Windjammer Environmental LLC
6710 Oxon Hill Road
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Oxon Hill, MD 20745
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June 10, 2019

Alex Baylor
Environmental Specialist
PGCPS Environmental Safety Office
13306 Old Marlboro Pike
Upper Marlboro, MD 20772
Alex.baylor@pgcps.org

Re: IAQ and Mold Assessment Report
Prince George's County Public Schools
Largo High School

Dear Mr. Baylor,

Windjammer Environmental LLC (Windjammer) was contracted to conduct a visual assessment, measure indoor air quality (IAQ) parameters and sample for mold in a limited number of areas at the Largo High School located at 505 Largo Road, Upper Marlboro, MD 20774. This assessment is intended to check on effectiveness of operations activities that are focused on preventing conditions that can lead to the development of an environment which is historically associated with an increase in reports of poor IAQ. This assessment was conducted by Certified Industrial Hygienists (CIHs) Damien Hammond and Katherine Dietrich on June 3, 2019.

This assessment included:

- Measurement of temperature, relative humidity, carbon dioxide (CO_2) and carbon monoxide (CO)
- Collection of nonviable airborne mold samples; and
- Visual assessment of select areas.

Methods

A TSI IAQ-Calc Model 7545 was used to measure temperature, relative humidity, carbon dioxide (CO_2) and carbon monoxide (CO).

Air samples for non-viable airborne fungi were collected on Air-O-Cell cassettes using a Zefon Bio-Pump Plus portable sampler calibrated to collect 15 liters of air per minute (lpm). The sampling period for the all samples was five minutes.

Direct read instrumentation used were calibrated in accordance with the manufacturer's specifications prior to the start of this assessment.

All samples collected were hand delivered to EMSL of Beltsville, MD and analyzed by EMSL of Carle Place, NY. EMSL is accredited by the American Industrial Hygiene Association (AIHA) for microbial analysis and participates in the Environmental Microbiology Laboratory Accreditation Program (EMLAP).

Guidance

The Occupational Safety and Health Administration's (OSHA) Permissible Exposure Limits (PELs) are the only enforceable regulatory standards for indoor air quality. However, other organizations such as the American Society of Heating Refrigeration and Air Conditioning Engineers (ASHRAE) and the Environmental Protection Agency (EPA) have developed widely accepted consensus standards that can be used to assess the suitability of indoor air quality.

ASHRAE Standards

62.1-2013 and 55-2013 are consensus standards that outline acceptable practices for the design of ventilation systems in commercial and residential structures. Both documents were developed "to specify minimum ventilation rates and indoor air quality that will be acceptable to human occupants and are intended to minimize the potential for adverse health effects." The standards also consider chemical, physical, and biological contaminants and other factors that impact indoor air quality and affect occupant health and comfort.

ASHRAE 55-2013 recommends temperature and relative humidity ranges that are considered suitable for indoor air quality. Recommended ranges are as follows:

- Temperature be maintained between 67 and 82 degrees Fahrenheit (°F)
- Relative humidity to be maintained below 65%

Carbon Dioxide

CO_2 is widely used as a surrogate gas in the assessment of indoor air quality. It is a byproduct of respiration and can be used to determine the effectiveness and/or management of building ventilation systems. Based on ASHRAE recommendations, indoor CO_2 concentrations that are below 1000 parts per million (ppm) or have a differential of less than 700 ppm compared to outside concentrations are considered to be suitable.

For example, if outside CO_2 concentrations are measured at 380 ppm, then indoor CO_2 concentrations measured up to 1080 ppm would be considered suitable.

Carbon Monoxide

OSHA has established a PEL for CO of 35 ppm over a time weighted average (TWA) of 8 hours and a ceiling CO exposure limit of 200 ppm in a five-minute period. ASHARE has adopted the EPA National Ambient Air Quality Standard (NAAQS) for CO of 9 ppm when evaluating indoor air quality. In nonindustrial settings, the NAAQS standard is commonly used to assess the suitability of IAQ.

