Environmental Consulting Group, Inc.

October 22, 2019

Mr. Dan Gilbert
District Office Supervisor of Maintenance & Facilities
Libertyville School District 70
1381 Lake Street
Libertyville, IL 60048

Re: **Indoor Air Quality Assessment**
Highland Middle School
310 West Rockland Road
Libertyville, Illinois 60048

Dear Mr. Gilbert:

Environmental Consulting Group, Inc. (ECG) has completed an indoor air quality assessment at Libertyville SD 70 Highland Middle School, 310 West Rockland Road, Libertyville, Illinois, 60048. The assessment took place on September 17, 2019. This report summarizes the work performed, outlines the sampling methodology, and provides the analytical results along with conclusions.

If you have any questions or need additional information, please contact our office.

Sincerely,

ENVIRONMENTAL CONSULTING GROUP, INC.

[redacted]

Daniel Brust, CIH
Senior Project Manager

105 S. York Rd., Suite 250 / Elmhurst, Illinois 60126 / 630.607.0060 / fax 630.607.0650 / www.ecgmidwest.com

E n v i r o n m e n t a l C o n s u l t i n g G r o u p , I n c .

REPORT

Indoor Air Quality Assessment
Highland Middle School
310 West Rockland Road
Libertyville, Illinois 60048

Performed for:

Libertyville School District 70
1381 Lake Street
Libertyville, IL 60048

Prepared by:

Environmental Consulting Group, Inc.
105 S. York Road, Suite 250
Elmhurst, Illinois 60126
(630) 607-0060
www.ecgmidwest.com

ECG Project Number: II192651-862
Date: October 22, 2019

EXECUTIVE SUMMARY

On September 17, 2019, Environmental Consulting Group, Inc. (ECG) completed an indoor air quality (IAQ) Assessment at Libertyville SD 70 Highland Middle School (HMS), 310 West Rockland Road, Libertyville, Illinois, 60048. This IAQ Assessment was conducted at the request of Libertyville SD 70 to evaluate the air quality at HMS. Staff have expressed concern regarding fluctuating temperatures, elevated relative humidity levels and mold growth on materials.

The IAQ Assessment evaluated each room throughout the building (excluding rooms not continuously occupied, such as custodial rooms, mechanical rooms, storage rooms and bathrooms). ECG measured nine IAQ parameters, including: temperature, relative humidity, carbon monoxide (CO), carbon dioxide (CO_2), formaldehyde, ozone, nuisance dust / particulate matter (PM-10), total volatile organic compounds (TVOCs) and airborne mold (fungal) spore concentrations. ECG also performed a visual inspection in each room for possible sources of indoor air pollutants, evidence of water staining, moisture intrusion and mold growth.

The IAQ results were compared to the following standards and guidelines: American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs); Indoor air quality standards developed by the American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE); Indoor air quality standards developed by the Environmental Protection Agency (EPA); Occupational Safety & Health Administration (OSHA) federal occupational exposure limits.

Temperature, carbon monoxide, nuisance dust (PM-10), ozone, TVOC and airborne mold spore levels were within the recommended guidelines. Relative humidity, carbon dioxide and formaldehyde concentrations were elevated and exceeded one or more guidelines.

Relative Humidity

Relative humidity (RH) concentrations ranged from 58 to 75%. The outdoor RH was 69%. The optimum RH ranges are between 20 - 60% (EPA, designed for human comfort) and <65% (ASHRAE, designed for controlling microbial growth). Although the measurements were above the EPA and ASHRAE guidelines, this does not represent a hazardous condition and is normal for the fall season.

Carbon Dioxide

The CO_2 levels in the building ranged from 316 ppm to 2,008 ppm, with 28 of 172 rooms exceeding the EPA guideline (1,000 ppm) and the ASHRAE guideline (1,030 ppm). In these locations, occupancy levels were typically greater than 20 to 30 persons. The main source of carbon dioxide is human expiration. Two main factors control the CO_2 concentrations indoors: occupancy levels and fresh air through the air handling units (AHUs) and unit ventilators. When CO_2 concentrations exceed the guidelines, it indicates that an insufficient amount of fresh air is being delivered to the areas, based on occupancy levels. Increasing the amount of fresh air will reduce these concentrations to acceptable levels.

Formaldehyde

Formaldehyde concentrations in the building ranged from <0.01 ppm to 0.82 ppm. 148 out of 172 formaldehyde concentrations throughout the building were above the ACGIH, ASHRAE, EPA and OSHA guidelines and standards.

When formaldehyde is present in the air at levels exceeding 0.1 ppm, some individuals may experience adverse effects such as watery eyes; burning sensations in the eyes, nose, and throat; coughing; respiratory tract irritation; and skin irritation. During the assessment, no occupants complained of any of the symptoms commonly associated with formaldehyde exposure and ECG's consultants did not experience or observe any of the symptoms associated with formaldehyde exposure.

The instrument used to measure formaldehyde (ToxiRae Pro) is effective at measuring formaldehyde but is also subject to cross-interfering compounds. Cross-interfering compounds can register a false positive, indicating that formaldehyde is present, when it is not. Because of the instrument's response to cross-interfering compounds and ECG's observations that no occupants were experiencing symptoms associated with elevated formaldehyde exposure, ECG recommends additional testing for formaldehyde using formaldehyde-specific samplers with laboratory analysis.

Table of Contents

APPENDICES

1.0 PROJECT BACKGROUND

On September 17, 2019, Environmental Consulting Group, Inc. (ECG) completed an indoor air quality (IAQ) Assessment at Libertyville SD 70 Highland Middle School (HMS), 310 West Rockland Road, Libertyville, Illinois, 60048. This IAQ Assessment was conducted at the request of Libertyville SD 70 to evaluate the air quality at HMS. Staff have expressed concern regarding fluctuating temperatures, elevated relative humidity levels and mold growth on materials.

The assessment was designed by ECG Senior Project Manager, Mr. Daniel Brust, CIH. Mr. Brust also conducted the assessment, with the assistance of Mr. David Parry, ECG Environmental Consultant, and Mr. Stephen Dee, ECG Environmental Consultant. Mr. Dan Gilbert, Libertyville SD 70 District Office Supervisor of Maintenance & Facilities, provided assistance in completing this project.

2.0 SCOPE OF WORK & STANDARDS AND GUIDELINES

The IAQ Assessment evaluated each room throughout the building (excluding rooms not continuously occupied, such as custodial rooms, mechanical rooms, storage rooms and bathrooms).

ECG measured nine IAQ parameters, including: temperature, relative humidity, carbon monoxide (CO), carbon dioxide (CO_2), formaldehyde, ozone, nuisance dust / particulate matter (PM-10), total volatile organic compounds (TVOCs) and airborne mold (fungal) spore concentrations. ECG also performed a visual inspection in each room for possible sources of indoor air pollutants, evidence of water staining, moisture intrusion and mold growth.

Measurements were collected both in the morning and afternoon to evaluate the factors with regards to occupancy levels. For comparison purposes, outdoor samples were also collected.

The IAQ results were compared to the following standards and guidelines:

- American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs)
- Indoor air quality standards developed by the American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE)
- Indoor air quality standards developed by the Environmental Protection Agency (EPA)
- Occupational Safety & Health Administration (OSHA) federal occupational exposure limits

3.0 RESULTS

A summary table of IAQ testing results is provided in Appendix A. The airborne fungal spore report is provided in Appendix B. Methodology is provided in Appendix C. Floor plans of the facility are provided in Appendix D.

3.1 Visual Inspection

No unusual odors, no moisture-impacted and no mold-impacted building materials were observed by ECG during the Assessment.

3.2 Temperature and Relative Humidity

Temperatures in the building ranged from 68°F to 74°F. The outdoor temperature was 75°F.

ASHRAE Standard 55-2013 recommends temperatures ranging from 67-83°F; EPA recommends temperatures ranging from 68-80°F. Temperatures throughout the building were within the guidelines.

Relative humidity levels in the building ranged from 58% to 75%. The outdoor relative humidity level was 69%.

ASHRAE Standard 62.1-2013 recommends that relative humidity levels not exceed 65%; EPA recommends relative humidity levels ranging from 20-60%. ASHRAE and EPA guidelines are primarily for occupant comfort, but the ASHRAE guidelines are also established for the prevention of undesirable microbial growth. 158 out of 172 of the relative humidity levels throughout the building were outside the ASHRAE and EPA guidelines.

3.3 Carbon Monoxide (CO)

CO concentrations in the building were all less than the instruments' limit of detection (less than 3 parts per million [<3 ppm]). Outdoor CO concentrations were all <3 ppm. All CO levels were within the accepted guidelines.

3.4 Carbon Dioxide (CO_2)

The CO_2 levels in the building ranged from 316 ppm to 2,008 ppm. The average outdoor level was 330 ppm. EPA recommends indoor CO_2 levels below 1,000 ppm; ASHRAE recommends CO_2 levels not exceed 700 ppm plus average outdoor concentrations, equivalent to 1,161 ppm. These results indicate that the CO_2 levels were above the accepted guidelines.

3.5 Formaldehyde

Formaldehyde concentrations in the building ranged from <0.01 ppm to 0.82 ppm. Outdoor formaldehyde concentrations were <0.01 ppm.

148 out of 172 formaldehyde concentrations throughout the building were above the ACGIH, ASHRAE, EPA and OSHA guidelines and standards.

3.6 Nuisance Dust / Particulate Matter (PM-10)

PM-10 concentrations throughout the building ranged from 0.014 to 0.054 milligrams per cubic meter (mg/m^3). The outdoor concentration of PM-10 was 0.077 mg/m^3.

