ESI Environmental Solutions, Inc.

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

Discovery Environmental Inspection Report

Project Contact Information

Doswell E. Brooks Elementary School 1301 Brooke Road Capitol Heights, MD 20743 56,948 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. 6114 Drum Point Rd Deale, MD 20751 (410) -867-6262 vinny@esi4u.com

Property Location

Date of Inspection 2/14/2019

Prepared By: Vinny Gigliotti

Certified Indoor Environmentalist (CIE)

Dear Mr. Baylor,

The results of the inspection and testing performed at Doswell E. Brook 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 February 14, 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 risk 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 Historically elevated levels of humidity, condensation from pipes, periodic steam leaks and outdated HVAC systems, may have contributed to water damaged ceiling tiles and colonization of mold spores in various area of the school.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 visible assessment, instrument readings and lab results, there we NO problematic conditions discovered within this school. ESI found the classrooms and common areas very clean and organized, with little to no accumulation of dirt and debris or water intrusion issues, except for a few ceiling tiles that had minimal water stains (but NO mold growth) in classroom M-1.

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 4	2374479		16	72	486	013	N/C	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	HVAC Diffusors	Sink
2x4'	CMU	1	0	7		1	0	1
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. The total spore count per cubic meter of air was **320,** which would be considered a normal fungal ecology.								
Recommendations								
NONE								

Location	**IAQ Sample #**	**Swab**	**R/H**	**Temp**	**CO2**	**Co**	**Cubic feet of air.**	
Room 3	2374489		17	72	633	012	N/C	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	HVAC Diffusors	**Windows**
	CMU	1	0	8	6	1	0	6
NO	NO	NO		NO	NO	NO		NO
Inspected								
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. The total spore count per cubic meter of air was **600,** which would be considered a normal fungal ecology.								
Recommendations								
NONE								

Location	IAQ Sample #	Swab	R/H	Temp	CO2	Co	Cubic feet of air.	
C/R M-1	2374465		17	72	589	012		
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	HVAC Diffusors	Windows
2x4'	sheetrock		0	8	5	0	6	2
YES	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 that did not have any elevated levels of moisture detected. The remediation and cleaning efforts were completed successfully, and the indoor air quality should pose no health or environmental risk. The total spore count per cubic meter of air was **320,** which would be considered a normal fungal ecology.								
Recommendations								
Remove and replace 3 water stained ceiling tiles.								

Location	IAQ Sample #	Swab	R/H	Temp	CO2	Co	Cubic feet of air.	
Art Room	2374468		19	71	464	014	N/C	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	HVAC Diffusors	Sink
2x4'	sheetrock	1	0	8	1	0	6	1
YES	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 was 1 water stained ceiling tile that did not have any elevated levels of moisture detected. The remediation and cleaning efforts were completed successfully, and the indoor air quality should pose no health or environmental risk. The total spore count per cubic meter of air was **120,** which would be considered a normal fungal ecology.								
Recommendations								
Remove and replace the 1water stained ceiling tile.								

Location	IAQ Sample #	Swab	R/H	Temp	CO2	Co	Cubic feet of air.	
Room 17	2374466		16	71	464	014	N/C	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	HVAC Diffusors	
2x4'	CMU	1	4	5	2	0	4	
YES	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 was 1 water stained ceiling tile with no signs of mold growth. The remediation and cleaning efforts were completed successfully, and the indoor air quality should pose no health or environmental risk. The total spore count per cubic meter of air was **520,** which would be considered a normal fungal ecology.								
Recommendations								
Remove and replace the 1water stained ceiling tile.								

Location	IAQ Sample #	Swab	R/H	Temp	CO2	Co	Cubic feet of air.	
Hallways	2374469		18	72	568	014	N/C	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	HVAC Diffusors	
2x4'	CMU	0	0	0	0	0	N/C	
NO	NO							
Observation Notes								
There were NO signs of mold growth or elevated levels of moisture detected within hallways. The cleaning efforts were completed successfully, and the indoor air quality should pose no health or environmental risk. The total spore count per cubic meter of air was **840,** which would be considered a normal fungal ecology.								
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.

Lab Results

SanAir Technologies Laboratory

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

Project Number: 1301
P.O. Number: VJG
Project Name: Doswell Brook
Collected Date: 2/14/2019
Received Date: 2/15/2019 10:30:00 AM

SanAir ID Number
19006916
FINAL REPORT
2/18/2019 12:23:08 PM

Analyst: Smith, Kiersten

Air Cassette Analysis

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

SanAir ID Number	19006916-001			19006916-002			19006916-003			19006916-004		
Analysis Using STL	107C			107C			107C			107C		
Sample Number	237-4479			237-4489			237-4465			237-4468		
Sample Identification	Room 4			Room 3			M1 Class Room			Art Room		
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+			1+			1+		
Other	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**
Dander	45	1800	n/a	71	2840	n/a	54	2160	n/a	36	1440	n/a
Fibers				4	160	n/a	3	120	n/a	3	120	n/a
Fungal Identification	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**
Aspergillus/Penicillium	3	120	38	12	480	80	7	280	88	1	40	33
Basidiospores	1	40	13	1	40	7	1	40	13	1	40	33
Chaetomium species										1	40	33
Cladosporium species	4	160	50	2	80	13						
TOTAL	**8**	**320**		**15**	**600**		**8**	**320**		**3**	**120**	

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	19006916-005			19006916-006			19006916-007		
Analysis Using STL	107C			107C			107C		
Sample Number	237-4466			237-4469			237-4499		
Sample Identification	Room 17			Hallways			Outside Control		
Sample Type	Air Cassette - Micro-5			Air Cassette - Micro-5			Air Cassette - Micro-5		
Volume	25 Liters			25 Liters			25 Liters		
Analytical Sensitivity	40 Count/M³			40 Count/M³			40 Count/M³		
Background Density	1+			1+			1+		
Other	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**
Dander	11	440	n/a	68	2720	n/a	2	80	n/a
Fibers	3	120	n/a	4	160	n/a			
Fungal Identification	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**
Aspergillus/Penicillium	2	80	15	17	680	81	3	120	27
Basidiospores	1	40	8	2	80	10	3	120	27
Chaetomium species				1	40	5			
Cladosporium species	10	400	77	1	40	5	5	200	45
TOTAL	**13**	**520**		**21**	**840**		**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.

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.

Chaetomium species - It is an ascomycete. It is found on a variety of substrates containing cellulose including paper and plant compost. It can be found on the damp or water damaged paper in sheetrock after a long term water damage. Several species have been reported to play a major role in decomposition of cellulose made materials. These fungi are able to dissolve the cellulose fibers in cotton and paper, and thus cause these materials to disintegrate. The process is especially rapid under moist conditions.
Health Effects: Chaetomium can produce type I fungal hypersensitivity and has caused onychomycosis (nail infections).
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.

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

As you can see from the observation tables above, the locations ESI inspected and tested within this school were very clean and dry with NO visible signs of mold growth or contributing factors. The custodial staff and environmental team have cleaned this school which should reduce the opportunity for mold growth.

The samples in this report indicate a normal fungal ecology for the specific location tested. Therefore, the indoor air quality passed and based on the visual inspection and the lab results, there are no health or environmental risks 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 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)**