Nonviable Airborne Fungi (Mold)

There are no set regulatory limits established for acceptable airborne fungi levels. However, indoor levels within schools and offices are generally lower than outdoor levels. The distribution of airborne species of fungi found in indoor air is expected to be similar in proportion to outside distributions. The type and concentrations of the airborne microorganisms can be used to determine if there is a potential hazard to occupants which requires action.

Findings

Indoor Air Quality

Except as noted, indoor air quality measurements collected were satisfactory with respect to temperature, relative humidity, carbon dioxide (CO_2), and carbon monoxide (CO). Recorded indoor air quality results are summarized in the following Table.

Table 1
Indoor Air Quality Measurement Summary
(Measurements Recorded on June 3, 2019)

Measurement Location	Temperature (°F)	Relative Humidity (%)	CO_2 (ppm)	CO (ppm)
Outdoors	69.4	48.8	359	0.0
Room 161 Dance	73.9	51.4	557	0.0
Classroom 151	68.3	54.8	459	0.0
Classroom 247	66.4	56.3	495	0.0
Classroom 237	72.0	56.3	493	0.0
Classroom 137	68.9	52.9	460	0.0
Room 155 Band	68.4	59.4	461	0.0
Room 254	69.1	57.8	743	0.0
Classroom 246	60.1	68.4	891	0.0
Classroom 231	66.9	57.2	602	0.0
Classroom 223	70.4	57.5	1097	0.0
Classroom 233	68.3	58.9	491	0.0
Multipurpose Room	68.2	56.4	645	0.0
Classroom 100	72.3	57.6	796	0.0
Classroom 106	70.4	54.9	489	0.0
Classroom 110A	70.5	58.1	950	0.0
Classroom 118	70.8	51.3	576	0.0
Classroom 122	72.5	53.3	884	0.0
Classroom 130 Music	74.1	50.2	897	0.0
Classroom 103	74.2	56.5	1306	0.0
Classroom 121	73.2	50.7	1151	0.0
Classroom 131	65.8	52.6	520	0.0
Classroom 144	72.3	55.7	1159	0.0

ppm – parts per million

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Non-viable Airborne Fungi Sampling

Measured total indoor airborne fungi concentrations were determined have a normal ecology and with indoor airborne fungi concentrations lower than measured total outdoor fungi concentrations at this time. A complete laboratory analysis report is available for viewing in Attachment A.

Visual Assessment

A walk-through of the hallways and a limited number of classrooms and public areas was carried out. No bathrooms, staff offices, mechanical rooms, kitchen areas or storage areas were visited. The school was in session at the time of the inspection.

The school was free of evidence of current water intrusion or any unexpected odors. Except as noted, floors, walls and ceiling tiles observed were in acceptable condition. The housekeeping was acceptable.

The following areas for further investigation or improvement were noted:

- Classroom 161 – stained ceiling tiles (less than 2 ft^2)
- Classroom 151 – plants in room in poor condition
- Classroom 247 – stained ceiling tiles (less than 1 ft^2)
- Classroom 137 – stained and missing ceiling tiles (less than 5 ft^2)
- Classroom 254 – stained ceiling tiles (less than 5 ft^2)
- Classroom 246 – low temperature/high humidity
- Hall outside 137 – stained and missing ceiling tiles (less than 5 ft^2)
- Hall outside room 233 – stained ceiling tiles (less than 1 ft^2)
- Multipurpose room – approximately 20 stained ceiling tiles
- Classroom 110A – stained ceiling tile (less than 1 ft^2)
- Classroom 103 – stained ceiling tile (less than 1 ft^2)
- Classroom 131 – stained ceiling tiles (less than 2 ft^2), low temperature

Conclusions & Recommendations

Indoor air quality spore trap measurements collected in all areas assessed were less than the levels measured outside the building and with the same predominate spore types found. This is an indication that the spores sampled in the rooms assessed are more likely to be originating in the outdoor environment rather than an interior source - reducing the chance of undetected overgrowth or colonization in the building. While there are no standards for airborne levels of mold, this approach of comparing indoor to outdoor, and looking at the species found, is one tool identified by organizations such as the American Industrial Hygiene Association when identifying assessment methods and improvement measurement in indoor air quality.