All PM-10 concentrations were within the accepted guidelines, except for seven (out of 172) readings:

LOCATION	TIME	CONCENTRATION
Classroom 134	7:25 AM	0.051 mg/m^3
Classroom 140	12:05 PM	0.054 mg/m^3
Multi-Use Gym (155)	12:34 PM	0.053 mg/m^3
South Gym (106)	12:48 PM	0.051 mg/m^3
Office 105B	8:50 AM	0.051 mg/m^3
Classroom 120	1:47 PM	0.052 mg/m^3
Classroom 128	2:01 PM	0.051 mg/m^3

The average PM-10 concentrations throughout the day in each of the above-listed rooms were less than 0.050 mg/m^3. Intermittent dust concentrations that slightly exceed a guideline level are common. The PM-10 concentrations indicate a normal indoor environment.

3.7 Ozone (O_3)

Ozone concentrations in the building ranged from <0.01 ppm to 0.05 ppm. The outdoor ozone concentration was 0.06 ppm. All ozone levels were within the accepted guidelines.

3.8 Total Volatile Organic Compounds (TVOC)

TVOC concentrations in the building were all less than the instruments' limit of detection (<0.01 ppm). Outdoor TVOC concentrations were all <0.1 ppm. All TVOC levels were within the accepted guidelines.

3.9 Airborne Mold Spores

Airborne mold spore sampling was performed in each room throughout the building as the instrument testing (excluding rooms not continuously occupied, such as custodial rooms, mechanical rooms, storage rooms and bathrooms). Outdoor samples were also collected for comparison purposes.

Currently, there are no federal standards that stipulate acceptable exposure levels to airborne mold. Best practices guidelines have been established for airborne mold sampling and involves a comparison of indoor vs. outdoor mold concentrations and types. In general, results are considered to be acceptable when the following conditions are met:

1. Indoor concentrations [Area of Concern] are lower than—or roughly equal to — outdoor concentrations [Outdoor Controls].
2. No specific mold type is identified in appreciable quantities in indoor samples that isn't also identified in the outdoor samples.
    a. Differences in individual species raw spore counts of 10 or less (equivalent to approximately 1,000 spores per cubic meter [sp/m^3]) are considered insignificant.

No mold, water-stained building materials or unusual odors were observed during the assessment. The predominant mold spore types that were identified included Basidiospores, *Cladosporium* sp. and Rusts. Basidiospores, *Cladosporium* sp. and Rusts are associated with decaying plant matter (normal for the fall season) and are commonly found indoors and outdoors, with indoor concentrations typically lower than outdoor concentrations.

Indoor total mold spore concentrations ranged from <33 to 5,230 sp/m^3. Outdoor total mold spore concentrations [Outdoor Control] ranged from 12,700 to 15,000 sp/m^3.

With respect to the first condition, all the total indoor mold spore concentrations were lower than the Outdoor Control concentrations. This is considered an acceptable condition.

With respect to the second condition, all the individual indoor mold spore concentrations were lower than (or similar to) the Outdoor Control concentrations. This is considered an acceptable condition.

4.0 CONCLUSIONS AND RECOMMENDATONS

Temperature, carbon monoxide, nuisance dust (PM-10), ozone, TVOC and airborne mold spore levels were within the recommended guidelines. Relative humidity, carbon dioxide and formaldehyde concentrations were elevated and exceeded one or more guidelines.

Relative Humidity

Relative humidity (RH) concentrations ranged from 58 to 75%. The outdoor RH was 69%.

The optimum RH ranges are between 20 - 60% (EPA, designed for human comfort) and <65% (ASHRAE, designed for controlling microbial growth). Although the measurements were above the EPA and ASHRAE guidelines, ECG does not feel this would adversely affect the building occupants in relation to indoor air thermal comfort. When RH levels are above approximately 60%, occupants may experience minor, temporary discomfort, but this is not a hazardous condition.

Carbon Dioxide (CO_2)

The CO_2 levels in the building ranged from 316 ppm to 2,008 ppm, with 28 of 172 rooms exceeding the EPA guideline (1,000 ppm) and the ASHRAE guideline (1,030 ppm). In these locations, occupancy levels were typically greater than 20 to 30 persons.

The main source of carbon dioxide is human expiration. Indoor CO_2 levels are usually controlled through adequate fresh air ventilation. Two main factors control the CO_2 concentrations indoors: occupancy levels and fresh air through the air handling units (AHUs) and unit ventilators. When CO_2 concentrations exceed the guidelines, it indicates that an insufficient amount of fresh air is being delivered to the areas. Increasing the amount of fresh air will reduce these concentrations to acceptable levels. This can be achieved by opening the dampers for the fresh air intakes.

Formaldehyde

Formaldehyde concentrations in the building ranged from <0.01 ppm to 0.82 ppm. 148 out of 172 formaldehyde concentrations throughout the building were above the ACGIH, ASHRAE, EPA and OSHA guidelines and standards.

When formaldehyde is present in the air at levels exceeding 0.1 ppm, some individuals may experience adverse effects such as watery eyes; burning sensations in the eyes, nose, and throat; coughing; respiratory tract irritation; and skin irritation.

During the assessment, no occupants complained of any of the symptoms commonly associated with formaldehyde exposure and ECG's consultants did not experience or observe any of the symptoms associated with formaldehyde exposure.

The instrument used to measure formaldehyde (ToxiRae Pro) is effective at measuring formaldehyde but is also subject to cross-interfering compounds. Cross-interfering compounds can register a false positive, indicating that formaldehyde is present, when it is not. Because of the instrument's response to cross-interfering compounds and ECG's observations that no occupants were experiencing symptoms associated with elevated formaldehyde exposure, ECG recommends additional testing for formaldehyde using formaldehyde-specific samplers with laboratory analysis.

4.0 QUALIFICATIONS

ECG believes this study was developed in general accordance with the technical standards of practice for indoor air testing at the time the study was conducted. The standard of care exercised for this study was in accordance with generally accepted practices, and a reasonable effort was made to ensure that the information presented in this report is materially complete and accurate.

The conclusions presented in this report are professional opinions based solely upon visual observations of the site, analytical data, and other research as described in this report. They are intended for the sole use of our client. The scope of services performed in execution of this assessment may not be appropriate to satisfy the need of other users, and any use or reuse of this document of the findings, conclusions, or recommendations presented herein is at the sole risk of said user.

Therefore, we cannot be responsible for independent conclusions, opinions or recommendations of others based on our study. If additional information from the site is generated, it should be provided to us so that we may evaluate its impact on our conclusions.

If you have any questions or need additional information, please contact our office.

Sincerely,

ENVIRONMENTAL CONSULTING GROUP, INC.

[redacted]

Daniel Brust, CIH
Senior Project Manager

Appendix A

Summary Table of IAQ Testing Results

Table 1: Summary of Indoor Air Quality Results
Highland Middle School
310 West Rockland Avenue
Libertyville, Illinois
Date: 09-17-2019

Sample Location	Time	Temp. (ºF)	Relative Humidity (%)	Carbon Monoxide (CO) (ppm)[a]	Carbon Dioxide (CO_2) (ppm)	Nuisance Dust PM-10 (mg/m^3)[b]	Formaldehyde (ppm)	Ozone (ppm)	TVOCs[c] (ppm)	Occupancy	Type of Ventilation
IAQ Limits & Guideline Levels											
ACGIH-2018		NE	NE	25	5,000	10	0.1	0.1	100		
ASHRAE 62.1-2016 / 55-2013		67-83	<65	9	1030*	0.050	0.0073**	0.050	NE		
EPA		68-80	20-60	9	1,000	0.150	0.1	0.075	NE		
OSHA		NE	NE	50	5,000	15	0.75	0.1	500		
Outdoors	2:19 PM	75	69	<3	330	0.077	<0.01	0.06	<0.01	-	-
9E Hall	7:24 AM	68	**72**	<3	355	0.044	<0.01	<0.01	<0.01	1	Univent
	11:49 AM	71	**67**	<3	**1107**	0.041	**0.04**	<0.01	<0.01	2	
134	7:25 AM	68	**72**	<3	349	**0.051**	<0.01	<0.01	<0.01	1	Univent
	11:48 AM	70	**68**	<3	929	0.042	**0.05**	<0.01	<0.01	28	
135	7:27 AM	68	**66**	<3	371	0.029	**0.02**	<0.01	<0.01	1	Univent
	11:50 AM	70	**67**	<3	868	0.035	<0.01	<0.01	<0.01	3	
136	7:28 AM	68	**67**	<3	367	0.029	**0.03**	<0.01	<0.01	1	Univent
	11:51 AM	70	**68**	<3	695	0.036	**0.05**	<0.01	<0.01	23	
137	7:29 AM	69	**67**	<3	400	0.025	**0.02**	<0.01	<0.01	3	Univent
	11:52 AM	71	**70**	<3	**2008**	0.022	**0.04**	<0.01	<0.01	21	

ppm = parts per million
mg/m^3 = milligrams per cubic meter of air
TVOCs = Total Volatile Organic Compounds

NE = Not Established
< = Less Than
*ASHRAE CO2 Indoor < 700 ppm + Outdoor
**California EPA-OEHHA

Table 1: Summary of Indoor Air Quality Results
Highland Middle School
310 West Rockland Avenue
Libertyville, Illinois
Date: 09-17-2019

