ESI Environmental Solutions, Inc.

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

Discovery Post Remediation Clearance Report

Project Contact Information

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Property Location

12711 Milan Way, Bowie, Maryland 20715

Date of Inspection 1/9/2019

Prepared By: Vinny Gigliotti

Certified Indoor Environmentalist (CIE)

Dear Sam,

The results of the post remediation inspection and testing performed at Chapel Forge Early Childhood Center, located at 12711 Milan Way, Bowie, Maryland 20715, 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, instrument readings, lab results, and recommendations for any areas inspected and/or tested that need additional cleaning or remediations Several photographs illustrating the problematic conditions are attached.

Background Information

The school was first inspected and tested on 12/5/2018, and ESI returned to the school on 1/9/19 to conduct a post remediation inspection and testing. The purpose of this post remediation inspection and testing is to determine if the areas remediated were properly cleaned and that NO health or environmental risk are present. If any problematic conditions are detected, ESI will make recommendations for corrective actions to be implemented by the PGCPS Environmental Team.

Observations and instrument readings

Location	IAQ Sample #	R/H	Temp	CO2	Co	Other
Music Room	2395536	37%	71	552	000	
Observations						
• There were NO signs of mold growth or elevated levels of moisture detected within this location. • The HVAC registers were cleaned, but rust was still evident. • The green carpet was not removed, but it was cleaned, and the curtain wall was removed, as this was an area of concern because the teacher indicated that it smelled. • The remediation and cleaning efforts were completed successfully, and the indoor air quality should pose no health or environmental risk. • The total spore count in this room went from 1,920 spores per cubic meter to only 160.						
Recommendations						
NONE						

Location	IAQ Sample #	R/H	Temp	CO2	Co	Other
Room 19	2395544	29	69	632	001	
Observations						
• 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. • Two of the HVAC ceiling registers and surrounding ceiling tile grids are rusted. This is an indication of condensation within the ducts. No mold was detected during the time of this inspection, but the condensation may become problematic in the spring and summer months.						
Recommendations						
NONE						

Location	IAQ Sample #	R/H	Temp	CO2	Co	Other
Main Office	2395545	26%	70	452	001	

Observations

- 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 occupants of this office space are experiencing physical discomfort because the thermostat is not properly regulating the HVAC.
- The total spore count in this room went from 3,480 spores per cubic meter to only 640.

Recommendations

A mechanical HVAC technician should inspect the HVAC system for the Main Office area.

Location	IAQ Sample #	R/H	Temp	CO2	Co	Other
Room 14	2395546	28%	69	587	001	

Observations

- There was a small section of visible mold growth under one of the U-shape tables that was missed during the remediation efforts. However, the onsite PGCPS Environmental personal (Cedric) cleaned / removed it with a bleach and water solution.
- The indoor air quality should pose no health or environmental risk.

Recommendations

NONE

Location	IAQ Sample #	R/H	Temp	CO2	Co	Other
Room 23	2395542	30%	70	552	000	

Observations

- 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.

Recommendations

NONE

Location	IAQ Sample #	R/H	Temp	CO2	Co	Other
Room 3	2395548	28%	70	632	000	

Observations

- 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.

Recommendations

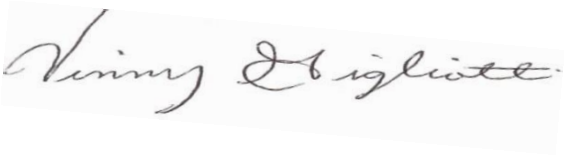
NONE

Conclusions

Once I concluded the visual inspection and didn't see any residual mold growth or contributing factors as to why mold would recolonize, I collected indoor air quality samples of microbial and biological contaminates to be analyzed by an independent laboratory. The samples in this report indicate a normal fungal ecology for the specific locations tested. Therefore, the indoor air quality passed, and based on the visual inspection and the lab results, there are no health or environmental risk related to the remediation areas of the school. (Please refer to the attached lab results below for identification and spore count per location.)

I hope you found our service beneficial. If you have any questions or concerns, please feel free to contact me at 301-509-0010 which my cell phone and or call my office at 410-867-6262.

Respectfully,



Vinny Gigliotti (CIE)
Environmental Solutions, Inc.

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.

SanAir Technologies Laboratory

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

Project Number: 12711
P.O. Number: VJG
Project Name: Chaple Forge
Collected Date: 1/9/2019
Received Date: 1/11/2019 10:20:00 AM

SanAir ID Number
19001453
FINAL REPORT
1/14/2019 12:22:42 PM

Analyst: Smith, Kiersten

Air Cassette Analysis

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

SanAir ID Number	19001453-001			19001453-002			19001453-003			19001453-004		
Analysis Using STL	107C			107C			107C			107C		
Sample Number	2395536			2395544			2395545			2395546		
Sample Identification	Music Room			Room 19			Main Office			Room 14		
Sample Type	Air Cassette - Micro-5			Air Cassette - Micro-5			Air Cassette - Micro-5			Air Cassette - Micro-5		
Volume	25 Liters			25 Liters			25 Liters			25 Liters		
Analytical Sensitivity	40 Count/M³			40 Count/M³			40 Count/M³			40 Count/M³		
Background Density	1+			1+			2			1+		
Other	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**
Dander	7	280	n/a	10	400	n/a	82	3280	n/a	43	1720	n/a
Fibers				2	80	n/a	5	200	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	1	40	25									
Aspergillus/Penicillium				8	320	>99	10	400	63	5	200	>99
Basidiospores	1	40	25				1	40	6			
Cladosporium species	2	80	50				3	120	19			
Curvularia species												
Smuts/Myxomycetes							1	40	6			
Ulocladium species							1	40	6			
TOTAL	**4**	**160**		**8**	**320**		**16**	**640**		**5**	**200**	