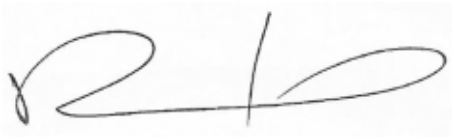
Please note the following considerations for improvement.

- Identify the cause of any staining on ceiling tiles and fix.
- Maintain temperature and relative humidity within ASHRAE guidelines.
- Plants were observed in several classrooms. Plants can have an adverse impact on general indoor air quality if not properly maintained. Maintain plants or remove.

At this time, no other recommendations are provided.

Windjammer appreciates the opportunity to provide this indoor air quality assessment. If you have any questions or comments, please feel free to contact us at (888) 270 - 8387.

Best regards,



Damien Hammond Sr, MS, CSP, CIH
President

Katherine (Kay) Dietrich, CIH, CSP
Certified Industrial Hygienist

Attachment A: Microbial Laboratory Report (Air)

Attachment A

Windjammer Environmental LLC
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EMSL Analytical, Inc.

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Attn: Kay Dietrich
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6710 Oxon Hill Rd
National Harbor, MD 20745

Phone: (301) 351-4213
Fax:
Collected: 06/03/2019
Received: 06/03/2019
Analyzed: 06/06/2019

Project: PGCPS IAQ Largo HS

Test Report: Air-O-Cell(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods MICRO-SOP-201, ASTM D7391)

Lab Sample Number:	061910929-0001			061910929-0002			061910929-0003		
Client Sample ID:	190603-1			190603-2			190603-3		
Volume (L):	75			75			75		
Sample Location	Outside			Rm 161 Dance			Classroom 151		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	1	40	0.1	-	-	-	-	-	-
Ascospores	101	4410	15.2	5	200	11.8	8	300	12
Aspergillus/Penicillium	-	-	-	-	-	-	-	-	-
Basidiospores	550	24000	82.6	34	1500	88.2	50	2200	88
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	12	520	1.8	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	1	40	0.1	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Polythrincium	3*	40*	0.1	-	-	-	-	-	-
Total Fungi	**668**	**29050**	**100**	**39**	**1700**	**100**	**58**	**2500**	**100**
Hyphal Fragment	2*	30*	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	1	40	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	44	-	-	44	-	-	44	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	1	-	-	2	-	-	1	-
Fibrous Particulate (1-4)	-	1	-	-	2	-	-	1	-
Background (1-5)	-	2	-	-	2	-	-	2	-

++ Includes other spores with similar morphology; see EMSL's fungal glossary for each specific category.

No discernable field blank was submitted with this group of samples.

Jeffrey Lau, Microbiology Laboratory Manager
or other approved signatory

High levels of background particulate can obscure spores and other particulates leading to underestimation. Background levels of 5 indicate an overloading of background particulates, prohibiting accurate detection and quantification. Present = Spores detected on overloaded samples. Results are not blank corrected unless otherwise noted. The detection limit is equal to one fungal spore, structure, pollen, fiber particle or insect fragment. "*" Denotes particles found at 300X. "-" Denotes not detected. Due to method stopping rules, raw counts in excess of 100 are extrapolated based on the percentage analyzed. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical, Inc. Carle Place, NY AIHA-LAP, LLC--EMLAP Accredited #102344

Initial report from: 06/09/2019 10:33:26

For information on the fungi listed in this report, please visit the Resources section at www.emsl.com

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Fax:
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Received: 06/03/2019
Analyzed: 06/06/2019

Project: PGCPS IAQ Largo HS

Test Report: Air-O-Cell(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods MICRO-SOP-201, ASTM D7391)

Lab Sample Number:	061910929-0004			061910929-0005			061910929-0006		
Client Sample ID:	190603-4			190603-5			190603-6		
Volume (L):	75			75			75		
Sample Location	Classroom 247			Classroom 237			Classroom 137		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	3	100	7.6	1	40	11.8	13	570	11.5
Aspergillus/Penicillium	6	300	22.7	-	-	-	-	-	-
Basidiospores	21	920	69.7	6	300	88.2	99	4300	86.5
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	-	-	-	3	100	2
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Polythrincium	-	-	-	-	-	-	-	-	-
Total Fungi	**30**	**1320**	**100**	**7**	**340**	**100**	**115**	**4970**	**100**
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	44	-	-	44	-	-	44	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	1	-	-	1	-	-	1	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	1	-	-	1	-	-	2	-

++ Includes other spores with similar morphology; see EMSL's fungal glossary for each specific category.