Sample Location	Time	Temp. (ºF)	Relative Humidity (%)	Carbon Monoxide (CO) (ppm)[a]	Carbon Dioxide (CO_2) (ppm)	Nuisance Dust PM-10 (mg/m^3)[b]	Formaldehyde (ppm)	Ozone (ppm)	TVOCs[c] (ppm)	Occupancy	Type of Ventilation
IAQ Limits & Guideline Levels											
ACGIH-2018		NE	NE	25	5,000	10	0.1	0.1	100		
ASHRAE 62.1-2016 / 55-2013		67-83	<65	9	1030*	0.050	0.0073**	0.050	NE		
EPA		68-80	20-60	9	1,000	0.150	0.1	0.075	NE		
OSHA		NE	NE	50	5,000	15	0.75	0.1	500		
Outdoors	2:19 PM	75	69	<3	330	0.077	<0.01	0.06	<0.01	-	-
138	7:30 AM	69	**69**	<3	431	0.026	**0.02**	<0.01	<0.01	2	Univent
	11:53 AM	70	**71**	<3	**1088**	0.045	**0.02**	<0.01	<0.01	26	
139	7:32 AM	69	**68**	<3	350	0.023	**0.02**	<0.01	<0.01	2	Univent
	12:04 PM	71	**69**	<3	578	0.044	**0.03**	<0.01	<0.01	1	
140	7:34 AM	70	**69**	<3	389	0.020	**0.03**	<0.01	<0.01	2	Univent
	12:05 PM	71	**72**	<3	725	**0.054**	**0.03**	<0.01	<0.01	26	
10E Hall	7:35 AM	70	**67**	<3	491	0.030	**0.14**	<0.01	<0.01	1	Ducted
	12:06 PM	71	**70**	<3	810	0.042	**0.02**	<0.01	<0.01	1	
141	7:36 AM	70	**69**	<3	370	0.029	**0.01**	<0.01	<0.01	1	Univent
	12:08 PM	72	**74**	<3	799	0.049	**0.05**	<0.01	<0.01	23	

ppm = parts per million
mg/m^3 = milligrams per cubic meter of air
TVOCs = Total Volatile Organic Compounds

NE = Not Established
< = Less Than
*ASHRAE CO2 Indoor < 700 ppm + Outdoor
**California EPA-OEHHA

Table 1: Summary of Indoor Air Quality Results
Highland Middle School
310 West Rockland Avenue
Libertyville, Illinois
Date: 09-17-2019

Sample Location	Time	Temp. (ºF)	Relative Humidity (%)	Carbon Monoxide (CO) (ppm)[a]	Carbon Dioxide (CO_2) (ppm)	Nuisance Dust PM-10 (mg/m^3)[b]	Formaldehyde (ppm)	Ozone (ppm)	TVOCs[c] (ppm)	Occupancy	Type of Ventilation
IAQ Limits & Guideline Levels											
ACGIH-2018		NE	NE	25	5,000	10	0.1	0.1	100		
ASHRAE 62.1-2016 / 55-2013		67-83	<65	9	1030*	0.050	0.0073**	0.050	NE		
EPA		68-80	20-60	9	1,000	0.150	0.1	0.075	NE		
OSHA		NE	NE	50	5,000	15	0.75	0.1	500		
Outdoors	2:19 PM	75	69	<3	330	0.077	<0.01	0.06	<0.01	-	-
142	7:37 AM	70	**70**	<3	339	0.025	**0.02**	<0.01	<0.01	2	Univent
	12:10 PM	72	**75**	<3	**1021**	0.040	**0.17**	<0.01	<0.01	31	
143	7:39 AM	71	**70**	<3	348	0.024	**0.01**	<0.01	<0.01	1	Univent
	12:11 PM	72	**75**	<3	890	0.050	**0.08**	<0.01	<0.01	26	
144	7:40 AM	71	**70**	<3	347	0.024	**0.03**	<0.01	<0.01	2	Univent
	12:14 PM	73	**67**	<3	965	0.036	**0.03**	<0.01	<0.01	30	
145 Office	7:42 AM	71	**69**	<3	329	0.027	**0.03**	<0.01	<0.01	1	Ducted
	12:16 PM	73	**69**	<3	862	0.023	**0.03**	<0.01	<0.01	1	
146	7:43 AM	71	**69**	<3	339	0.027	<0.01	<0.01	<0.01	2	Univent
	12:18 PM	73	**71**	<3	753	0.045	**0.02**	<0.01	<0.01	22	

ppm = parts per million
mg/m^3 = milligrams per cubic meter of air
TVOCs = Total Volatile Organic Compounds

NE = Not Established
< = Less Than
*ASHRAE CO2 Indoor < 700 ppm + Outdoor
**California EPA-OEHHA

Table 1: Summary of Indoor Air Quality Results
Highland Middle School
310 West Rockland Avenue
Libertyville, Illinois
Date: 09-17-2019

Sample Location	Time	Temp. (ºF)	Relative Humidity (%)	Carbon Monoxide (CO) (ppm)[a]	Carbon Dioxide (CO_2) (ppm)	Nuisance Dust PM-10 (mg/m^3)[b]	Formaldehyde (ppm)	Ozone (ppm)	TVOCs[c] (ppm)	Occupancy	Type of Ventilation
IAQ Limits & Guideline Levels											
ACGIH-2018		NE	NE	25	5,000	10	0.1	0.1	100		
ASHRAE 62.1-2016 / 55-2013		67-83	<65	9	1030*	0.050	0.0073**	0.050	NE		
EPA		68-80	20-60	9	1,000	0.150	0.1	0.075	NE		
OSHA		NE	NE	50	5,000	15	0.75	0.1	500		
Outdoors	2:19 PM	75	69	<3	330	0.077	<0.01	0.06	<0.01	-	-
147 Office	7:45 AM	71	**69**	<3	316	0.027	**0.03**	<0.01	<0.01	1	Ducted
	12:20 PM	73	**66**	<3	970	0.023	**0.02**	<0.01	<0.01	4	
148	7:46 AM	71	**68**	<3	335	0.021	**0.02**	<0.01	<0.01	1	Univent
	12:22 PM	73	**66**	<3	934	0.039	**0.02**	<0.01	<0.01	28	
149 Office	7:47 AM	71	**67**	<3	331	0.020	**0.03**	<0.01	<0.01	2	Ducted
	12:23 PM	73	**64**	<3	777	0.028	**0.03**	<0.01	<0.01	2	
150 Conference Rm	8:08 AM	72	**65**	<3	399	0.026	**0.01**	<0.01	<0.01	1	Ducted
	12:25 PM	72	59	<3	619	0.032	**0.03**	<0.01	<0.01	4	
151 Office	8:10 AM	71	**66**	<3	395	0.025	**0.04**	<0.01	<0.01	1	Ducted
	12:28 PM	72	**61**	<3	584	0.035	**0.02**	<0.01	<0.01	1	

ppm = parts per million
mg/m^3 = milligrams per cubic meter of air
TVOCs = Total Volatile Organic Compounds

NE = Not Established
< = Less Than
*ASHRAE CO2 Indoor < 700 ppm + Outdoor
**California EPA-OEHHA

Table 1: Summary of Indoor Air Quality Results
Highland Middle School
310 West Rockland Avenue
Libertyville, Illinois
Date: 09-17-2019

Sample Location	Time	Temp. (ºF)	Relative Humidity (%)	Carbon Monoxide (CO) (ppm)[a]	Carbon Dioxide (CO_2) (ppm)	Nuisance Dust PM-10 (mg/m^3)[b]	Formaldehyde (ppm)	Ozone (ppm)	TVOCs[c] (ppm)	Occupancy	Type of Ventilation
IAQ Limits & Guideline Levels											
ACGIH-2018		NE	NE	25	5,000	10	0.1	0.1	100		
ASHRAE 62.1-2016 / 55-2013		67-83	<65	9	1030*	0.050	0.0073**	0.050	NE		
EPA		68-80	20-60	9	1,000	0.150	0.1	0.075	NE		
OSHA		NE	NE	50	5,000	15	0.75	0.1	500		
Outdoors	2:19 PM	75	69	<3	330	0.077	<0.01	0.06	<0.01	-	-
153	8:12 AM	71	**67**	<3	352	0.027	**0.04**	<0.01	<0.01	1	Ducted
	12:29 PM	72	**61**	<3	580	0.035	**0.02**	<0.01	<0.01	1	
154	8:14 AM	71	**67**	<3	354	0.024	**0.03**	<0.01	<0.01	1	Ducted
	12:31 PM	71	**61**	<3	843	0.032	**0.04**	<0.01	<0.01	25	
11E Hall	8:16 AM	71	**68**	<3	357	0.028	**0.04**	<0.01	<0.01	1	Ducted
	12:32 PM	71	**63**	<3	688	0.037	**0.03**	<0.01	<0.01	1	
155 Gym/Multi-Use	8:19 AM	71	**65**	<3	353	0.033	**0.01**	<0.01	<0.01	1	Ducted
	12:34 PM	71	**63**	<3	570	**0.053**	**0.02**	<0.01	<0.01	1	
156 North Gym	8:21 AM	71	**66**	<3	344	0.028	**0.02**	<0.01	<0.01	1	Ducted
	12:37 PM	71	**65**	<3	398	0.037	**0.01**	<0.01	<0.01	1	

ppm = parts per million
mg/m^3 = milligrams per cubic meter of air
TVOCs = Total Volatile Organic Compounds

NE = Not Established
< = Less Than
*ASHRAE CO2 Indoor < 700 ppm + Outdoor
**California EPA-OEHHA

Table 1: Summary of Indoor Air Quality Results
Highland Middle School
310 West Rockland Avenue
Libertyville, Illinois
Date: 09-17-2019

Sample Location	Time	Temp. (ºF)	Relative Humidity (%)	Carbon Monoxide (CO) (ppm)[a]	Carbon Dioxide (CO_2) (ppm)	Nuisance Dust PM-10 (mg/m^3)[b]	Formaldehyde (ppm)	Ozone (ppm)	TVOCs[c] (ppm)	Occupancy	Type of Ventilation
IAQ Limits & Guideline Levels											
ACGIH-2018		NE	NE	25	5,000	10	0.1	0.1	100		
ASHRAE 62.1-2016 / 55-2013		67-83	<65	9	1030*	0.050	0.0073**	0.050	NE		
EPA		68-80	20-60	9	1,000	0.150	0.1	0.075	NE		
OSHA		NE	NE	50	5,000	15	0.75	0.1	500		
Outdoors	2:19 PM	75	69	<3	330	0.077	<0.01	0.06	<0.01	-	-
PE Office	8:23 AM	71	**65**	<3	346	0.025	**0.03**	<0.01	<0.01	1	Ducted
	12:38 PM	71	**67**	<3	433	0.038	**0.03**	<0.01	<0.01	2	
157 Band	8:25 AM	71	**63**	<3	326	0.028	<0.01	<0.01	<0.01	1	Ducted
	12:40 PM	71	**69**	<3	404	0.022	**0.01**	<0.01	<0.01	2	
157 Band Office	8:26 AM	71	**62**	<3	369	0.028	**0.03**	<0.01	<0.01	1	Ducted
	12:42 PM	72	**68**	<3	448	0.020	**0.01**	0.05	<0.01	2	
17E Hall	8:29 AM	71	**65**	<3	323	0.039	**0.02**	<0.01	<0.01	1	Ducted
	12:43 PM	73	**69**	<3	445	0.044	**0.02**	<0.01	<0.01	1	
106 South Gym PE Office	8:35 AM	72	**66**	<3	473	0.024	**0.08**	<0.01	<0.01	1	Ducted
	12:46 PM	73	**70**	<3	710	0.039	**0.05**	<0.01	<0.01	3	

ppm = parts per million
mg/m^3 = milligrams per cubic meter of air
TVOCs = Total Volatile Organic Compounds

