ESI Environmental Solutions, Inc.

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

Discovery Environmental Inspection Report

Project Contact Information

Bradbury Heights Elementary School - 1401 Glacier Avenue Capitol Heights MD 79,457 sq. ft.	Alex Baylor Environmental Specialists Environmental Safety Office 13306 Old Marlboro Pike Upper Marlboro, MD 20772 301-952-6760	Vinny Gigliotti Environmental Solutions Inc. (410) -867-6262 6114 Drum Point Road Deale, MD 20751 vinny@esi4u.com

Property Location

Date of Inspection 2/13/2019

Prepared By: Vinny Gigliotti

Certified Indoor Environmentalist (CIE)

Dear Mr. Baylor,

The results of the inspection and testing performed at Bradbury Heights Elementary 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 February 13, 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 Historically elevated levels of humidity, condensation from pipes, periodic steam leaks, and outdated HVAC systems, may have contributed to water damage ceiling tiles and colonization of mold spores in various area of the school.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 visible 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 13	237-4464		33	74	1229	001	N/C	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	HVAC Diffusors	Windows
2x4'	CMU	1		14	0	1		7
YES	NO	NO	NO	NO	NO	NO	NO	NO
Observation Notes								
There were NO signs of mold growth or elevated levels of moisture detected within this location. There were 3 water stained ceiling tiles, but they were not wet, nor did they show signs of mold growth. The remediation and cleaning efforts were completed successfully, and the indoor air quality should pose no health or environmental risk, as the total spore count was 320 spores per cubic meter of air.								
Recommendations								
NONE								

Location	IAQ Sample #	Swab	R/H	Temp	CO2	Co	Cubic feet of air.	
Room 18	237-4458		24	73	987	001		
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	Sink	Windows
2x4'	CMU		24	4	2	1	1	6
NO	NO	NO	NO	NO	NO	NO	YES	NO
Inspected								
There was visible water damage and minimal amounts of mold growth under the sink. The water damage was staining, and the mold is less than 12" and can be cleaned from the surfaces with an antimicrobial solution, such as Shockwave or equivalent. The indoor air quality should pose no health or environmental risk, as the total spore count was 320 spores per cubic meter of air.								
Recommendations								
Spray the visible mold under the sink with SHOCKWAVE, wait 10 minutes than damp wipe the area to remove the visible mold spores.								

Location	IAQ Sample #	Swab	R/H	Temp	CO2	Co	Cubic feet of air.	
Room 28	237-4459		34	77	1643	001		
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	Sink	Windows
2x4'	CMU	1	25	8	1	1	1	7
NO	NO	NO	NO	NO	NO	NO	NO	NO
Observation Notes								
There were NO signs of mold growth or elevated levels of moisture detected within this location. The remediation and cleaning efforts were completed successfully, and the indoor air quality should pose no health or environmental risk, as the total spore count was 200 spores per cubic meter of air.								
Recommendations								
NONE								

Location	IAQ Sample #	Swab	R/H	Temp	CO2	Co	Cubic feet of air.	
Room 24	237-4463		28	76	1451	001		
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	Sink	Windows
2x4'	CMU	1	15	4	2	1	1	7
NO	NO	NO	NO	NO	NO	NO	NO	NO
Observation Notes								
There were NO signs of mold growth or elevated levels of moisture detected within this location. The remediation and cleaning efforts were completed successfully, and the indoor air quality should pose no health or environmental risk, as the spore count was 240 spores per cubic meter of air.								
Recommendations								
NONE								

Location	IAQ Sample #	Swab	R/H	Temp	CO2	Co	Cubic feet of air.	
Room 2	237-4460		40	72	513	012		
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	Sink	Windows
2x4'	CMU		27	3	1	1	YES	6
NO	NO	NO	NO	NO	NO	NO	NO	NO
Observation Notes								
There were NO signs of mold growth or elevated levels of moisture detected within this location. The remediation and cleaning efforts were completed successfully, and the indoor air quality should pose no health or environmental risk, as the spore count was 160 spores per cubic meter of air. The sink cabinetry has two square stains approximately 12x12" with minimal surface mold spores.								
Recommendations								
Spray the visible mold under the sink with SHOCKWAVE, wait 10 minutes, then damp wipe the area to remove the visible mold spores.								

Location	IAQ Sample #	Swab	R/H	Temp	CO2	Co	Cubic feet of air.	
Art Room	237-4462		22	72	513	002		
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	Sinks	Windows
2x4'	CMU			7			3	
NO	NO	NO	NO	NO	NO	NO	NO	NO
Observation Notes								
There were NO signs of mold growth or elevated levels of moisture detected within this location. The remediation and cleaning efforts were completed successfully, and the indoor air quality should pose no health or environmental risk, as the spore count was 120 spores per cubic meter of air. This art room was very clean and organized. Table tops and horizontal surfaces did not have any dust or debris. Under the table there were smudge marks of paint, but no signs of mold.								
Recommendations								
NONE								

Location	IAQ Sample #	Swab	R/H	Temp	CO2	Co	Cubic feet of air.	
Room 9	237-4461		23	72	812	002		
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	HVAC Diffusors	Windows
2x4'	CMU	1		9		1		N/C
NO	NO	NO	NO	NO	NO	NO	NO	NO
Observation Notes								
There were NO signs of mold growth or elevated levels of moisture detected within this location. The remediation and cleaning efforts were completed successfully, and the indoor air quality should pose no health or environmental risk, as the spore count was 120 spores per cubic meter of air.								
Recommendations								
NONE								

