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	Beltsville Academy 110,597 Ft^2	Zack Butcher Certified Indoor Environmentalist Environmental Solutions, Inc. 6114 Drum Point Rd Deale, MD 20751 410-867-6262 zack@esi4u.com

Property Location

4300 Wicomico Ave, Beltsville, MD 20705

Date of Inspection: 5/1/2019

Prepared By: Zack Butcher

Certified Indoor Environmentalist (CIE)

Dear Mr. Baylor,

The results of the inspection and testing performed at Beltsville Academy 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.

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 Historically elevated levels of humidity, condensation from pipes, periodic steam leaks and outdated HVAC systems, may have contributed to water damage ceiling tiles and colonization of mold spores in various area of the school.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 and 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 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.

Location	IAQ Sample #	Swab	R/H	Temp	CO2	Co	Cubic feet of air.	
216	2434610	N/A	61.8%	70.8°	1,292	0.00	11,400	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	Window Units	Windows
2x4	CMU	1	0	17	4	0	1	8
YES	NO	N/A	N/A	N/A	NO	N/A	NO	NO

Inspected

- There were 20 water damaged ceiling tiles.
- The Carbon Dioxide (CO2) level in this room was elevated at 1,292 ppm (parts per million).
- The indoor air quality should not pose health or environmental concerns, as the total fungal ecology was 160 spores/M³ of breathable air space.

Recommendations

- Remove, discard, and replace the water damaged ceiling tiles.
- To reduce Carbon Dioxide (CO2) levels, increase air exchange within this classroom. Ventilating or circulating the air with a fan will also reduce Carbon Dioxide (CO2) levels.

Location	IAQ Sample #	Swab	R/H	Temp	CO2	Co	Cubic feet of air.	
219	2434611	N/A	50.7%	73.5°	3,369	0.00	9,000	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	Window Units	Windows
2x4 & 1x1	CMU	1	30	0	6	1	1	6
YES	NO	N/A	N/A	N/A	YES	NO	NO	NO

Observation Notes

- There was one sagging/collapsing ceiling tile.
- There was water damage in the sink cabinet.
- The Carbon Dioxide (CO2) level in this room was elevated at 3,369 ppm (parts per million).
- The indoor air quality should not pose health or environmental concerns, as the total fungal ecology was 440 spores/M³ of breathable air space.

Recommendations

- Remove, discard, and replace the one sagging/collapsing ceiling tile.
- HEPA vacuum, then damp-wipe the sink cabinetry with an anti-microbial agent to remove water staining and suspected microbial contamination.
- Ensure there are no active leaks from the sink.
- To reduce Carbon Dioxide (CO2) levels, increase air exchange within this classroom. Ventilating or circulating the air with a fan will also reduce Carbon Dioxide (CO2) levels.

Location	IAQ Sample #	Swab	R/H	Temp	CO2	Co	Cubic feet of air.	
206	2434612	N/A	56.8%	74.4°	1,817	0.00	8,100	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	Window Units	Windows
2x4 & 1x1	CMU	1	32	4	2	1	1	6
YES	NO	N/A	N/A	NO	NO	YES	NO	NO

Observation Notes

- There was one ceiling tile with visible suspected mold growth.
- There was one ceiling tile that was sagging/collapsing, but there was no evidence of water damage.
- There was dust and debris on the convector unit fins.
- The Carbon Dioxide (CO2) level in this room was elevated at 1,817 ppm (parts per million).
- The indoor air quality should not pose health or environmental concerns, as the total fungal ecology was 400 spores/M³ of breathable air space.

Recommendations

- Remove, discard, and replace the ceiling tile with visible suspected mold growth and the ceiling tile that was sagging/collapsing.
- Clean the convector unit fins with an antimicrobial to remove dust and debris.
- To reduce Carbon Dioxide (CO2) levels, increase air exchange within this classroom. Ventilating or circulating the air with a fan will also reduce Carbon Dioxide (CO2) levels.

Location	IAQ Sample #	Swab	R/H	Temp	CO2	Co	Cubic feet of air.	
200	2434613	N/A	49.3%	73.7°	838	0.00	10,000	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	Window Units	Windows
1x1	CMU + PEG-BOARD	0	0	3	5	1	1	6
NO	NO	N/A	N/A	NO	NO	YES	NO	NO

Observation Notes

- There was dust and debris on the convector unit fins.
- The indoor air quality should not pose health or environmental concerns, as the total fungal ecology was 200 spores/M³ of breathable air space.