NE = Not Established
< = Less Than
*ASHRAE CO2 Indoor < 700 ppm + Outdoor
**California EPA-OEHHA

Table 1: Summary of Indoor Air Quality Results
Highland Middle School
310 West Rockland Avenue
Libertyville, Illinois
Date: 09-17-2019

Sample Location	Time	Temp. (ºF)	Relative Humidity (%)	Carbon Monoxide (CO) (ppm)[a]	Carbon Dioxide (CO_2) (ppm)	Nuisance Dust PM-10 (mg/m^3)[b]	Formaldehyde (ppm)	Ozone (ppm)	TVOCs[c] (ppm)	Occupancy	Type of Ventilation
IAQ Limits & Guideline Levels											
ACGIH-2018		NE	NE	25	5,000	10	0.1	0.1	100		
ASHRAE 62.1-2016 / 55-2013		67-83	<65	9	1030*	0.050	0.0073**	0.050	NE		
EPA		68-80	20-60	9	1,000	0.150	0.1	0.075	NE		
OSHA		NE	NE	50	5,000	15	0.75	0.1	500		
Outdoors	2:19 PM	75	69	<3	330	0.077	<0.01	0.06	<0.01	-	-
106 South Gym	8:40 AM	71	**68**	<3	327	0.044	<0.01	<0.01	<0.01	1	Ducted
	12:48 PM	74	**68**	<3	375	**0.051**	<0.01	0.03	<0.01	1	
1E Hall	8:43 AM	70	**72**	<3	339	0.038	**0.02**	<0.01	<0.01	+100	Ducted
	12:49 PM	73	**64**	<3	355	0.043	<0.01	<0.01	<0.01	1	
105B Office	8:50 AM	70	**71**	<3	524	**0.051**	**0.04**	<0.01	<0.01	1	Ducted
	12:50 PM	73	**62**	<3	724	0.038	**0.03**	<0.01	<0.01	1	
108	8:52 AM	70	**70**	<3	498	0.035	<0.01	<0.01	<0.01	16	Ducted
	12:52 PM	72	**63**	<3	508	0.034	**0.03**	<0.01	<0.01	1	
107	8:55 AM	71	**70**	<3	475	0.033	**0.03**	<0.01	<0.01	11	Ducted
	12:54 PM	72	**63**	<3	760	0.034	**0.06**	<0.01	<0.01	27	

ppm = parts per million
mg/m^3 = milligrams per cubic meter of air
TVOCs = Total Volatile Organic Compounds

NE = Not Established
< = Less Than
*ASHRAE CO2 Indoor < 700 ppm + Outdoor
**California EPA-OEHHA

Table 1: Summary of Indoor Air Quality Results
Highland Middle School
310 West Rockland Avenue
Libertyville, Illinois
Date: 09-17-2019

Sample Location	Time	Temp. (ºF)	Relative Humidity (%)	Carbon Monoxide (CO) (ppm)[a]	Carbon Dioxide (CO_2) (ppm)	Nuisance Dust PM-10 (mg/m^3)[b]	Formaldehyde (ppm)	Ozone (ppm)	TVOCs[c] (ppm)	Occupancy	Type of Ventilation
IAQ Limits & Guideline Levels											
ACGIH-2018		NE	NE	25	5,000	10	0.1	0.1	100		
ASHRAE 62.1-2016 / 55-2013		67-83	<65	9	1030*	0.050	0.0073**	0.050	NE		
EPA		68-80	20-60	9	1,000	0.150	0.1	0.075	NE		
OSHA		NE	NE	50	5,000	15	0.75	0.1	500		
Outdoors	2:19 PM	75	69	<3	330	0.077	<0.01	0.06	<0.01	-	-
109	8:57 AM	71	**71**	<3	624	0.037	**0.06**	<0.01	<0.01	29	Ducted
	12:57 PM	72	59	<3	607	0.035	**0.04**	<0.01	<0.01	2	
111	9:01 AM	71	**69**	<3	532	0.036	**0.04**	<0.01	<0.01	20	Ducted
	12:59 PM	72	60	<3	700	0.033	**0.04**	<0.01	<0.01	1	
110	9:03 AM	71	**69**	<3	539	0.032	**0.04**	<0.01	<0.01	25	Ducted
	1:01 PM	72	60	<3	656	0.034	**0.02**	<0.01	<0.01	1	
112	9:05 AM	72	**69**	<3	556	0.034	**0.08**	<0.01	<0.01	23	Ducted
	1:02 PM	71	**61**	<3	663	0.030	**0.03**	<0.01	<0.01	1	
113	9:06 AM	72	**69**	<3	568	0.032	**0.06**	<0.01	<0.01	4	Ducted
	1:03 PM	72	**62**	<3	838	0.036	**0.03**	<0.01	<0.01	24	

ppm = parts per million
mg/m^3 = milligrams per cubic meter of air
TVOCs = Total Volatile Organic Compounds

NE = Not Established
< = Less Than
*ASHRAE CO2 Indoor < 700 ppm + Outdoor
**California EPA-OEHHA

Table 1: Summary of Indoor Air Quality Results
Highland Middle School
310 West Rockland Avenue
Libertyville, Illinois
Date: 09-17-2019

Sample Location	Time	Temp. (ºF)	Relative Humidity (%)	Carbon Monoxide (CO) (ppm)[a]	Carbon Dioxide (CO_2) (ppm)	Nuisance Dust PM-10 (mg/m^3)[b]	Formaldehyde (ppm)	Ozone (ppm)	TVOCs[c] (ppm)	Occupancy	Type of Ventilation
IAQ Limits & Guideline Levels											
ACGIH-2018		NE	NE	25	5,000	10	0.1	0.1	100		
ASHRAE 62.1-2016 / 55-2013		67-83	<65	9	1030*	0.050	0.0073**	0.050	NE		
EPA		68-80	20-60	9	1,000	0.150	0.1	0.075	NE		
OSHA		NE	NE	50	5,000	15	0.75	0.1	500		
Outdoors	2:19 PM	75	69	<3	330	0.077	<0.01	0.06	<0.01	-	-
115	9:09 AM	72	**68**	<3	482	0.030	**0.03**	<0.01	<0.01	2	Ducted
	1:04 PM	72	**62**	<3	938	0.032	**0.04**	<0.01	<0.01	12	
114	9:10 AM	72	**69**	<3	471	0.035	**0.03**	<0.01	<0.01	2	Ducted
	1:06 PM	72	**61**	<3	836	0.036	**0.02**	<0.01	<0.01	28	
116	9:12 AM	72	**69**	<3	528	0.029	**0.03**	<0.01	<0.01	26	Ducted
	1:07 PM	71	60	<3	753	0.034	**0.02**	<0.01	<0.01	2	
116B	9:14 AM	72	**67**	<3	590	0.028	**0.02**	<0.01	<0.01	4	Ducted
	1:08 PM	71	60	<3	684	0.032	**0.03**	<0.01	<0.01	1	
21E Hall	9:15 AM	71	**66**	<3	549	0.027	**0.02**	<0.01	<0.01	1	Ducted
	1:09 PM	71	**61**	<3	707	0.033	**0.03**	<0.01	<0.01	1	

ppm = parts per million
mg/m^3 = milligrams per cubic meter of air
TVOCs = Total Volatile Organic Compounds

NE = Not Established
< = Less Than
*ASHRAE CO2 Indoor < 700 ppm + Outdoor
**California EPA-OEHHA

Table 1: Summary of Indoor Air Quality Results
Highland Middle School
310 West Rockland Avenue
Libertyville, Illinois
Date: 09-17-2019

Sample Location	Time	Temp. (ºF)	Relative Humidity (%)	Carbon Monoxide (CO) (ppm)[a]	Carbon Dioxide (CO_2) (ppm)	Nuisance Dust PM-10 (mg/m^3)[b]	Formaldehyde (ppm)	Ozone (ppm)	TVOCs[c] (ppm)	Occupancy	Type of Ventilation
IAQ Limits & Guideline Levels											
ACGIH-2018		NE	NE	25	5,000	10	0.1	0.1	100		
ASHRAE 62.1-2016 / 55-2013		67-83	<65	9	1030*	0.050	0.0073**	0.050	NE		
EPA		68-80	20-60	9	1,000	0.150	0.1	0.075	NE		
OSHA		NE	NE	50	5,000	15	0.75	0.1	500		
Outdoors	2:19 PM	75	69	<3	330	0.077	<0.01	0.06	<0.01	-	-
117	9:17 AM	71	**64**	<3	451	0.028	**0.02**	<0.01	<0.01	1	Ducted
	1:10 PM	70	**62**	<3	777	0.034	**0.03**	<0.01	<0.01	24	
103 Office	9:22 AM	70	**69**	<3	419	0.032	**0.02**	<0.01	<0.01	1	Ducted
	1:12 PM	70	**66**	<3	615	0.041	**0.03**	<0.01	<0.01	1	
104	9:23 AM	70	**68**	<3	403	0.032	**0.02**	<0.01	<0.01	2	Ducted
	1:13 PM	70	**66**	<3	515	0.044	**0.01**	<0.01	<0.01	7	
105	9:26 AM	70	**66**	<3	418	0.029	**0.04**	<0.01	<0.01	10	Ducted
	1:15 PM	70	**67**	<3	426	0.046	**0.02**	<0.01	<0.01	17	
100E Main Office Reception	9:30 AM	70	**69**	<3	493	0.027	**0.04**	<0.01	<0.01	2	Ducted
	1:17 PM	70	**66**	<3	424	0.041	<0.01	<0.01	<0.01	2	

ppm = parts per million
mg/m^3 = milligrams per cubic meter of air
TVOCs = Total Volatile Organic Compounds