No discernable field blank was submitted with this group of samples.

Jeffrey Lau, Microbiology Laboratory Manager
or other approved signatory

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Project: PGCPS IAQ Largo HS

Test Report: Air-O-Cell(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods MICRO-SOP-201, ASTM D7391)

Lab Sample Number:	061910929-0007			061910929-0008			061910929-0009		
Client Sample ID:	190603-7			190603-8			190603-9		
Volume (L):	75			75			75		
Sample Location	Classroom 155 Band			Rm 254			Classroom 246		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	1	40	50	2	90	5.3	5	200	14.2
Aspergillus/Penicillium	-	-	-	7	300	17.8	3	100	7.1
Basidiospores	1	40	50	29	1300	76.9	25	1100	78
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	1*	10*	0.7
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Polythrincium	-	-	-	-	-	-	-	-	-
Total Fungi	**2**	**80**	**100**	**38**	**1690**	**100**	**34**	**1410**	**100**
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	44	-	-	44	-	-	44	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	2	-	-	2	-	-	1	-
Fibrous Particulate (1-4)	-	2	-	-	2	-	-	1	-
Background (1-5)	-	2	-	-	2	-	-	2	-

++ Includes other spores with similar morphology; see EMSL's fungal glossary for each specific category.

No discernable field blank was submitted with this group of samples.

Jeffrey Lau, Microbiology Laboratory Manager
or other approved signatory

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Lab Sample Number:	061910929-0010			061910929-0011			061910929-0012		
Client Sample ID:	190603-10			190603-11			190603-12		
Volume (L):	75			75			75		
Sample Location	Classroom 231			Classroom 223			Classroom 233		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	14	610	12.6	1	40	4.3	14	610	21.7
Aspergillus/Penicillium	-	-	-	2	90	9.8	4	200	7.1
Basidiospores	94	4100	84.5	17	740	80.4	41	1800	64.1
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	3	100	2.1	-	-	-	4	200	7.1
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	1	40	0.8	1	40	4.3	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	1*	10*	1.1	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Polythrincium	-	-	-	-	-	-	-	-	-
Total Fungi	**112**	**4850**	**100**	**22**	**920**	**100**	**63**	**2810**	**100**
Hyphal Fragment	-	-	-	1	40	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	2*	30*	-	-	-	-
Analyt. Sensitivity 600x	-	44	-	-	44	-	-	44	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	2	-	-	2	-	-	1	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	2	-	-	2	-	-	1	-

++ Includes other spores with similar morphology; see EMSL's fungal glossary for each specific category.

No discernable field blank was submitted with this group of samples.

Jeffrey Lau, Microbiology Laboratory Manager
or other approved signatory

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Initial report from: 06/09/2019 10:33:26

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Fax:
Collected: 06/03/2019
Received: 06/03/2019
Analyzed: 06/06/2019

Project: PGCPS IAQ Largo HS

Test Report: Air-O-Cell(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods MICRO-SOP-201, ASTM D7391)

Lab Sample Number:	061910929-0013			061910929-0014			061910929-0015		
Client Sample ID:	190603-13			190603-14			190603-15		
Volume (L):	75			75			75		
Sample Location	Multipurpose Rm			Classroom 100			Classroom 106		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	7	300	27.5	2	90	5.6	-	-	-
Aspergillus/Penicillium	-	-	-	2	90	5.6	20	870	81.3
Basidiospores	17	740	67.9	33	1400	86.4	4	200	18.7
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	1	40	3.7	1	40	2.5	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	1*	10*	0.9	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Polythrincium	-	-	-	-	-	-	-	-	-
Total Fungi	**26**	**1090**	**100**	**38**	**1620**	**100**	**24**	**1070**	**100**
Hyphal Fragment	1	40	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	44	-	-	44	-	-	44	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	2	-	-	1	-	-	1	-
Fibrous Particulate (1-4)	-	2	-	-	1	-	-	1	-
Background (1-5)	-	2	-	-	1	-	-	1	-

++ Includes other spores with similar morphology; see EMSL's fungal glossary for each specific category.