Signature: K. Smith Date: 1/14/2019 Reviewed: Johnathan Wilson Date: 1/14/2019

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Analyst: Smith, Kiersten

Air Cassette Analysis

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

SanAir ID Number	19001453-005			19001453-006			19001453-007			
Analysis Using STL	107C			107C			107C			
Sample Number	2395547			2395548			2395543			
Sample Identification	Room 23			Room 3			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/M^3			40 Count/M^3			40 Count/M^3			
Background Density	2			1+			1			
Other	**Raw Count**	**Count/M^3**	**%**	**Raw Count**	**Count/M^3**	**%**	**Raw Count**	**Count/M^3**	**%**	
Dander	28	1120	n/a	23	920	n/a	5	200	n/a	
Fibers				2	80	n/a	1	40	n/a	
Fungal Identification	**Raw Count**	**Count/M^3**	**%**	**Raw Count**	**Count/M^3**	**%**	**Raw Count**	**Count/M^3**	**%**	
Ascospores	1	40	6							
Aspergillus/Penicillium	11	440	69	1	40	33				
Basidiospores	1	40	6	1	40	33				
Cladosporium species	1	40	6	1	40	33				
Curvularia species	2	80	13							
Smuts/Myxomycetes										
Ulocladium species										
TOTAL	**16**	**640**		**3**	**120**					

Signature: K. Smith Date: 1/14/2019 Reviewed: Johnathan Wilson Date: 1/14/2019

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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.

Ascospores - From the fungal Subphylum Ascomycotina. Ascospores are ubiquitous in nature and are commonly found in the outdoor environment. This class contains the "sac fungi" and yeasts. Some ascospores can be identified by spore morphology, however; some care should be excercised with regard to specific identification. They are identified on tape lifts and non-viable analysis by the fact that they have no attachment scars and are sometimes enclosed in sheaths with or without sacs. Ascomycetes may develop both sexual and asexual stages. Rain and high humidity may help asci to release, and dispurse ascospores, which is why during these weather conditions there is a great increase in counts.
Health Effects: This group contains possible allergens.

Aspergillus/Penicillium - These spores are easily aerosolized. Only through the visualization of reproductive structures can the genera be distinguished. Also included in this group are the spores of the genera Acremonium, Phialophora, Verticillium, Paecilomyces, etc. Small, round spores of this group lack the necessary distinguishing characteristics when seen on non-viable examination.
Health Effects: Can cause a variety of symptoms including allergic reactions. Most symptoms occur if the individual is immunocompromised in some way (HIV, cancer, etc). Both Penicillium and Aspergillus spores share similar morphology on non-viable analysis and therefore are lumped together into the same group.

Basidiospores - From the Subphylum Basidiomycotina which contains the mushrooms, shelf fungi, and a variety of other macrofungi. They are saprophytes, ectomycorrhizal fungi or agents of wood rot, which may destroy the structure wood of buildings. It is extremely difficult to identify a specific genera of mushrooms by using standard culture plate techniques. Some basidiomycete spores can be identified by spore morphology; however, some care should be exercised with regard to specific identification. The release of basidiospores is dependant upon moisture, and they are dispersed by wind.
Health Effects: Many have the potential to produce a variety of toxins. Members of this group may trigger Type I and III fungal hypersensitivity reactions. Rarely reported as opportunistic pathogens.

Cladosporium species - The most commonly identified outdoor fungus. The outdoor numbers are reduced in the winter and are often high in the summer. Often found indoors in numbers less than outdoor numbers. It is commonly found on the surface of fiberglass duct liner in the interior of supply ducts. A wide variety of plants are food sources for this fungus. It is found on dead plants, woody plants, food, straw, soil, paint and textiles. Often found in dirty refrigerators and especially in reservoirs where condensation is collected, on moist window frames it can easily be seen covering the whole painted area with a velvety olive green layer.
Health Effects: It is a common allergen. It can cause mycosis. Common cause of extrinsic asthma (immediate-type hypersensitivity: type I). Acute symptoms include edema and bronchiospasms, chronic cases may develop pulmonary emphysema. Illnesses caused by this genus can include phaeohyphomycosis, chromoblastomycosis, hay fever and common allergies.
References: Flannigan, Brian, Robert A. Samson, and J. David Miller, eds. Microorganisms in Home and Indoor Work Environments: Diversity, Health Impacts, Investigation, and Control. London and New York: Taylor & Francis, 2001.

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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.

Ulocladium species - Isolated from soil, dead plants and cellulose materials. Found on textiles. It can be found on many types of materials, but mostly found on decaying materials. Has a greater water activity need for growth and is therefore considered a water indicator organism.
Health Effects: Reported to be a major allergen. Rarely causes subcutaneous infections in humans. It has a high water requirement.
References: De Hoog, G.S., J. Guarro, J. Gene, and M.J. Figueras. Atlas of Clinical Fungi, 2nd Edition. The Netherlands: CBS, 2000.

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)**