NE = Not Established
< = Less Than
*ASHRAE CO2 Indoor < 700 ppm + Outdoor
**California EPA-OEHHA

Table 1: Summary of Indoor Air Quality Results

Highland Middle School

310 West Rockland Avenue
Libertyville, Illinois
Date: 09-17-2019

Sample Location	Time	Temp. (ºF)	Relative Humidity (%)	Carbon Monoxide (CO) (ppm)[a]	Carbon Dioxide (CO_2) (ppm)	Nuisance Dust PM-10 (mg/m^3)[b]	Formaldehyde (ppm)	Ozone (ppm)	TVOCs[c] (ppm)	Occupancy	Type of Ventilation
IAQ Limits & Guideline Levels											
ACGIH-2018		NE	NE	25	5,000	10	0.1	0.1	100		
ASHRAE 62.1-2016 / 55-2013		67-83	<65	9	1030*	0.050	0.0073**	0.050	NE		
EPA		68-80	20-60	9	1,000	0.150	0.1	0.075	NE		
OSHA		NE	NE	50	5,000	15	0.75	0.1	500		
Outdoors	2:19 PM	75	69	<3	330	0.077	<0.01	0.06	<0.01	-	-
100D Asst. Principal Office	9:32 AM	71	**68**	<3	452	0.030	**0.03**	<0.01	<0.01	1	Ducted
	1:18 PM	70	**66**	<3	418	0.043	<0.01	<0.01	<0.01	2	
100C Conf. Rm	9:36 AM	71	**69**	<3	481	0.033	**0.03**	<0.01	<0.01	1	Ducted
	1:19 PM	71	**65**	<3	362	0.039	<0.01	<0.01	<0.01	1	
100B Principal Office	9:38 AM	71	**69**	<3	474	0.030	**0.03**	<0.01	<0.01	2	Ducted
	1:20 PM	71	**65**	<3	415	0.046	**0.01**	<0.01	<0.01	2	
100 Main Office Reception	9:39 AM	71	**69**	<3	472	0.030	**0.02**	<0.01	<0.01	3	Ducted
	1:21 PM	71	**65**	<3	516	0.040	<0.01	<0.01	<0.01	3	
121	9:43 AM	72	**71**	<3	735	0.031	**0.03**	<0.01	<0.01	20	Ducted
	1:23 PM	71	**65**	<3	634	0.039	**0.01**	<0.01	<0.01	22	

ppm = parts per million
mg/m^3 = milligrams per cubic meter of air
TVOCs = Total Volatile Organic Compounds

NE = Not Established
< = Less Than
*ASHRAE CO2 Indoor < 700 ppm + Outdoor
**California EPA-OEHHA

Table 1: Summary of Indoor Air Quality Results
Highland Middle School
310 West Rockland Avenue
Libertyville, Illinois
Date: 09-17-2019

Sample Location	Time	Temp. (ºF)	Relative Humidity (%)	Carbon Monoxide (CO) (ppm)[a]	Carbon Dioxide (CO_2) (ppm)	Nuisance Dust PM-10 (mg/m^3)[b]	Formaldehyde (ppm)	Ozone (ppm)	TVOCs[c] (ppm)	Occupancy	Type of Ventilation
IAQ Limits & Guideline Levels											
ACGIH-2018		NE	NE	25	5,000	10	0.1	0.1	100		
ASHRAE 62.1-2016 / 55-2013		67-83	<65	9	1030*	0.050	0.0073**	0.050	NE		
EPA		68-80	20-60	9	1,000	0.150	0.1	0.075	NE		
OSHA		NE	NE	50	5,000	15	0.75	0.1	500		
Outdoors	2:19 PM	75	69	<3	330	0.077	<0.01	0.06	<0.01	-	-
102 Nurse	9:45 AM	72	**69**	<3	625	0.036	**0.01**	<0.01	<0.01	3	Ducted
	1:24 PM	71	**64**	<3	508	0.045	<0.01	<0.01	<0.01	1	
101 Workroom	9:48 AM	72	**70**	<3	355	0.027	**0.01**	<0.01	<0.01	2	Ducted
	1:25 PM	71	**65**	<3	442	0.043	**0.01**	<0.01	<0.01	2	
201	10:27 AM	72	**65**	<3	833	0.027	**0.06**	<0.01	<0.01	2	Univent
	1:26 PM	71	**66**	<3	710	0.044	**0.03**	<0.01	<0.01	24	
202	10:30 AM	72	**65**	<3	**1020**	0.026	**0.08**	<0.01	<0.01	23	Univent
	1:28 PM	71	**65**	<3	**1225**	0.050	**0.20**	<0.01	<0.01	21	
203	10:34 AM	72	**65**	<3	**1406**	0.020	**0.07**	<0.01	<0.01	22	Univent
	1:29 PM	71	**64**	<3	**1396**	0.035	**0.21**	<0.01	<0.01	26	

ppm = parts per million
mg/m^3 = milligrams per cubic meter of air
TVOCs = Total Volatile Organic Compounds

NE = Not Established
< = Less Than
*ASHRAE CO2 Indoor < 700 ppm + Outdoor
**California EPA-OEHHA

Table 1: Summary of Indoor Air Quality Results
Highland Middle School
310 West Rockland Avenue
Libertyville, Illinois
Date: 09-17-2019

Sample Location	Time	Temp. (ºF)	Relative Humidity (%)	Carbon Monoxide (CO) (ppm)[a]	Carbon Dioxide (CO_2) (ppm)	Nuisance Dust PM-10 (mg/m^3)[b]	Formaldehyde (ppm)	Ozone (ppm)	TVOCs[c] (ppm)	Occupancy	Type of Ventilation
IAQ Limits & Guideline Levels											
ACGIH-2018		NE	NE	25	5,000	10	0.1	0.1	100		
ASHRAE 62.1-2016 / 55-2013		67-83	<65	9	1030*	0.050	0.0073**	0.050	NE		
EPA		68-80	20-60	9	1,000	0.150	0.1	0.075	NE		
OSHA		NE	NE	50	5,000	15	0.75	0.1	500		
Outdoors	2:19 PM	75	69	<3	330	0.077	<0.01	0.06	<0.01	-	-
204	10:58 AM	69	**72**	<3	**1001**	0.026	**0.07**	<0.01	<0.01	13	Univent
	1:31 PM	70	**69**	<3	**1635**	0.034	**0.19**	<0.01	<0.01	24	
205	11:00 AM	70	**70**	<3	**1374**	0.019	**0.08**	<0.01	<0.01	1	Univent
	1:32 PM	71	**68**	<3	**1676**	0.039	**0.22**	<0.01	<0.01	24	
206	11:02 AM	70	**71**	<3	**1388**	0.023	**0.07**	<0.01	<0.01	20	Univent
	1:33 PM	71	**67**	<3	**1593**	0.039	**0.18**	<0.01	<0.01	13	
207	11:04 AM	71	**73**	<3	**1795**	0.021	**0.15**	<0.01	<0.01	26	Univent
	1:35 PM	71	**70**	<3	**1511**	0.036	**0.65**	<0.01	<0.01	24	
001	11:07 AM	70	**69**	<3	995	0.025	**0.13**	<0.01	<0.01	22	Univent
	1:37 PM	71	**70**	<3	967	0.031	**0.34**	<0.01	<0.01	22	

ppm = parts per million
mg/m^3 = milligrams per cubic meter of air
TVOCs = Total Volatile Organic Compounds

NE = Not Established
< = Less Than
*ASHRAE CO2 Indoor < 700 ppm + Outdoor
**California EPA-OEHHA

Table 1: Summary of Indoor Air Quality Results
Highland Middle School
310 West Rockland Avenue
Libertyville, Illinois
Date: 09-17-2019

Sample Location	Time	Temp. (ºF)	Relative Humidity (%)	Carbon Monoxide (CO) (ppm)[a]	Carbon Dioxide (CO_2) (ppm)	Nuisance Dust PM-10 (mg/m^3)[b]	Formaldehyde (ppm)	Ozone (ppm)	TVOCs[c] (ppm)	Occupancy	Type of Ventilation
IAQ Limits & Guideline Levels											
ACGIH-2018		NE	NE	25	5,000	10	0.1	0.1	100		
ASHRAE 62.1-2016 / 55-2013		67-83	<65	9	1030*	0.050	0.0073**	0.050	NE		
EPA		68-80	20-60	9	1,000	0.150	0.1	0.075	NE		
OSHA		NE	NE	50	5,000	15	0.75	0.1	500		
Outdoors	2:19 PM	75	69	<3	330	0.077	<0.01	0.06	<0.01	-	-
002	11:09 AM	71	**72**	<3	931	0.032	**0.11**	<0.01	<0.01	15	Univent
	1:38 PM	71	**68**	<3	977	0.044	**0.19**	<0.01	<0.01	1	
003	11:11 AM	71	**72**	<3	**1767**	0.014	**0.06**	<0.01	<0.01	20	Univent
	1:39 PM	71	**69**	<3	**1081**	0.039	**0.11**	<0.01	<0.01	25	
004	11:13 AM	72	**73**	<3	**1796**	0.024	**0.04**	<0.01	<0.01	18	Univent
	1:41 PM	71	**72**	<3	**1305**	0.034	**0.07**	<0.01	<0.01	19	
005	11:15 AM	72	**70**	<3	**1406**	0.026	**0.04**	<0.01	<0.01	21	Univent
	1:42 PM	71	**69**	<3	**1147**	0.035	**0.05**	<0.01	<0.01		
006	11:17 AM	72	**61**	<3	931	0.018	**0.21**	<0.01	<0.01	1	Univent
	1:43 PM	**In Use - Confidential Meeting**									

ppm = parts per million
mg/m^3 = milligrams per cubic meter of air
TVOCs = Total Volatile Organic Compounds

