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	Seat Pleasant Elementary School 42,888 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

6411 G St Capitol Heights, MD 20743

Date of Inspection: 4/1/2019

Prepared By: Vinny Gigliotti & Ryan Fitzgerald

Certified Indoor Environmentalist (CIE)

Dear Mr. Baylor,

The results of the inspection and testing performed at Seat Pleasant 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 recommendations from ESI's inspection and testing.

Several photographs illustrating the problematic conditions are attached.

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 Historically elevated levels of humidity, condensation from pipes, periodic steam leaks, and outdated HVAC systems, may have contributed to water damage ceiling tiles and colonization of mold spores in various area of the school.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 visual 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. 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.	
Classroom #3	2428587	**Yes**	17.7	71.4	837	001	8,680	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	HVAC Diffusors	**Windows**
2x4	CMU	1	27	6	3	2	0	2
No	No	No	No	No	**Yes**	No	N/A	No

Observation Notes

- There was visible microbial growth on the inside of the sink cabinetry. A surface swab was collected from the table for Direct Identification Analysis. The Analysis indicates the presence of "Moderate" Aspergillus and Basidiospores.
- The ceiling tiles were sagging.
- The indoor air quality should not pose environmental or exposure risks at these levels. The total spore count was 80 Count/M^3 and no elevated levels of Carbon monoxide or Carbon dioxide were detected.

Recommendations

- HEPA vacuum, spray antimicrobial, then damp wipe microbial growth from the sink cabinetry. If the cabinetry can not be properly cleaned, it should be removed and discarded under proper environmental controls.
- 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.	
Classroom #8	2428592	N/A	15.7	73.9	868	002	10,080	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	HVAC Diffusors	**OTHER**
2x4	CMU	1	2	12	6	2	0	2

Inspected

- The ceiling tiles were sagging.
- Water staining was seen in the sink cabinetry.
- The indoor air quality should not pose environmental or exposure risks at these levels. The total spore count was 600 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.	
Classroom #11	2428567	N/A	13.8	73.5	850	001	9,520	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	HVAC Diffusors	Windows
2x4	CMU	1	1	7	4	2	0	2
No	No	No	No	No	No	No	N/A	No

Observation Notes

- The ceiling tiles were sagging.
- Water staining was seen in the sink cabinetry.
- The indoor air quality should not pose environmental or exposure risks at these levels. The total spore count was 720 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.	
Classroom #17	2428547	N/A	17.7	74.4	**1,147**	001	8,680	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	HVAC Diffusors	**Windows**
2x4	CMU/D	1	24	3	6	2	0	2
No	No	No	No	No	No	No	N/A	No

Observation Notes

- The ceiling tiles were slightly sagging.
- Water staining was seen in the sink cabinetry.
- Grime and dirt were on the wall divider.
- The Carbon Dioxide CO2 level in this room were slightly elevated at 1,149 ppm. The CO2 level may have been increased due to the room being recently occupied.
- The total spore count was 280 Count/M^3 and should not pose environmental or exposure risks at these levels.

Recommendations

- To reduce Carbon dioxide (CO2) levels, increase air exchange within this room. Ventilating or circulating the air with a fan will also reduce Carbon dioxide (CO2) levels.
- 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.	
Classroom #20	2428552	N/A	13.9	79.3	**1,075**	001	27x33x10	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	HVAC Diffusors	**Windows**
2x4	CMU	1	2	14	3	2	0	2
No	No	No	No	No	No	No	N/A	No

Observation Notes

- The ceiling tiles were slightly sagging.
- The Carbon Dioxide CO2 level in this room were slightly elevated at 1,075 ppm.
- The total spore count was 640 Count/M^3 and should not pose environmental or exposure risks at these levels.

Recommendations

- To reduce Carbon dioxide (CO2) levels, increase air exchange within this room. Ventilating or circulating the air with a fan will also reduce Carbon dioxide (CO2) levels.

