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	Longfields Elementary School 52,565 Ft^2	Vinny Gigliotti Certified Indoor Environmentalist Environmental Solutions, Inc. 6114 Drum Point Rd Deale, MD 20751 410-867-6262 Vinny@esi4u.com

Property Location

3300 Newkirk Avenue, Forestville, MD 20747

Date of Inspection 3/12/2019

Prepared By: Vinny Gigliotti and Ryan Fitzgerald

Certified Indoor Environmentalist (CIE)

Dear Mr. Baylor,

The results of the inspection and testing performed at Longfields 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's3/12/2019 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 Historically elevated levels of humidity, condensation from pipes, periodic steam leaks and outdated HVAC systems, may have contributed to water damaged ceiling tiles and colonization of mold spores in various areas of the school.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 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 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. 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.	
Health Room	2377182	N/A	16.3	74.8	640	000	1,485	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	HVAC Diffusors	Windows
2x4	CMU	1	1	1	3	0	1	2
No	No	No	No	No	**Yes**	N/A	No	No

Observation Notes

- Suspected microbial growth was seen on the sink cabinetry doors.
- Dust and grime were seen on the ceiling tiles near the diffusor.
- Dust and rust were seen on the diffusor and return register.
- There was rust on the drop ceiling grid.
- The indoor air quality should not pose environmental or exposure risks at these levels. The total spore count was 440 Count/M^3 and no elevated levels of Carbon monoxide or Carbon dioxide were detected.

Recommendations

- HEPA vacuum, then damp-wipe the sink cabinetry with an anti-microbial agent to remove water staining and suspected microbial contamination.
- Monitor relative humidity during warm/humid summer months to prevent condensation on drop ceiling grid and HVAC registers.

Location	IAQ Sample #	Swab	R/H	Temp	CO2	Co	Cubic feet of air.	
Reading Room	2377172	N/A	8.3	80.0	553	000	3,455	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	HVAC Diffusors	Windows
2x4	CMU	0	0	6	4	0	2	3
Yes	No	N/A	N/A	No	No	N/A	No	No

Observation Notes

- Three ceiling tiles were water stained.
- Ceiling tiles were slightly sagging throughout the room.
- Dust and grime were seen on the ceiling tiles near diffusors.
- Light accumulations of dust were on the diffusors.
- The indoor air quality should not pose environmental or exposure risks at these levels. The total spore count was 520 Count/M^3 and no elevated levels of Carbon monoxide or Carbon dioxide were detected.

Recommendations

- Remove and replace the water damaged ceiling tiles. The contaminated ceiling tiles should be placed in a sealed plastic bag for disposal.
- Monitor the relative humidity during warm/humid summer months to prevent the ceiling tiles from sagging.

Location	IAQ Sample #	Swab	R/H	Temp	CO2	Co	Cubic feet of air.	
Room #20	2377187	N/A	13.4	72.6	546	000	8,410	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	HVAC Diffusors	Windows
2x4	CMU	1	31	4	5	1	0	3
No	No	No	No	No	No	No	N/A	No

Observation Notes

- Light accumulations of dust and grime were seen on the ceiling tiles.
- The ceiling tiles throughout the room were slightly sagging.
- Rust was seen on the return register.
- The indoor air quality should not pose environmental or exposure risks at these levels. The total spore count was 120 Count/M^3 and no elevated levels of Carbon monoxide or Carbon dioxide were detected.

Recommendations

- Monitor the relative humidity during warm/humid summer months to prevent the ceiling tiles from sagging.

Location	IAQ Sample #	Swab	R/H	Temp	CO2	Co	Cubic feet of air.	
Room #5	2377167	N/A	11.5	72.8	567	000	11,600	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	HVAC Diffusors	Windows
2x4	CMU	1	1	8	4	1	0	3
Yes	No	No	No	No	No	No	N/A	No

Observation Notes

- Five ceiling tiles were water stained.
- The indoor air quality should not pose environmental or exposure risks at these levels. The total spore count was 320 Count/M^3 and no elevated levels of Carbon monoxide or Carbon dioxide were detected.

Recommendations

- Remove and replace the water damaged ceiling tiles. The contaminated ceiling tiles should be placed in a sealed plastic bag for disposal.