NE = Not Established
< = Less Than
*ASHRAE CO2 Indoor < 700 ppm + Outdoor
**California EPA-OEHHA

Table 1: Summary of Indoor Air Quality Results
Highland Middle School
310 West Rockland Avenue
Libertyville, Illinois
Date: 09-17-2019

Sample Location	Time	Temp. (ºF)	Relative Humidity (%)	Carbon Monoxide (CO) (ppm)[a]	Carbon Dioxide (CO_2) (ppm)	Nuisance Dust PM-10 (mg/m^3)[b]	Formaldehyde (ppm)	Ozone (ppm)	TVOCs[c] (ppm)	Occupancy	Type of Ventilation
IAQ Limits & Guideline Levels											
ACGIH-2018		NE	NE	25	5,000	10	0.1	0.1	100		
ASHRAE 62.1-2016 / 55-2013		67-83	<65	9	1030*	0.050	0.0073**	0.050	NE		
EPA		68-80	20-60	9	1,000	0.150	0.1	0.075	NE		
OSHA		NE	NE	50	5,000	15	0.75	0.1	500		
Outdoors	2:19 PM	75	69	<3	330	0.077	<0.01	0.06	<0.01	-	-
007	11:19 AM	72	**69**	<3	509	0.037	**0.05**	<0.01	<0.01	1	Univent
	1:44 PM	**Locked - Vacant**									
2E Hall	11:23 AM	72	**63**	<3	756	0.029	**0.01**	<0.01	<0.01	1	Ducted
	1:45 PM	70	**68**	<3	658	0.050	**0.01**	<0.01	<0.01	1	
120	11:25 AM	72	**61**	<3	547	0.037	**0.01**	<0.01	<0.01	2	Ducted
	1:47 PM	70	**67**	<3	558	**0.052**	<0.01	<0.01	<0.01	25	
121	11:27 AM	72	**63**	<3	671	0.034	**0.07**	<0.01	<0.01	2	Ducted
	1:48 PM	**No Access**									
122	11:28 AM	72	**62**	<3	530	0.036	**0.03**	<0.01	<0.01	2	Ducted
	1:49 PM	71	**67**	<3	553	0.044	**0.01**	<0.01	<0.01	1	

ppm = parts per million
mg/m^3 = milligrams per cubic meter of air
TVOCs = Total Volatile Organic Compounds

NE = Not Established
< = Less Than
*ASHRAE CO2 Indoor < 700 ppm + Outdoor
**California EPA-OEHHA

Table 1: Summary of Indoor Air Quality Results
Highland Middle School
310 West Rockland Avenue
Libertyville, Illinois
Date: 09-17-2019

Sample Location	Time	Temp. (ºF)	Relative Humidity (%)	Carbon Monoxide (CO) (ppm)[a]	Carbon Dioxide (CO_2) (ppm)	Nuisance Dust PM-10 (mg/m^3)[b]	Formaldehyde (ppm)	Ozone (ppm)	TVOCs[c] (ppm)	Occupancy	Type of Ventilation
IAQ Limits & Guideline Levels											
ACGIH-2018		NE	NE	25	5,000	10	0.1	0.1	100		
ASHRAE 62.1-2016 / 55-2013		67-83	<65	9	1030*	0.050	0.0073**	0.050	NE		
EPA		68-80	20-60	9	1,000	0.150	0.1	0.075	NE		
OSHA		NE	NE	50	5,000	15	0.75	0.1	500		
Outdoors	2:19 PM	75	69	<3	330	0.077	<0.01	0.06	<0.01	-	-
123	11:30 AM	72	59	<3	592	0.028	**0.03**	<0.01	<0.01	5	Ducted
	1:51 PM	71	**62**	<3	585	0.041	<0.01	<0.01	<0.01	1	
124	11:31 AM	71	**61**	<3	593	0.031	**0.02**	<0.01	<0.01	1	Ducted
	1:52 PM	71	**63**	<3	557	0.041	<0.01	<0.01	<0.01	1	
125	11:33 AM	71	59	<3	667	0.017	**0.03**	<0.01	<0.01	1	Ducted
	1:54 PM	71	**62**	<3	953	0.023	**0.01**	<0.01	<0.01	10	
126	11:34 AM	71	60	<3	696	0.021	**0.02**	<0.01	<0.01	11	Univent
	1:55 PM	71	**74**	<3	626	0.039	**0.02**	<0.01	<0.01	2	
127 Learning Center	11:35 AM	70	**67**	<3	769	0.028	**0.01**	<0.01	<0.01	27	Ducted
	1:57 PM	71	**65**	<3	567	0.029	<0.01	<0.01	<0.01	40	

ppm = parts per million
mg/m^3 = milligrams per cubic meter of air
TVOCs = Total Volatile Organic Compounds

NE = Not Established
< = Less Than
*ASHRAE CO2 Indoor < 700 ppm + Outdoor
**California EPA-OEHHA

Table 1: Summary of Indoor Air Quality Results
Highland Middle School
310 West Rockland Avenue
Libertyville, Illinois
Date: 09-17-2019

Sample Location	Time	Temp. (ºF)	Relative Humidity (%)	Carbon Monoxide (CO) (ppm)[a]	Carbon Dioxide (CO_2) (ppm)	Nuisance Dust PM-10 (mg/m^3)[b]	Formaldehyde (ppm)	Ozone (ppm)	TVOCs[c] (ppm)	Occupancy	Type of Ventilation
IAQ Limits & Guideline Levels											
ACGIH-2018		NE	NE	25	5,000	10	0.1	0.1	100		
ASHRAE 62.1-2016 / 55-2013		67-83	<65	9	1030*	0.050	0.0073**	0.050	NE		
EPA		68-80	20-60	9	1,000	0.150	0.1	0.075	NE		
OSHA		NE	NE	50	5,000	15	0.75	0.1	500		
Outdoors	2:19 PM	75	69	<3	330	0.077	<0.01	0.06	<0.01	-	-
128	11:37 AM	70	**69**	<3	706	0.037	**0.02**	<0.01	<0.01	12	Univent
	2:01 PM	71	**66**	<3	632	**0.051**	<0.01	<0.01	<0.01	16	
129	11:38 AM	70	**68**	<3	632	0.033	<0.01	<0.01	<0.01	11	Univent
	2:04 PM	71	**74**	<3	832	0.045	**0.01**	<0.01	<0.01	14	
130	11:40 AM	71	**67**	<3	**1056**	0.032	**0.34**	<0.01	<0.01	4	Ducted
	2:05 PM	71	**68**	<3	**1039**	0.041	**0.82**	<0.01	<0.01	27	
131	11:41 AM	71	**66**	<3	**1255**	0.031	**0.30**	<0.01	<0.01	3	Ducted
	2:09 PM	74	58	<3	936	0.040	**0.59**	<0.01	<0.01	3	
132 Cafeteria	11:42 AM	71	**65**	<3	**1095**	0.034	**0.04**	<0.01	<0.01	~140	Ducted
	2:12 PM	72	58	<3	784	0.038	<0.01	<0.01	<0.01	1	

ppm = parts per million
mg/m^3 = milligrams per cubic meter of air
TVOCs = Total Volatile Organic Compounds

NE = Not Established
< = Less Than
*ASHRAE CO2 Indoor < 700 ppm + Outdoor
**California EPA-OEHHA

Table 1: Summary of Indoor Air Quality Results
Highland Middle School
310 West Rockland Avenue
Libertyville, Illinois
Date: 09-17-2019

Sample Location	Time	Temp. (ºF)	Relative Humidity (%)	Carbon Monoxide (CO) (ppm)[a]	Carbon Dioxide (CO_2) (ppm)	Nuisance Dust PM-10 (mg/m^3)[b]	Formaldehyde (ppm)	Ozone (ppm)	TVOCs[c] (ppm)	Occupancy	Type of Ventilation
IAQ Limits & Guideline Levels											
ACGIH-2018		NE	NE	25	5,000	10	0.1	0.1	100		
ASHRAE 62.1-2016 / 55-2013		67-83	<65	9	1030*	0.050	0.0073**	0.050	NE		
EPA		68-80	20-60	9	1,000	0.150	0.1	0.075	NE		
OSHA		NE	NE	50	5,000	15	0.75	0.1	500		
Outdoors	2:19 PM	75	69	<3	330	0.077	<0.01	0.06	<0.01	-	-
133 Office	11:44 AM	71	**69**	<3	**1628**	0.030	**0.40**	<0.01	<0.01	5	Drop Grid Fan
	2:15 PM	73	**66**	<3	**1320**	0.037	**0.23**	<0.01	<0.01	1	

ppm = parts per million
mg/m^3 = milligrams per cubic meter of air
TVOCs = Total Volatile Organic Compounds

NE = Not Established
< = Less Than
*ASHRAE CO2 Indoor < 700 ppm + Outdoor
**California EPA-OEHHA

Appendix B

Fungal/Mold Laboratory Report & Chain of Custody

EMSL Analytical, Inc.

