NO	NO	NO	NO	**YES**	NO	NO	NO	NO
Observation Notes								
• There was suspected mold growth on the underside of the rectangular computer table. A surface swab was collected and "Light" Cladosporium was identified on the table. • The airborne fungal spores (0 Count/M^3), Carbon monoxide (000 ppm), and Carbon dioxide (658 ppm) should not pose environmental or exposure risks at these levels.								
Recommendations								
• HEPA vacuum the underside of the rectangular computer table. Then damp-wipe with ShockWave or equivalent.								

Location	IAQ Sample #	Swab	R/H	Temp	CO2	CO	Cubic feet of air.	
Room 4	2378134	NO	9.0%	76.1	699	000	8,395	
Inspected								
Ceiling Tiles	Walls	Teachers Desks	Student Desks	Tables	Cabinets Shelving	Convector	HVAC Diffusors	Sinks
2x4'	Drywall	0	0	6	10	0	5	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 monoxide (000 ppm), and Carbon dioxide (699 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 14	2378114	NO	12.3%	74.6	745	000	8,555	
Inspected								
Ceiling Tiles	Walls	Teachers Desks	Student Desks	Tables	Cabinets Shelving	Convector	HVAC Diffusors	Sinks
2x4’	CMU and drywall	0	0	8	10	2	5	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 (00 Count/M^3), Carbon monoxide (000 ppm), and Carbon dioxide (745 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.
Outdoors	2378116	N/A	11.2%	59.0	563	000	N/A
Observation Notes							
• The total spore count was 40 Count/M^3 with the only genus detected being Basidiospores at 40 Count/M^3.							

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: 5311 43rd Avenue
P.O. Number:
Project Name: Hyattsville Elementary School
Collected Date: 3/27/2019
Received Date: 3/28/2019 9:30:00 AM

SanAir ID Number
19014540
FINAL REPORT
4/1/2019 9:43:30 AM

Analyst: Acharya, Uttam

Air Cassette Analysis

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

SanAir ID Number	19014540-001			19014540-002			19014540-003			19014540-004		
Analysis Using STL	107C			107C			107C			107C		
Sample Number	2378144			2378115			2378139			2378134		
Sample Identification	Room 10			Room 3			Room R1			Room 4		
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	1+			1+			2			1+		
Other	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**
Dander	39	1560	n/a	19	760	n/a	66	2640	n/a	41	1640	n/a
Fibers	ND			ND			5	200	n/a	ND		
Mycelial Fragments	ND			ND			ND			ND		
Fungal Identification	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**
Aspergillus/Penicillium	4	160	>99	1	40	50	ND			ND		
Basidiospores	ND			1	40	50	ND			ND		
TOTAL	**4**	**160**		**2**	**80**		**ND**	**ND**		**ND**	**ND**	

Signature: Uttam Acharya Date: 4/1/2019 Reviewed: Date: 4/1/2019

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Analyst: Acharya, Uttam

Air Cassette Analysis

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

SanAir ID Number	19014540-005			19014540-006				
Analysis Using STL	107C			107C				
Sample Number	2378114			2378116				
Sample Identification	Room 14			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+			2				
Other	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**		
Dander	43	1720	n/a	24	960	n/a		
Fibers	3	120	n/a	1	40	n/a		
Mycelial Fragments	ND			2	80	n/a		
Fungal Identification	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**		
Aspergillus/Penicillium	ND			ND				
Basidiospores	ND			1	40	>99		
TOTAL	**ND**	**ND**		**1**	**40**			

Signature: Uttam Acharya Date: 4/1/2019 Reviewed: Date: 4/1/2019

Direct Identification Lab Results

SanAir Technologies Laboratory

SanAir ID Number
19014540
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4/1/2019 9:43:30 AM

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

Project Number: 5311 43rd Avenue
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Project Name: Hyattsville Elementary School
Collected Date: 3/27/2019
Received Date: 3/28/2019 9:30:00 AM

Analyst: Acharya, Uttam

Direct Identification Analysis

SanAir ID: 19014540-007 Sample #:Swab Room R1 Computer Tables

D1 - Direct Identification Analysis on Surface Swab using STL 104

Direct ID of Mold

Fungi	Estimated Amount
Cladosporium species	Light

Estimated Amount	Indication of Growth	Evidence of Mycelial Fragments/Conidiophores
Rare	Not Likely	None
Light	Possible	Some, 10 to 25% of Tape Covered
Moderate	Probable	Abundant, 25 to 50% of Tape Covered
Heavy	Significant	Throughout, 50 to 100% of Tape Covered

*Refer to additional information page for further details

Signature: Uttam Acharya
Date: 4/1/2019

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.

Mycelial Fragments - A mycelium (plural = mycelia) is the "body" of a fungus. It is a collective term for hyphae (singular = hypha), which are the tubular units of the mycelium usually composed of chitin. The terms hyphae and mycelial fragments are used interchangeably. [This information was referenced from the mycology text "The Fifth Kingdom"]In some cases a fungal identification cannot be obtained due to lack of sporulation. Only the mycelial fragments are present, and cannot be identified without the distinguishing characteristics of the spores or the structures they grow from.
Health Effects: Allergic reactions may occur in the presence of spores (conidia) or mycelial/hyphal fragments.

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 bronchiospasms, 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.

Conclusions/Recommendations

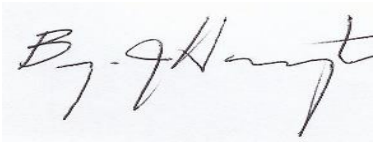
Overall, the inspected areas were clean of any visible water damage or mold growth. No elevated levels of mold spores were detected within the breathable airspace of the test locations. The genera detected at these trace levels should not pose environmental or exposure risks.

The one computer table in Room R1 can be cleaned and treated by HEPA vacuuming then damp-wiping with an antimicrobial solution such as ShockWave or equivalent.

The amplified levels of Carbon dioxide in Room 10 should be reduced by increasing air movement and/or 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)**