Location	IAQ Sample #	Swab	R/H	Temp	CO2	Co	Cubic feet of air.	
Room #13	2377201	N/A	14.5	70.7	645	000	8,410	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	HVAC Diffusors	Windows
2x4	CMU	1	10	11	4	1	0	3
No	No	No	No	No	**Yes**	No	N/A	No

Observation Notes

- There was pre-existing water damage and discolorations within the sink cabinetry.
- The indoor air quality should not pose environmental or exposure risks at these levels. The total spore count was 120 Count/M^3 and no elevated levels of Carbon monoxide or Carbon dioxide were detected.

Recommendations

- HEPA vacuum, then damp-wipe the sink cabinetry with an anti-microbial agent to remove water staining and discolorations. Evaluate the sink cabinetry for an active water leak.

Location	IAQ Sample #	Swab	R/H	Temp	CO2	Co	Cubic feet of air.	
Room #8	2377206	N/A	18.8	74.8	764	000	11,020	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	HVAC Diffusors	Windows
2x4	CMU	1	14	5	4	2	0	3
Yes	No	No	No	No	No	No	N/A	No

Observation Notes

- Several ceiling tiles were water stained and damaged.
- The ceiling tiles were slightly sagging throughout the room.
- The indoor air quality should not pose environmental or exposure risks at these levels. The total spore count was 200 Count/M^3 and no elevated levels of Carbon monoxide or Carbon dioxide were detected.

Recommendations

- Remove and replace the water damaged ceiling tiles. The contaminated ceiling tiles should be placed in a sealed plastic bag for disposal.
- Monitor the relative humidity during warm/humid summer months to prevent the ceiling tiles from sagging.

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: 3300 NewKirk Ave.
P.O. Number:
Project Name: Longfield Elementary
Collected Date: 3/12/2019
Received Date: 3/13/2019 10:25:00 AM

SanAir ID Number
19011397
FINAL REPORT
3/14/2019 10:47:18 AM

Analyst: Smith, Kiersten

Air Cassette Analysis

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

SanAir ID Number	19011397-001			19011397-002			19011397-003			19011397-004		
Analysis Using STL	107C			107C			107C			107C		
Sample Number	2377191			2377182			2377172			2377187		
Sample Identification	Outdoors			Health Room			Reading Room			Classroom #20		
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	2	80	n/a	38	1520	n/a	21	840	n/a	6	240	n/a
Fibers	2	80	n/a	3	120	n/a	3	120	n/a	5	200	n/a
Fungal Identification	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**
Aspergillus/Penicillium	1	40	20	8	320	73	13	520	>99			
Basidiospores	3	120	60	2	80	18				2	80	67
Cladosporium species	1	40	20	1	40	9				1	40	33
TOTAL	**5**	**200**		**11**	**440**		**13**	**520**		**3**	**120**	

Signature: K. Smith Date: 3/14/2019 Reviewed: L. Claire Macdonald Date: 3/14/2019

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Analyst: Smith, Kiersten

Air Cassette Analysis

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

SanAir ID Number	19011397-005			19011397-006			19011397-007			
Analysis Using STL	107C			107C			107C			
Sample Number	2377167			2377201			2377206			
Sample Identification	Classroom #5			Classroom #13			Classroom #8			
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	36	1440	n/a	21	840	n/a	136	5440	n/a	
Fibers	3	120	n/a	2	80	n/a	1	40	n/a	
Fungal Identification	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	
Aspergillus/Penicillium	2	80	25	3	120	>99	4	160	80	
Basidiospores	4	160	50				1	40	20	
Cladosporium species	2	80	25							
TOTAL	**8**	**320**		**3**	**120**		**5**	**200**		

Signature: K. Smith Date: 3/14/2019 Reviewed: L. Claire Macdonald Date: 3/14/2019

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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.

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.

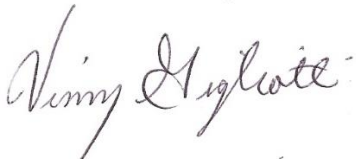
Conclusions/Recommendations

The school was relatively clean during the inspection. However, several areas contained water damaged and dirty ceiling tiles. The ceiling tiles were also sagging in these areas. The relative humidity should be monitored during warm/humid summer months to prevent this concern. In addition, the sink cabinetry in the Health Room and Room #13 should be cleaned and evaluated for leaks. Please see recommendations above for additional information.

The samples for the rooms tested in this report do not indicate the presence of elevated airborne mold spores and should not pose health or environmental risks. Please refer to the attached lab results 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)**