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

Analyst: Smith, Kiersten

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

Project Number: 6411 G Street
P.O. Number:
Project Name: Seat Pleasant ES
Collected Date: 4/1/2019
Received Date: 4/2/2019 10:05:00 AM

SanAir ID Number
19015349
FINAL REPORT
4/4/2019 10:07:47 AM

Air Cassette Analysis

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

SanAir ID Number	19015349-001			19015349-002			19015349-003			19015349-004		
Analysis Using STL	107C			107C			107C			107C		
Sample Number	2428562			2428587			2428592			2428567		
Sample Identification	Outdoors			Classroom # 3			Classroom # 8			Classroom # 11		
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+			2			2+			2+		
Other	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**
Dander	2	80	n/a	52	2080	n/a	208	8240	n/a	91	3640	n/a
Fibers	2	80	n/a	4	160	n/a	9	360	n/a	5	200	n/a
Pollen	1	40	n/a									
Fungal Identification	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**
Ascospores				1	40	50						
Aspergillus/Penicillium	1	40	14	1	40	50	7	280	47	15	600	83
Basidiospores	2	80	29				1	40	7	2	80	11
Cladosporium species	4	160	57				6	240	40	1	40	6
Epicoccum species							1	40	7			
TOTAL	**7**	**280**		**2**	**80**		**15**	**600**		**18**	**720**	

Signature: K. Smith Date: 4/4/2019 Reviewed: Johnathan Wilson Date: 4/4/2019

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SanAir ID Number	19015349-005			19015349-006		
Analysis Using STL	107C			107C		
Sample Number	2428547			2428552		
Sample Identification	Classroom # 17			Classroom # 20		
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	2			1+		
Other	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**
Dander	51	2040	n/a	20	800	n/a
Fibers	3	120	n/a	1	40	n/a
Pollen						
Fungal Identification	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**
Ascospores						
Aspergillus/Penicillium	7	280	>99	3	120	19
Basidiospores				2	80	13
Cladosporium species				11	440	69
Epicoccum species						
TOTAL	**7**	**280**		**16**	**640**	

Signature: K. Smith Date: 4/4/2019 Reviewed: Johnathan Wilson Date: 4/4/2019

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Direct Identification Lab Results

SanAir Technologies Laboratory

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Phone: 410-867-6262

Project Number: 6411 G Street
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Analyst: Smith, Kiersten

Direct Identification Analysis

SanAir ID: 19015349-007 Sample #:Swab Classroom # 3 Sink Cabinetry

D1 - Direct Identification Analysis on Surface Swab using STL 104

Direct ID of Mold

Fungi	Estimated Amount
Aspergillus species	Moderate
Basidiospores	Moderate

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

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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.

Pollen - Produced by trees, flowers, weeds and grasses. The level of pollen production can depend on water availability, precipitation, temperature, and light. Pollen is usually dispersed by either insects or the wind.
Health Effects: Mostly effects the respiratory tract with hay fever symptoms but has also been shown to trigger asthma in some people.

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 species - A genus of fungi containing over 180 recognized species. Members of this genus have been recovered from a variety of habitats, but are especially common as saprophytes on decaying vegetation, soils, stored food, and feed products in tropical and subtropical regions. Some species are xerophilic. Some species are parasitic on insects, plants and animals, including man. Some species are reported mycotoxin producers. Both Penicillium and Aspergillus spores share similar morphology on non-viable analysis and therefore are lumped together into the same group. Only through the visualization of reproductive structures can the genera be distinguished.
Health Effects: Can produce type I and III fungal hypersensitivities. All of the species contained in this genus should be considered allergenic. Various Aspergillus species are a common cause of extrinsic asthma (immediate-type hypersensitivity: type I). Acute symptoms include edema and bronchiospasms. Chronic cases may develop pulmonary emphysema. Members of this genus are reported to cause a variety of opportunistic infections of the ears and eyes. Severe pulmonary infections may also occur.
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.

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.

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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.

Epicoccum species - It is found in plants, soil, grains, textiles, and paper products. Frequently isolated from air and occasionally occurs in house dust. Is a saprophyte and considered a weakly parasitic secondary invader of plants, moldy paper and textiles. Epicoccum is usually isolated with either Cladosporium species or Aureobasidium species.
Health Effects: A common allergen. It also has the potential to produce type I fungal hypersensitivity reactions.
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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Conclusions/Recommendations

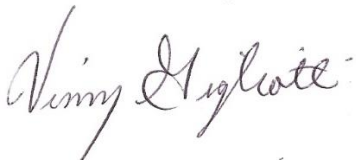
During the inspection, visible growth was sighted in the sink cabinetry of Classroom #3. Cleaning recommendations are above.

The ceiling tiles appeared to be sagging in several of the rooms, which is an indication if humidity concerns. There were also water stained ceiling tiles in the stairwell areas of the school. The recommendations listed above should be followed as need.

No elevated airborne mold spores were detected in the locations tested and should pose no health of 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)**