4140 Litt Drive Hillside, IL 60162

Tel/Fax: (773) 313-0099 / (773) 313-0139

http://www.EMSL.com / chicagolab@emsl.com

EMSL Order: 261909668
Customer ID: ENCG51
Customer PO:
Project ID:

Attn: Dan Brust
Environmental Consulting Group
105 South York Street
Suite 250
Elmhurst, IL 60126
Project: II192651-862

Phone: (630) 607-0060
Fax: (630) 607-0650
Collected: 09/17/2019
Received: 09/17/2019
Analyzed: 09/17/2019 - 09/19/2019

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

Lab Sample Number:	261909668-0001			261909668-0002			261909668-0003		
Client Sample ID:	134			135			137		
Volume (L):	30			30			30		
Sample Location	ROOM 134			ROOM 135			ROOM 137		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	2	200	3.8	-	-	-
Aspergillus/Penicillium	-	-	-	2	200	3.8	-	-	-
Basidiospores	2	200	87	41	4500	86	3	300	100
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	3	300	5.7	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	1*	30*	0.6	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	1*	30*	13	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Cercospora++	-	-	-	-	-	-	-	-	-
Fusicladium/Venturia	-	-	-	-	-	-	-	-	-
Total Fungi	**3**	**230**	**100**	**49**	**5230**	**100**	**3**	**300**	**100**
Hyphal Fragment	1	100	-	1*	30*	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	109	-	-	109	-	-	109	-
Analyt. Sensitivity 300x	-	33*	-	-	33*	-	-	33*	-
Skin Fragments (1-4)	-	2	-	-	1	-	-	3	-
Fibrous Particulate (1-4)	-	2	-	-	1	-	-	1	-
Background (1-5)	-	1	-	-	1	-	-	1	-

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

[redacted]

Andrei Poluchowicz, Microbiology Technical Manager or other approved signatory

Samples received in good condition unless otherwise noted. 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. The report reflects the samples as received. When the information supplied by the customer can affect the validity of the result, it will be noted on the report.

Samples analyzed by EMSL Analytical, Inc. Hillside, IL AIHA-LAP, LLC--EMLAP Lab 102992

Initial report from: 09/19/2019 10:45:22

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

EMSL Analytical, Inc.

4140 Litt Drive Hillside, IL 60162

Tel/Fax: (773) 313-0099 / (773) 313-0139

http://www.EMSL.com / chicagolab@emsl.com

EMSL Order: 261909668
Customer ID: ENCG51
Customer PO:
Project ID:

Attn: Dan Brust
Environmental Consulting Group
105 South York Street
Suite 250
Elmhurst, IL 60126
Project: II192651-862

Phone: (630) 607-0060
Fax: (630) 607-0650
Collected: 09/17/2019
Received: 09/17/2019
Analyzed: 09/17/2019 - 09/19/2019

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

Lab Sample Number:	261909668-0004			261909668-0005			261909668-0006		
Client Sample ID:	141			143			145		
Volume (L):	30			30			30		
Sample Location	ROOM 141			ROOM 143			ROOM 145		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	1	100	33.3	-	-	-	-	-	-
Aspergillus/Penicillium	-	-	-	-	-	-	-	-	-
Basidiospores	2	200	66.7	3	300	100	2	200	100
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Cercospora++	-	-	-	-	-	-	-	-	-
Fusicladium/Venturia	-	-	-	-	-	-	-	-	-
Total Fungi	**3**	**300**	**100**	**3**	**300**	**100**	**2**	**200**	**100**
Hyphal Fragment	-	-	-	1	100	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	109	-	-	109	-	-	109	-
Analyt. Sensitivity 300x	-	33*	-	-	33*	-	-	33*	-
Skin Fragments (1-4)	-	3	-	-	2	-	-	2	-
Fibrous Particulate (1-4)	-	2	-	-	1	-	-	1	-
Background (1-5)	-	1	-	-	1	-	-	1	-

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

Andrei Poluchowicz, Microbiology Technical Manager
or other approved signatory

Samples received in good condition unless otherwise noted. 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. The report reflects the samples as received. When the information supplied by the customer can affect the validity of the result, it will be noted on the report.

Samples analyzed by EMSL Analytical, Inc. Hillside, IL AIHA-LAP, LLC--EMLAP Lab 102992

Initial report from: 09/19/2019 10:45:22

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

EMSL Analytical, Inc.

4140 Litt Drive Hillside, IL 60162

Tel/Fax: (773) 313-0099 / (773) 313-0139

http://www.EMSL.com / chicagolab@emsl.com

EMSL Order: 261909668
Customer ID: ENCG51
Customer PO:
Project ID:

Attn: Dan Brust
Environmental Consulting Group
105 South York Street
Suite 250
Elmhurst, IL 60126
Project: II192651-862

Phone: (630) 607-0060
Fax: (630) 607-0650
Collected: 09/17/2019
Received: 09/17/2019
Analyzed: 09/17/2019 - 09/19/2019

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

Lab Sample Number:	261909668-0007			261909668-0008			261909668-0009		
Client Sample ID:	147			149			150		
Volume (L):	30			30			30		
Sample Location	ROOM 147			ROOM 149			ROOM 150		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	1	100	25	-	-	-
Aspergillus/Penicillium	-	-	-	1	100	25	-	-	-
Basidiospores	6	700	100	1	100	25	4	400	80
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	1	100	25	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	1	100	20
Zygomycetes	-	-	-	-	-	-	-	-	-
Cercospora++	-	-	-	-	-	-	-	-	-
Fusicladium/Venturia	-	-	-	-	-	-	-	-	-
Total Fungi	**6**	**700**	**100**	**4**	**400**	**100**	**5**	**500**	**100**
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	109	-	-	109	-	-	109	-
Analyt. Sensitivity 300x	-	33*	-	-	33*	-	-	33*	-
Skin Fragments (1-4)	-	3	-	-	3	-	-	2	-
Fibrous Particulate (1-4)	-	2	-	-	1	-	-	1	-
Background (1-5)	-	1	-	-	1	-	-	1	-

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

[redacted]

Andrei Poluchowicz, Microbiology Technical Manager
or other approved signatory

Samples received in good condition unless otherwise noted. 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. The report reflects the samples as received. When the information supplied by the customer can affect the validity of the result, it will be noted on the report.

Samples analyzed by EMSL Analytical, Inc. Hillside, IL AIHA-LAP, LLC--EMLAP Lab 102992

Initial report from: 09/19/2019 10:45:22

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

EMSL Analytical, Inc.

4140 Litt Drive Hillside, IL 60162

Tel/Fax: (773) 313-0099 / (773) 313-0139

http://www.EMSL.com / chicagolab@emsl.com

EMSL Order: 261909668
Customer ID: ENCG51
Customer PO:
Project ID:

Attn: Dan Brust
Environmental Consulting Group
105 South York Street
Suite 250
Elmhurst, IL 60126
Project: II192651-862

Phone: (630) 607-0060
Fax: (630) 607-0650
Collected: 09/17/2019
Received: 09/17/2019
Analyzed: 09/17/2019 - 09/19/2019

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

Lab Sample Number:	261909668-0010			261909668-0011			261909668-0012		
Client Sample ID:	153			155			157		
Volume (L):	30			30			30		
Sample Location	ROOM 153			ROOM 155			ROOM 157		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	-	-	-	1	100	11.1
Aspergillus/Penicillium	-	-	-	1	100	12.5	-	-	-
Basidiospores	2	200	40	6	700	87.5	6	700	77.8
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	1	100	11.1
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	3	300	60	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Cercospora++	-	-	-	-	-	-	-	-	-
Fusicladium/Venturia	-	-	-	-	-	-	-	-	-
Total Fungi	**5**	**500**	**100**	**7**	**800**	**100**	**8**	**900**	**100**
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	109	-	-	109	-	-	109	-
Analyt. Sensitivity 300x	-	33*	-	-	33*	-	-	33*	-
Skin Fragments (1-4)	-	2	-	-	2	-	-	3	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	1	-	-	1	-	-	1	-

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

Andrei Poluchowicz, Microbiology Technical Manager or other approved signatory

Samples received in good condition unless otherwise noted. 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. The report reflects the samples as received. When the information supplied by the customer can affect the validity of the result, it will be noted on the report.

Samples analyzed by EMSL Analytical, Inc. Hillside, IL AIHA-LAP, LLC--EMLAP Lab 102992

Initial report from: 09/19/2019 10:45:22

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

EMSL Analytical, Inc.

4140 Litt Drive Hillside, IL 60162

Tel/Fax: (773) 313-0099 / (773) 313-0139

http://www.EMSL.com / chicagolab@emsl.com

EMSL Order: 261909668
Customer ID: ENCG51
Customer PO:
Project ID:

Attn: Dan Brust
Environmental Consulting Group
105 South York Street
Suite 250
Elmhurst, IL 60126
Project: II192651-862

Phone: (630) 607-0060
Fax: (630) 607-0650
Collected: 09/17/2019
Received: 09/17/2019
Analyzed: 09/17/2019 - 09/19/2019

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

Lab Sample Number:	261909668-0013			261909668-0014			261909668-0015		
Client Sample ID:	107			109			111		
Volume (L):	30			30			30		
Sample Location	ROOM 107 (S/N 28618767)			ROOM 109			ROOM 111		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	-	-	-	-	-	-
Aspergillus/Penicillium	-	-	-	-	-	-	-	-	-
Basidiospores	3	300	37.5	2	200	100	1	100	100
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	5	500	62.5	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Cercospora++	-	-	-	-	-	-	-	-	-
Fusicladium/Venturia	-	-	-	-	-	-	-	-	-
Total Fungi	**8**	**800**	**100**	**2**	**200**	**100**	**1**	**100**	**100**
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	109	-	-	109	-	-	109	-
Analyt. Sensitivity 300x	-	33*	-	-	33*	-	-	33*	-
Skin Fragments (1-4)	-	3	-	-	2	-	-	2	-
Fibrous Particulate (1-4)	-	2	-	-	1	-	-	1	-
Background (1-5)	-	1	-	-	1	-	-	1	-

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

Andrei Poluchowicz, Microbiology Technical Manager or other approved signatory

Samples received in good condition unless otherwise noted. 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. The report reflects the samples as received. When the information supplied by the customer can affect the validity of the result, it will be noted on the report.

Samples analyzed by EMSL Analytical, Inc. Hillside, IL AIHA-LAP, LLC--EMLAP Lab 102992

Initial report from: 09/19/2019 10:45:22

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

EMSL Analytical, Inc.