No discernable field blank was submitted with this group of samples.

Jeffrey Lau, Microbiology Laboratory Manager
or other approved signatory

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Project: PGCPS IAQ Largo HS

Test Report: Air-O-Cell(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods MICRO-SOP-201, ASTM D7391)

Lab Sample Number:	061910929-0016			061910929-0017			061910929-0018		
Client Sample ID:	190603-16			190603-17			190603-18		
Volume (L):	75			75			75		
Sample Location	Classroom 110A			Classroom 118			Classroom 122		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	1	40	0.6	-	-	-	-	-	-
Ascospores	14	610	8.8	23	1000	15.2	9	400	10.7
Aspergillus/Penicillium	6	300	4.3	-	-	-	7	300	8
Basidiospores	133	5800	83.5	123	5370	81.7	68	3000	80.2
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	4	200	2.9	4	200	3	1	40	1.1
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Polythrincium	-	-	-	-	-	-	-	-	-
Total Fungi	**158**	**6950**	**100**	**150**	**6570**	**100**	**85**	**3740**	**100**
Hyphal Fragment	1	40	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	1*	10*	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	44	-	-	44	-	-	44	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	1	-	-	1	-	-	2	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	2	-	-	1	-	-	2	-

++ Includes other spores with similar morphology; see EMSL's fungal glossary for each specific category.

No discernable field blank was submitted with this group of samples.

Jeffrey Lau, Microbiology Laboratory Manager
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Test Report: Air-O-Cell(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods MICRO-SOP-201, ASTM D7391)

Lab Sample Number:	061910929-0019			061910929-0020			061910929-0021		
Client Sample ID:	190603-19			190603-20			190603-21		
Volume (L):	75			75			75		
Sample Location	Classroom 130			Classroom 103			Classroom 121		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	1	40	7.7	6	300	33
Aspergillus/Penicillium	-	-	-	1	40	7.7	-	-	-
Basidiospores	11	480	90.6	10	440	84.6	14	610	67
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	1*	10*	1.9	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	1	40	7.5	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Polythrincium	-	-	-	-	-	-	-	-	-
Total Fungi	**13**	**530**	**100**	**12**	**520**	**100**	**20**	**910**	**100**
Hyphal Fragment	-	-	-	-	-	-	1	40	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	44	-	-	44	-	-	44	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	2	-	-	2	-	-	2	-
Fibrous Particulate (1-4)	-	2	-	-	2	-	-	2	-
Background (1-5)	-	2	-	-	2	-	-	2	-

++ Includes other spores with similar morphology; see EMSL's fungal glossary for each specific category.

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Lab Sample Number:	061910929-0022			061910929-0023		
Client Sample ID:	190603-22			190603-23		
Volume (L):	75			75		
Sample Location	Classroom 131			Classroom 144		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-
Ascospores	9	400	13.4	3	100	11.9
Aspergillus/Penicillium	10	440	14.7	-	-	-
Basidiospores	48	2100	70.2	17	740	88.1
Bipolaris++	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-
Cladosporium	1*	10*	0.3	-	-	-
Curvularia	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-
Ganoderma	1	40	1.3	-	-	-
Myxomycetes++	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-
Rust	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-
Polythrincium	-	-	-	-	-	-
Total Fungi	**69**	**2990**	**100**	**20**	**840**	**100**
Hyphal Fragment	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-
Pollen	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	44	-	-	44	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	1	-	-	1	-
Fibrous Particulate (1-4)	-	1	-	-	1	-
Background (1-5)	-	1	-	-	1	-

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