

INDOOR AIR QUALITY SURVEY

SAMPLING LOCATION:

East Pennsboro Area Middle School
529 North Enola Drive
Enola, Pennsylvania

SAMPLING DATE:

August 3, 2017

PREPARED FOR:

Mr. Chad Reigle
East Pennsboro Area School District
890 Valley Street
Enola, Pennsylvania 17025

CALI PROJECT NUMBER:

17-1081-007

REPORT DATE:

August 7, 2017

Survey Performed By:



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Executive Summary:

In August 2017, Cumberland Analytical Laboratories, Inc. (CALI) was contracted by the East Pennsboro Area School District to perform an Indoor Air Quality Survey at the East Pennsboro Area Middle School. This survey consisted of the collection of air samples for airborne fungal contaminants on August 3, 2017, by Richard E. Roush, CIAQM, Project Manager of Cumberland Analytical Laboratories, Inc.

Unusual Mold Expiations:

The results table listed below showed that **no unusual mold conditions exist** in any of the samples. Please refer to the individual sample results (Page 4 and Page 5) for more detailed information regarding these individual samples.

Sample No.	Sample Location	Sample Type	Unusual Mold Conditions Exist
01	Room 209	Mold Air	No
02	2 nd Floor Hallway	Mold Air	No
03	Room 102	Mold Air	No
04	Hallway Outside Room 106	Mold Air	No
05	Room 112	Mold Air	No
06	Hallway Outside Room 116	Mold Air	No
07	Outside Room 142	Mold Air	No
08	Outside Room 160	Mold Air	No
09	Outside	Mold Air	N/A

Methods and Analysis – Air Sampling:

Particle air sampling techniques were used. Air samples were collected using a calibrated high volume-sampling pump and Allergenco D Cassettes. Sample analysis provided by Environmental Hazard Services, located in Richmond, Virginia.

The samples were packaged for proper shipment and delivered to EHS Laboratories an American Industrial Hygiene Association (AIHA) accredited laboratory located out of Richmond, Virginia. *While the results and information of this analysis are considered to be reliable, CALI assumes no responsibility for the accuracy of these results.*

Standards – Bacterial/Mold:

There are no current Permissible Exposure Levels or Safe Levels established by OSHA or NIOSH.

EPA has guidelines on mold remediation in schools yet no clearance levels have been established. Molds are a major source of indoor allergens. Molds can also trigger asthma. Even when dead or unable to grow, mold can cause health effects such as allergic reactions. The types and severity of health effects associated with exposure to mold depend, in part, on the type of mold present and the extent of the occupants' exposure and existing sensitivities or allergies. Prompt and effective remediation of moisture problems is essential to minimize potential mold exposures and their potential health effects.

Statistically, total spore counts are always significantly correlated with counts conducted on Agar Plate samples. On average, total mold spore to culturable mold ratios are in the range of 10:1. A concentration dominated by one genus such as Penicillium or Aspergillus even at 10,000 Particles/m³ is unacceptable. Total levels should not exceed 2,000 Particles/m³, and each individual count should not exceed 650 Particles/m³. For remediation, a reduction of airborne spores based upon Pre and Post sampling, compared to exterior sample results, and *no evidence of mold* growth present is the goal.

Survey Results:

The result of the Non-Viable Spore Trap Sample collected on 08/03/2017, **showed that no unusual mold condition exists**. Please refer to the individual sample results as listed on Page 4 and Page 5 of this report, for more detailed information regarding this individual sample.

Recommendations:

At this time, no further action is required.

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Non-Viable Mold Spore Trap Sample Results Table #1:

Lab No. Client Sample ID: Date Collected: Collection Location: Sampling Media: Analytical Sensitivity spores/m3: Volume (L):	17-08-00630-009 09 08/03/2017 OUTSIDE Air-O-Cell 13.3 75		17-08-00630-001 01 08/03/2017 Room 209 Air-O-Cell 13.3 75		17-08-00630-002 02 08/03/2017 2 nd Floor Hallway Air-O-Cell 13.3 75		17-08-00630-003 03 08/03/2017 Room 102 Air-O-Cell 13.3 75		17-08-00630-004 04 08/03/2017 Hallway Outside Room 106 Air-O-Cell 13.3 75	
Spore ID	Raw Count	Results (Spores/m3)	Raw Count	Results (Spores/m3)	Raw Count	Results (Spores/m3)	Raw Count	Results (Spores/m3)	Raw Count	Results (Spores/m3)
Cladosporium Spores	40	530	1	13	2	27	3	40	4	53
Penicillium/Aspergillus Group Spores	5	67	5	67	0	0	1	13	1	13
Alternaria Spores	0	0	1	13	0	0	0	0	0	0
Arthrinium Spores	1	13	0	0	0	0	0	0	0	0
Pyricularia Spores	4	53	0	0	0	0	0	0	0	0
Chaetomium Spores	0	0	0	0	0	0	0	0	1	13
Pithomyces Spores	1	13	0	0	0	0	0	0	2	27
Epicoccum Spores	3	40	0	0	0	0	0	0	1	13
Nigrospora Spores	9	120	0	0	0	0	1	13	0	0
Fusarium Spores	2	27	0	0	0	0	0	0	0	0
Smuts, Periconia, Myxomycetes	12	160	0	0	2	27	1	13	2	27
Total Spores (Spores/m3)	----	1000	----	93	----	53	----	80	----	150

