

Customer: Firewater Response
Address: 1130 Lebanon Rd.
Pittsburgh, PA 15122
Contact: Stefan Schaming
Customer Project: Fort Cherry Elementary
Survey Date: October 4, 2021
Report Date: October 7, 2021

Project Summary

Herbert Layman, BS, SM, CIEC; Microbial Consultant was contacted by Stefan Schaming of Firewater Response concerning a mold issue in the Fort Cherry Elementary School. As related to Mr. Layman by Stefan Schaming, one classroom (Room 132) had visible mold growth on several school items. Unit ventilators are used for heating and cooling of the classrooms. The school district wanted Firewater Response to perform spore trap air sampling in many of the classrooms to determine if any mold issues exist in other classrooms. The project was scheduled and completed on October 4, 2021, by Stefan Schaming of Firewater Response.

Field Summary

Fort Cherry Elementary was built in the early 1990's and grades K- 6 occupy the school. As of October 6, 2021, Classroom 132 was unoccupied due to mold growth on several school items. Sixteen spore trap air samples including a blank sample (quality control) were collected by Stefan Schaming of Firewater Response on the morning of October 4, 2021. One of the spore trap air tests was collected in the High School Band Room. The classrooms utilize unit ventilators for heating and cooling. The unit ventilators were installed in 2018 and were not utilized for the past year due to COVID. The unit ventilator in classroom 132 was purchased 20 years old.

Table 1. Sampling Plan

<i>Area</i>	<i>Sample #</i>	<i>AllergencoD Spore Trap</i>
High School Band Room	001	X
Elementary 139	002	X
Elementary 138	003	X
Elementary 140	004	X
Elementary 141	005	X
Elementary 127	006	X
Elementary 109	007	X
Elementary 103	008	X
Elementary 133	009	X
Elementary 132	010	X
Elementary 203	011	X
Elementary 209	012	X
Elementary 239	013	X
Elementary 159	014	X
Outside	015	X
Blank	016	X

The air samples were collected on AllergencoD spore trap cassettes using a Zefon Biopump™ calibrated at 15 liters per minute (calibration of the pump was performed at the site before the initial sample was collected). All indoor air samples and the outside spore trap air sample were collected for five minutes producing 75-liter samples. A blank spore trap cassette was included with the sample set for quality assurance purposes to ensure that no cross contamination occurred during the handling or analytical process. The samples were transported to the laboratory by Firewater Response and received in good condition the same day for microbial analysis

Laboratory Results

Laboratory results are included below. All samples were analyzed at U.S. Micro-Solutions, Inc. Environmental Microbiology Laboratory. The laboratory is accredited by the American Industrial Hygiene Association (AIHA) for the analysis of fungi and bacteria in environmental samples.

Table 3. Air Samples (Spore Trap Counts)

<i>Area or Room</i>	<i>AllergencoD Spore Trap Air Samples (spores/m³)</i>	<i>Rank Order Assessment Predominant Mold Genera</i>
High School Band Room	637	43% Basidiospores 16% <i>Cladosporium</i> 16% Rusts 12% Smuts/Myxomycetes 10% <i>Aspergillus/Penicillium</i> -like 2% <i>Pithomyces</i>
Elementary 139	767	64% <i>Aspergillus/Penicillium</i> -like 19% Basidiospores 8% Rusts 5% Ascospores. 3% <i>Cladosporium</i>
Elementary 138	1,105	39% <i>Cladosporium</i> 28% Basidiospores 19% <i>Aspergillus/Penicillium</i> -like 5% Ascospores 4% Rusts 4% Smuts/Myxomycetes 2% <i>Epicoccum</i>
Elementary 140	2,379	84% Basidiospores 13% <i>Cladosporium</i> 2% Ascospores 1% <i>Aspergillus/Penicillium</i> -like 1% Rusts
Elementary 141	910	49% Basidiospores 44% <i>Cladosporium</i> . 3% Ascospores 3% Smuts/Myxomycetes 1% Rusts