Recommendations

- Clean the convector unit fins with an antimicrobial to remove the dust and debris.

Location	IAQ Sample #	Swab	R/H	Temp	CO2	Co	Cubic feet of air.	
124	2434614	N/A	53.3%	72.3°	978	0.00	8,800	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	Window Units	Windows
1x1	CMU	1	24	2	5	0	1	5
NO	NO	NO	NO	NO	NO	N/A	NO	NO
Observation Notes								
• The indoor air quality should not pose health or environmental concerns, as the total fungal ecology was 200 spores/M³ of breathable air space.								
Recommendations								
• None								

Location	IAQ Sample #	Swab	R/H	Temp	CO2	Co	Cubic feet of air.	
126	2434615	N/A	56.6%	72.3°	1,251	0.00	12,000	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	Window Units	Windows
1x1	CMU	1	22	6	8	0	1	6
YES	YES	N/A	NO	NO	NO	N/A	NO	YES
Observation Notes								
• There were 15 water damaged ceiling tiles. • There were water stains on the exterior CMU wall under a window, indicating a possible window leak. • The Carbon Dioxide (CO2) level in this room was elevated at 1,251 ppm (parts per million). • The indoor air quality should not pose health or environmental concerns, as the total fungal ecology was 280 spores/M³ of breathable air space.								
Recommendations								
• Remove, discard, and replace the water damaged ceiling tiles. • Clean the water stains and discoloration from the CMU wall under the window. Ensure there are no active leaks from the window. • To reduce Carbon Dioxide (CO2) levels, increase air exchange within this classroom. Ventilating or circulating the air with a fan will also reduce Carbon Dioxide (CO2) levels.								

Location	IAQ Sample #	Swab	R/H	Temp	CO2	Co	Cubic feet of air.	
118	2434616	N/A	51.9%	72.1°	646	0.00	10,000	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	Window Units	Windows
1x1	CMU	1	30	2	4	0	1	6
NO	NO	NO	NO	NO	NO	N/A	NO	NO
Observation Notes								
• The indoor air quality should not pose health or environmental concerns, as the total fungal ecology was 720 spores/M³ of breathable air space.								
Recommendations								
• None								

Location	IAQ Sample #	Swab	R/H	Temp	CO2	Co	Cubic feet of air.	
110	2434617	N/A	55.8%	71.2°	579	0.00	7,800	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	Window Units	Windows
2x4	CMU & PEG-Board & Partition Wall	1	33	3	5	0	1	6
NO	NO	NO	NO	NO	NO	N/A	YES	NO
Observation Notes								
• There was exposed insulation in the corner of the room under a structural support with water stains. • There was dust and debris on the window unit fins. • The indoor air quality may pose health or environmental concerns, as the total fungal ecology was slightly elevated at 1,880 spores/M³ of breathable air space.								
Recommendations								
• Remove the insulation from the exposed wall cavity in the corner of the room. • Clean the rust stains from the structural support above the exposed wall cavity in the corner of the room. Ensure there are no active leaks in this area. • Clean the dust and debris from the window unit fins with an antimicrobial. • Engage a minimum 500 CFM HEPA filtered AFD (Air Filtration Device) for a minimum of 24 hours.								

Location	IAQ Sample #	Swab	R/H	Temp	CO2	Co	Cubic feet of air.	
107	2434618	N/A	61.1%	72.1°	1,093	0.00	7,500	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	Window Units	Windows
2x4 & 1x1	CMU	1	1	5	5	0	1	6
YES	NO	N/A	NO	NO	NO	N/A	NO	NO

Observation Notes

- There was one 2x4 ceiling tile that had visible suspected mold growth.
- The Carbon Dioxide (CO2) level in this room was slightly elevated at 1,093 ppm (parts per million).
- The indoor air quality should not pose health or environmental concerns, as the total fungal ecology was 1,000 spores/M³ of breathable air space.

Recommendations

- Remove, discard, and replace the one 2x4 ceiling tile that has visible suspected mold growth.
- To reduce Carbon Dioxide (CO2) levels, increase air exchange within this classroom. Ventilating or circulating the air with a fan will also reduce Carbon Dioxide (CO2) levels.