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Non-Viable Mold Spore Trap Sample Results Table #2:

Spore ID	17-08-00630-009		17-08-00630-005		17-08-00630-006		17-08-00630-007		17-08-00630-008	
	Raw Count	Results (Spores/m3)	Raw Count	Results (Spores/m3)	Raw Count	Results (Spores/m3)	Raw Count	Results (Spores/m3)	Raw Count	Results (Spores/m3)
Cladosporium Spores	40	530	1	13	0	0	13	170	2	27
Penicillium/Aspergillus Group Spores	5	67	0	0	0	0	1	13	0	0
Alternaria Spores	0	0	1	13	0	0	0	0	0	0
Aureobasidium Spores	0	0	1	13	0	0	0	0	0	0
Arthrinium Spores	1	13	0	0	0	0	0	0	0	0
Pyricularia Spores	4	53	0	0	0	0	0	0	0	0
Chaetomium Spores	0	0	1	13	0	0	0	0	0	0
Pithomyces Spores	1	13	1	13	0	0	0	0	0	0
Epicoccum Spores	3	40	1	13	0	0	0	0	0	0
Nigrospora Spores	9	120	1	13	0	0	0	0	1	13
Fusarium Spores	2	27	0	0	0	0	0	0	0	0
Smuts, Periconia, Myxomycetes	12	160	0	0	1	13	2	27	1	13
Total Spores (Spores/m3)	----	1000	----	93	----	13	----	210	----	53

Mold Definitions:

Spore Name	Description
Cladosporium Spores	Reported to be allergenic. Most commonly identified spore in outdoor samples. Highly seasonal. Indoor species may differ from outdoor species. Typically found inside supply ducts.
Penicillium/Aspergillus Group Spores	Reported to be allergenic. Many species have been documented to produce mycotoxins, which may be associated with pulmonary disease in humans and other animals. Research studies have implicated several of these toxins as carcinogens in laboratory animals following inhalation. A wide number of organisms have been grouped into these two genera. Extremely difficult to identify down to species level. Typically identified in soil, cellulose, food, paint, compost piles, carpeting, wallpaper and in the fiberglass insulation used in interior ductwork.
Alternaria Spores	Reported to be allergenic. Commonly found growing in carpets and on indoor textiles. These fungi have been indicated as a potential cause of hypersensitivity pneumonitis. Rare species known to produce tenuazonic acid and other toxic metabolites that may cause disease in humans.
Aureobasidium Spores	Reported to be allergenic. Commonly found in high moisture areas such as bathrooms and kitchens. Rarely associated with skin disorders.
Arthrinium Spores	Reported to be allergenic. Typically found associated with agriculture. Rarely found in indoor samples.
Pyricularia Spores	No information regarding the health effects of this genus is available at this time. All mold should be treated as potential allergens.
Chaetomium Spores	Reported to be allergenic. Some species may be associated with disease in humans. Commonly found on the paper used as facing on sheetrock.
Pithomyces Spores	Reported to be allergenic. Some species may, in rare instances, produce the toxin sporidesmin.
Epicoccum Spores	Reported to be allergenic. Commonly found on plants, textiles and products made of paper.
Nigrospora Spores	Reported to be allergenic. No additional health data for this genus is available at this time.
Memmoniella Spores	Toxigenic. Little known about allergenicity or pathogenicity. Closely related to and/or found in conjunction with Stachybotrys. Documented to produce the toxin, trichothecene, under appropriate conditions, which has been documented to cause problems associated with the circulatory, alimentary, skin and nervous systems. Absorption of trichothecene into the tissues of the human lung may cause a condition known as pneumomycosis.
Fusarium Spores	Toxigenic. Also recognized as an allergen. Certain species of Fusarium may produce the mycotoxin, trichothecene, under appropriate conditions, which has been documented to cause problems associated with the circulatory, alimentary, skin and nervous systems. Absorption of trichothecene into the tissues of the human lung may cause a condition known as pneumomycosis. Symptoms may appear following exposure from either inhalation or ingestion. Rarely connected to infections of the eye, skin and nails.
Smuts, Periconia, Myxomycetes	Reported to be allergenic. This class of fungal spores is most often related to agriculture and plant disease and is rarely found indoors.