Location	IAQ Sample #	Swab	R/H	Temp	CO2	Co	Cubic feet of air.	
Media Center	237-4457		24	74	920	001		
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	HVAC Diffusors	Windows
2x4'	CMU/ Gypsum			9	11	0	6	N/C
YES	NO	NO	NO	NO	NO	NO	YES	NO
Observation Notes								
There were NO signs of mold growth or elevated levels of moisture detected within this location. The remediation and cleaning efforts were completed successfully, and the indoor air quality should pose no health or environmental risk, as the spore count was 360 spores per cubic meter of air. Please note: the fiber count in this room was higher than the other areas tested. I believe the fibers are from the tectum ceiling tiles. The fiber count was 360 per cubic meter of air. It's not dangerously high, just simply higher than the rest of the tested locations. No remediation requirements are warranted due to the fiber count. This room has carbon black on and around the ceiling tiles surrounding the diffusors. The carbon black can be caused from vents distributing air flow through the heating appliance, such as the HVAC system supplying air to this media room.								
Recommendations								
Replace the filters for the HVAC system supplying air to the media room. The ceiling tiles are filtering the carbon black particles, which is causing discoloration to the surrounding ceiling tiles. Once the HVAC filters are replaced, then remove and replace the affected ceiling tile.								

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

SanAir Technologies Laboratory

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

Project Number: 1401
P.O. Number: VJG
Project Name: Bradbury Heights
Collected Date: 2/13/2019
Received Date: 2/15/2019 10:30:00 AM

SanAir ID Number
19006918
FINAL REPORT
2/18/2019 2:15:17 PM

Analyst: Smith, Kiersten

Air Cassette Analysis

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

SanAir ID Number	19006918-001			19006918-002			19006918-003			19006918-004		
Analysis Using STL	107C			107C			107C			107C		
Sample Number	237-4464			237-4458			237-4459			237-4463		
Sample Identification	Room 13			Room 18			Room 28			Room 24		
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	105	4200	n/a	53	2120	n/a	133	5320	n/a	83	3320	n/a
Fibers	5	200	n/a	3	120	n/a	5	200	n/a	3	120	n/a
Fungal Identification	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**
Ascospores												
Aspergillus/Penicillium	4	160	50	5	200	63	3	120	60	3	120	50
Basidiospores	3	120	38	3	120	38	2	80	40	3	120	50
Cladosporium species	1	40	13									
Pithomyces species												
Smuts/Myxomycetes												
TOTAL	**8**	**320**		**8**	**320**		**5**	**200**		**6**	**240**	

Signature: K. Smith Date: 2/18/2019 Reviewed: Johnathan Wilson Date: 2/18/2019

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Analyst: Smith, Kiersten

Air Cassette Analysis

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

SanAir ID Number	19006918-005			19006918-006			19006918-007			19006918-008		
Analysis Using STL	107C			107C			107C			107C		
Sample Number	237-4460			237-4462			237-4461			237-4457		
Sample Identification	Room 2			Art Room			Room 9			Media Center		
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			2+		
Other	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**
Dander	30	1200	n/a	12	480	n/a	148	5920	n/a	122	4880	n/a
Fibers							6	240	n/a	9	360	n/a
Fungal Identification	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**
Ascospores				1	40	33				1	40	11
Aspergillus/Penicillium	2	80	50				1	40	33	2	80	22
Basidiospores	2	80	50	2	80	67	2	80	67	3	120	33
Cladosporium species												
Pithomyces species										1	40	11
Smuts/Myxomycetes										2	80	22
TOTAL	**4**	**160**		**3**	**120**		**3**	**120**		**9**	**360**	

Signature: K. Smith Date: 2/18/2019 Reviewed: Johnathan Wilson Date: 2/18/2019

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Analyst: Smith, Kiersten

Air Cassette Analysis

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

SanAir ID Number	19006918-009		
Analysis Using STL	107C		
Sample Number	237-4456		
Sample Identification	Outside Control		
Sample Type	Air Cassette - Micro-5		
Volume	25 Liters		
Analytical Sensitivity	40 Count/M³		
Background Density	1+		
Other	**Raw Count**	**Count/M³**	**%**
Dander	12	480	n/a
Fibers	2	80	n/a
Fungal Identification	**Raw Count**	**Count/M³**	**%**
Ascospores	3	120	27
Aspergillus/Penicillium			
Basidiospores	6	240	55
Cladosporium species	1	40	9
Pithomyces species			
Smuts/Myxomycetes	1	40	9
TOTAL	**11**	**440**	

Signature: K. Smith Date: 2/18/2019 Reviewed: Johnathan Wilson Date: 2/18/2019

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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.

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.

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Pithomyces species - Grows on dead grass in pastures and decaying plant material.
Health Effects: Causes facial eczema in ruminants.
References: St-Germain, Guy, and Richard Summerbell. Identifying Filamentous Fungi: A Clinical Laboratory Handbook. California: Star Publishing Co., 1996.

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

The samples in this report indicate a normal fungal ecology for the specific locations tested. Therefore, the indoor air quality passed and based on the visual inspection and the lab results, there are no health or environmental risk related to the remediation areas of the school. Please refer to the attached lab results below 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 directly at 301-509-0010, or call my office 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)**