Location	IAQ Sample #	Swab	R/H	Temp	CO2	Co	Cubic feet of air.	
128	2434619	N/A	57.1%	72.1°	1,263	0.00	6,400	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	Wall-mounted Units	Windows
1x1	CMU & WB	1	8	3	6	0	1	4
NO	NO	NO	NO	NO	NO	N/A	NO	NO

Observation Notes

- The Carbon Dioxide (CO2) level in this room was elevated at 1,263 ppm (parts per million).
- The indoor air quality should not pose health or environmental concerns, as the total fungal ecology was 520 spores/M³ of breathable air space.

Recommendations

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

Location	IAQ Sample #	Swab	R/H	Temp	CO2	Co	Cubic feet of air.	
121	2434620	N/A	54.8%	72.6°	629	0.00	9,600	
Inspected								
Ceiling Tiles	Walls	Teachers Desk	Children's Desk	Tables	Cabinets Shelving	Convector	Window Units	Windows
1x1	CMU	2	30	1	4	0	1	6
YES	YES	NO	NO	NO	NO	N/A	NO	NO
Observation Notes								
• There were three water stained ceiling tiles. • There were water stains on the exterior CMU wall. • The indoor air quality should not pose health or environmental concerns, as the total fungal ecology was 960 spores/M³ of breathable air space.								
Recommendations								
• Remove, discard, and replace the water stained ceiling tiles. • Clean the water stains and discoloration from the CMU wall under the window. Ensure there are no active leaks from the window.								

Location	IAQ Sample #	Swab	R/H	Temp	CO2	Co	Cubic feet of air.
Outside	2434609		69.0%	62.0°			
Observation Notes							
• The total fungal ecology in the outdoor air sample was 520 spores/M³ of breathable air space.							

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 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.

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: 4300 Wicomico Ave
P.O. Number: JZB
Project Name: Beltsville Academy
Collected Date: 5/1/2019
Received Date: 5/2/2019 10:00:00 AM

SanAir ID Number
19020936
FINAL REPORT
5/6/2019 11:40:40 AM

Analyst: Shepperson, Josh

Air Cassette Analysis

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

SanAir ID Number	19020936-001			19020936-002			19020936-003			19020936-004		
Analysis Using STL	107C			107C			107C			107C		
Sample Number	2434609			2434610			2434611			2434612		
Sample Identification	Control-Outside			Room 216			Room 219			Room 206		
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	1	40	n/a	22	880	n/a	108	4320	n/a	59	2360	n/a
Fibers	1	40	n/a	2	80	n/a	6	240	n/a	3	120	n/a
Mycelial Fragments												
Pollen	1	40	n/a									
Fungal Identification	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**
Ascospores	2	80	15									
Aspergillus/Penicillium				1	40	25	4	160	36	5	200	50
Basidiospores	7	280	54							2	80	20
Bispora like												
Cerebella/Monodictys												
Chaetomium species												
Cladosporium species	4	160	31	3	120	75	3	120	27	2	80	20
Curvularia species							1	40	9			
Smuts/Myxomycetes							3	120	27	1	40	10
Stachybotrys species												
TOTAL	**13**	**520**		**4**	**160**		**11**	**440**		**10**	**400**	

Signature: Date: 5/6/2019 Reviewed: Date: 5/6/2019

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Air Cassette Analysis

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SanAir ID Number	19020936-005			19020936-006			19020936-007			19020936-008		
Analysis Using STL	107C			107C			107C			107C		
Sample Number	2434613			2434614			2434615			2434616		
Sample Identification	Room 200			Room 124			Room 126			Room 118		
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	2			2			2			1+		
Other	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**
Dander	48	1920	n/a	29	1160	n/a	78	3120	n/a	11	440	n/a
Fibers				3	120	n/a	1	40	n/a	2	80	n/a
Mycelial Fragments												
Pollen												
Fungal Identification	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**
Ascospores										1	40	6
Aspergillus/Penicillium	1	40	20	1	40	20	2	80	29	1	40	6
Basidiospores							1	40	14			
Bispora like												
Cerebella/Monodictys												
Chaetomium species				1	40	20						
Cladosporium species	2	80	40	2	80	40	3	120	43	16	640	89
Curvularia species												
Smuts/Myxomycetes	2	80	40	1	40	20	1	40	14			
Stachybotrys species												
TOTAL	**5**	**200**		**5**	**200**		**7**	**280**		**18**	**720**	