Elementary 127	2,262	67% Basidiospores 27% <i>Cladosporium</i> 4% Ascospores 2% <i>Aspergillus/Penicillium</i> -like 1% Rusts
Elementary 109	1,573	70% Basidiospores 19% <i>Cladosporium</i> 5% <i>Aspergillus/Penicillium</i> -like 3% Ascospores 2% Smuts/Myxomycetes 1% Rusts
Elementary 103	728	61% Basidiospores 23% <i>Cladosporium</i> 5% <i>Aspergillus/Penicillium</i> -like 5% Rusts 4% Smuts/Myxomycetes 2% Ascospores
Elementary 133	91	43% <i>Aspergillus/Penicillium</i> -like 29% Rusts 14% Basidiospores 14% <i>Cladosporium</i>
Elementary 132	14,809	99% <i>Aspergillus/Penicillium</i> -like 1% Rusts
Elementary 203	780	45% <i>Cladosporium</i> 35% Basidiospores 8% <i>Aspergillus/Penicillium</i> -like 8% Smuts/Myxomycetes 2% Ascospores 2% <i>Pithomyces</i>
Elementary 209	455	40% <i>Cladosporium</i> 31% Basidiospores 11% Ascospores 11% <i>Aspergillus/Penicillium</i> -like 6% Rusts
Elementary 239	130	60% Basidiospores 10% <i>Cladosporium</i> 10% <i>Nigrospora</i> 10% Rusts 10% Smuts/Myxomycetes
Elementary 259	117	56% <i>Cladosporium</i> 22% Basidiospores 11% Ascospores 11% Rusts

Outside	29,369	98% Basidiospores 1% Ascospores 0 % <i>Cladosporium</i>
Blank	–	No particulates or spores noted

Field Impression & Interpretation

This investigator uses criteria from various sources when evaluating indoor environments. Published working papers include documents from professional industrial hygienists, microbiologists, and indoor environmental scientists, e.g., *Recognition, Evaluation, and Control of Indoor Mold (AIHA – 2020)*, and the *Institute of Inspection, Cleaning and Restoration Certification’s IICRC) S-520/2015 Standard for Professional Mold Remediation 3rd Ed.* The investigator also applies knowledge gained from numerous past investigations in determining when laboratory and visual results indicate a normal fungal ecology for each type of structure.

Indoor to outdoor (distribution) – Generally, is it favorable to have lower indoor spore counts as compared to outdoor spore counts and to see similar types and distribution of fungi indoors and outdoors. The results of the air samples represent a short sampling time frame and should not be considered an exposure assessment. There are no methods currently available for assessing the health effects of human exposure to mold. These air tests are area sampling of the school and provide an indication as to the fungal ecology of the indoor environment. This project involved spore trap air samples (non-culturable) and a visual assessment of the classrooms of the school. The predominant spore type in the classrooms were basidiospores and *Cladosporium* and this usually represents the infiltration of outdoor air (via unit ventilators or open windows) into the classrooms. At this time of the year, the outdoor air usually reveals the predominance of basidiospores, *Cladosporium* spores, and ascospores.

It should be noted that classroom 139 had acceptable levels of mold spores on the October 4, 2021, sampling. However, the spore trap air levels in classroom 139 collected on September 20, 2021, by Firewater Response revealed elevated levels of *Cladosporium* (42,453 spores/m³ of air) – See USMS Report #90165-21. In the September air sampling the mold may have originated from a contaminated unit ventilator in Classroom 139. The spore trap air sampling in the High School Band Room indicated acceptable level of mold spores.

The results of the spore trap air samples for mold (**except** Classroom 132 had an elevated level of *Aspergillus/Penicillium*-like spores – 14,497 m³ of air) represent a **Condition 1** or a “**normal fungal ecology**” as stated in the *Institute of Inspection, Cleaning and Restoration Certification’s ANSI/IICRC S-520-2015 Standard for Professional Mold Remediation 3rd Edition*. A **Condition 1** is defined as “an indoor environment that may have settled spores, fungal fragments or traces of actual growth

whose identity, location, and quantity are reflective of a normal fungal ecology for a similar indoor environment.”

Recommendations

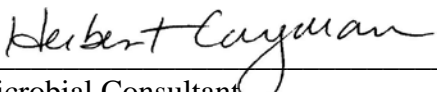
Recommendations are based upon scientific findings from laboratory and visual data. As with any recommendations, no one single action is guaranteed to eliminate building-related complaints.

1. Firewater Response placed an air scrubber in Classroom 132 in the afternoon on October 5, 2021, to clean the air of mold spores. An appropriate biocide (Benefact) was used to clean and disinfect the unoccupied classroom.
2. Indoor relative humidity should be maintained between 35% and 50% year-round. Maintaining these levels discourages mold growth. Maintaining humidity levels below 50% will also inhibit the reproductive cycle of dust mites. Further, dust mites cannot survive humidity levels below 45%. Dust mites are a major allergen source for people in indoor environments. All opinions discussed in this report are expressed within a reasonable degree of

expert certainty.

Contacts

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