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Analyst: Shepperson, Josh

Air Cassette Analysis

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

SanAir ID Number	19020936-009			19020936-010			19020936-011			19020936-012		
Analysis Using STL	107C			107C			107C			107C		
Sample Number	2434617			2434618			2434619			2434620		
Sample Identification	Room 110			Room 107			Room 128			Room 121		
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	2			2			2			2		
Other	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**
Dander	9	360	n/a	125	5000	n/a	62	2480	n/a	42	1680	n/a
Fibers	1	40	n/a	5	200	n/a	4	160	n/a	5	200	n/a
Mycelial Fragments	1	40	n/a									
Pollen	1	40	n/a	1	40	n/a						
Fungal Identification	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**
Ascospores				4	160	16				5	200	21
Aspergillus/Penicillium	2	80	4	2	80	8	1	40	8	1	40	4
Basidiospores	3	120	6	2	80	8	2	80	15	1	40	4
Bispora like	1	40	2	3	120	12						
Cerebella/Monodictys				1	40	4						
Chaetomium species												
Cladosporium species	38	1520	81	7	280	28	4	160	31	16	640	67
Curvularia species				1	40	4						
Smuts/Myxomycetes	3	120	6	5	200	20	5	200	38	1	40	4
Stachybotrys species							1	40	8			
TOTAL	**47**	**1880**		**25**	**1000**		**13**	**520**		**24**	**960**	

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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.

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/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.

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Bispora like - Bispora is a ubiquitous anamorphic fungus and may be isolated from decaying wood.
Health Effects: There has been no known research on the health effects, toxicity, or allergens to this fungi.
References: C.J. K. Wang, R.A. Zabel, Identification Manual for Fungi from Utility Poles in the Eastern United States, American Type Culture Collection 1990

Cerebella/Monodictys - An enivronmental fungi. Known to be a plant pathogen.

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.

Curvularia species - Curvularia is found on plant material and is considered a saprobe. It has also been isolated from dust samples and from wallpaper.
Health Effects: It has been reported to cause type I hypersensitivity and to be a cause of allergic fungal sinusitis. It may cause corneal infections, mycetoma and infections in immune compromised hosts.
References: De Hoog, G.S., J. Guarro, J. Gene, and M.J. Figueras. Atlas of Clinical Fungi, 2nd Edition. The Netherlands: CBS, 2000.

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.

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Project Number: 4300 Wicomico Ave
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Project Name: Beltsville Academy
Collected Date: 5/1/2019
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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.

Stachybotrys species - This organism is rarely found in outdoor samples. It is usually difficult to find in indoor air samples unless it is physically disturbed because the spores are in a gelatinous mass. Grows well on wet media, preferably containing cellulose. It proliferates in the indoor environment with long term water damage, growing on wallpaper, gypsum board, and textiles. As a general rule, air cultures for Stachybotrys yields unpredictable results, mainly due to the fact that this fungus is usually accompanied by other fungi such as Aspergillus and Penicillium that normally are better aerosolized than Stachybotrys. This is a slow growing fungus on media. It does not compete well with other rapidly growing fungi. The black fungi grow on building material with high cellulose content and low nitrogen content. Appropriate media for the growth of this organism will have high cellulose content and low nitrogen content.
Health Effects: It has worldwide distribution and has been reported to cause dermatitis, cough, rhinitis, and headache, although no definitive reports of human infections have been verified. It has the ability to cause type I hypersensitivity. It is a documented mycotoxin producer.
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

Only one sample in this report indicates slightly elevated concentrations of aerosolized mold spores detected in the breathable air space of the specific test locations, which was in room 110.

Although there were no elevated concentrations of aerosolized mold spores in the breathable air space in the test locations except for room 110, several rooms still need attention. This is mainly due to sagging or water stained ceiling tiles located throughout the school, water damaged sink cabinetry, dust or debris on convector units or window mounted units, and slightly elevated levels of CO2. Please refer to all the recommendations listed above.

In addition, it was brought to ESI's attention that there was visible suspected mold growth and water damage in the boy's locker room due to a water loss from the girl's locker room above. The water damaged and contaminated building materials should be removed under the appropriate engineering and environmental controls.

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,

Zack Butcher (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)**