4140 Litt Drive Hillside, IL 60162

Tel/Fax: (773) 313-0099 / (773) 313-0139

http://www.EMSL.com / chicagolab@emsl.com

EMSL Order: 261909668
Customer ID: ENCG51
Customer PO:
Project ID:

Attn: Dan Brust
Environmental Consulting Group
105 South York Street
Suite 250
Elmhurst, IL 60126
Project: II192651-862

Phone: (630) 607-0060
Fax: (630) 607-0650
Collected: 09/17/2019
Received: 09/17/2019
Analyzed: 09/17/2019 - 09/19/2019

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

Lab Sample Number:	261909668-0016			261909668-0017			261909668-0018		
Client Sample ID:	113			115			117		
Volume (L):	30			30			30		
Sample Location	ROOM 113			ROOM 115			ROOM 117		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	-	-	-	-	-	-
Aspergillus/Penicillium	1	100	100	-	-	-	1	100	33.3
Basidiospores	-	-	-	1	100	100	2	200	66.7
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Cercospora++	-	-	-	-	-	-	-	-	-
Fusicladium/Venturia	-	-	-	-	-	-	-	-	-
Total Fungi	**1**	**100**	**100**	**1**	**100**	**100**	**3**	**300**	**100**
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	109	-	-	109	-	-	109	-
Analyt. Sensitivity 300x	-	33*	-	-	33*	-	-	33*	-
Skin Fragments (1-4)	-	2	-	-	1	-	-	2	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	1	-	-	1	-	-	1	-

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

[redacted]

Andrei Poluchowicz, Microbiology Technical Manager or other approved signatory

Samples received in good condition unless otherwise noted. 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. The report reflects the samples as received. When the information supplied by the customer can affect the validity of the result, it will be noted on the report.

Samples analyzed by EMSL Analytical, Inc. Hillside, IL AIHA-LAP, LLC--EMLAP Lab 102992

Initial report from: 09/19/2019 10:45:22

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

EMSL Analytical, Inc.

4140 Litt Drive Hillside, IL 60162

Tel/Fax: (773) 313-0099 / (773) 313-0139

http://www.EMSL.com / chicagolab@emsl.com

EMSL Order: 261909668
Customer ID: ENCG51
Customer PO:
Project ID:

Attn: Dan Brust
Environmental Consulting Group
105 South York Street
Suite 250
Elmhurst, IL 60126
Project: II192651-862

Phone: (630) 607-0060
Fax: (630) 607-0650
Collected: 09/17/2019
Received: 09/17/2019
Analyzed: 09/17/2019 - 09/19/2019

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

Lab Sample Number:	261909668-0019			261909668-0020			261909668-0021		
Client Sample ID:	105			103			100E		
Volume (L):	30			30			30		
Sample Location	ROOM 105			ROOM 103			ROOM 100E		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	-	-	-	-	-	-
Aspergillus/Penicillium	-	-	-	-	-	-	1	100	5.2
Basidiospores	1	100	33.3	3	300	75	6	700	36.3
Bipolaris++	-	-	-	-	-	-	1*	30*	1.6
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	2	200	66.7	1	100	25	8	900	46.6
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	1	100	5.2
Rust	-	-	-	-	-	-	1	100	5.2
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Cercospora++	-	-	-	-	-	-	-	-	-
Fusicladium/Venturia	-	-	-	-	-	-	-	-	-
Total Fungi	**3**	**300**	**100**	**4**	**400**	**100**	**18**	**1930**	**100**
Hyphal Fragment	-	-	-	-	-	-	1	100	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	109	-	-	109	-	-	109	-
Analyt. Sensitivity 300x	-	33*	-	-	33*	-	-	33*	-
Skin Fragments (1-4)	-	2	-	-	2	-	-	3	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	2	-
Background (1-5)	-	1	-	-	1	-	-	1	-

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

[redacted]

Andrei Poluchowicz, Microbiology Technical Manager or other approved signatory

Samples received in good condition unless otherwise noted. 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. The report reflects the samples as received. When the information supplied by the customer can affect the validity of the result, it will be noted on the report.

Samples analyzed by EMSL Analytical, Inc. Hillside, IL AIHA-LAP, LLC--EMLAP Lab 102992

Initial report from: 09/19/2019 10:45:22

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

EMSL Analytical, Inc.
4140 Litt Drive Hillside, IL 60162
Tel/Fax: (773) 313-0099 / (773) 313-0139
http://www.EMSL.com / chicagolab@emsl.com

EMSL Order: 261909668
Customer ID: ENCG51
Customer PO:
Project ID:

Attn: Dan Brust
Environmental Consulting Group
105 South York Street
Suite 250
Elmhurst, IL 60126
Project: II192651-862

Phone: (630) 607-0060
Fax: (630) 607-0650
Collected: 09/17/2019
Received: 09/17/2019
Analyzed: 09/17/2019 - 09/19/2019

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

Lab Sample Number:	261909668-0022			261909668-0023			261909668-0024		
Client Sample ID:	201			203			205		
Volume (L):	30			30			30		
Sample Location	ROOM 201			ROOM 203			ROOM 205		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	2*	70*	5.5
Ascospores	-	-	-	-	-	-	-	-	-
Aspergillus/Penicillium	-	-	-	-	-	-	1	100	7.9
Basidiospores	3	300	50.8	2	200	100	1	100	7.9
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	-	-	-	1	100	7.9
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	1*	30*	5.1	-	-	-	1	100	7.9
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	1*	30*	5.1	-	-	-	1	100	7.9
Pithomyces++	1*	30*	5.1	-	-	-	3*	100*	7.9
Rust	4*	100*	16.9	-	-	-	5	500	39.4
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	1	100	16.9	-	-	-	1	100	7.9
Zygomycetes	-	-	-	-	-	-	-	-	-
Cercospora++	-	-	-	-	-	-	-	-	-
Fusicladium/Venturia	-	-	-	-	-	-	-	-	-
Total Fungi	**11**	**590**	**100**	**2**	**200**	**100**	**16**	**1270**	**100**
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	109	-	-	109	-	-	109	-
Analyt. Sensitivity 300x	-	33*	-	-	33*	-	-	33*	-
Skin Fragments (1-4)	-	3	-	-	3	-	-	3	-
Fibrous Particulate (1-4)	-	2	-	-	1	-	-	2	-
Background (1-5)	-	1	-	-	1	-	-	2	-

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

[redacted]

Andrei Poluchowicz, Microbiology Technical Manager
or other approved signatory

Samples received in good condition unless otherwise noted. 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. The report reflects the samples as received. When the information supplied by the customer can affect the validity of the result, it will be noted on the report.

Samples analyzed by EMSL Analytical, Inc. Hillside, IL AIHA-LAP, LLC--EMLAP Lab 102992

Initial report from: 09/19/2019 10:45:22

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

EMSL Analytical, Inc.

4140 Litt Drive Hillside, IL 60162

Tel/Fax: (773) 313-0099 / (773) 313-0139

http://www.EMSL.com / chicagolab@emsl.com

EMSL Order: 261909668
Customer ID: ENCG51
Customer PO:
Project ID:

Attn: Dan Brust
Environmental Consulting Group
105 South York Street
Suite 250
Elmhurst, IL 60126
Project: II192651-862

Phone: (630) 607-0060
Fax: (630) 607-0650
Collected: 09/17/2019
Received: 09/17/2019
Analyzed: 09/17/2019 - 09/19/2019

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

Lab Sample Number:	261909668-0025			261909668-0026			261909668-0027		
Client Sample ID:	207			001			003		
Volume (L):	30			30			30		
Sample Location	ROOM 207			ROOM 001			ROOM 003		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	-	-	-	1*	30*	18.8
Aspergillus/Penicillium	1	100	9.4	1	100	27	1	100	62.5
Basidiospores	-	-	-	2	200	54.1	-	-	-
Bipolaris++	1*	30*	2.8	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	1	100	9.4	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	1	100	9.4	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	1*	30*	2.8	-	-	-	-	-	-
Rust	6	700	66	2*	70*	18.9	1*	30*	18.8
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Cercospora++	-	-	-	-	-	-	-	-	-
Fusicladium/Venturia	-	-	-	-	-	-	-	-	-
Total Fungi	**11**	**1060**	**100**	**5**	**370**	**100**	**3**	**160**	**100**
Hyphal Fragment	2*	70*	-	1	100	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	109	-	-	109	-	-	109	-
Analyt. Sensitivity 300x	-	33*	-	-	33*	-	-	33*	-
Skin Fragments (1-4)	-	3	-	-	3	-	-	3	-
Fibrous Particulate (1-4)	-	1	-	-	2	-	-	2	-
Background (1-5)	-	1	-	-	1	-	-	1	-

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

Andrei Poluchowicz, Microbiology Technical Manager
or other approved signatory

Samples received in good condition unless otherwise noted. 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. The report reflects the samples as received. When the information supplied by the customer can affect the validity of the result, it will be noted on the report.

Samples analyzed by EMSL Analytical, Inc. Hillside, IL AIHA-LAP, LLC--EMLAP Lab 102992

Initial report from: 09/19/2019 10:45:22

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

EMSL Analytical, Inc.

4140 Litt Drive Hillside, IL 60162

Tel/Fax: (773) 313-0099 / (773) 313-0139

http://www.EMSL.com / chicagolab@emsl.com

EMSL Order: 261909668
Customer ID: ENCG51
Customer PO:
Project ID:

Attn: Dan Brust
Environmental Consulting Group
105 South York Street
Suite 250
Elmhurst, IL 60126
Project: II192651-862

Phone: (630) 607-0060
Fax: (630) 607-0650
Collected: 09/17/2019
Received: 09/17/2019
Analyzed: 09/17/2019 - 09/19/2019

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

Lab Sample Number:	261909668-0028			261909668-0029			261909668-0030		
Client Sample ID:	005			123			124		
Volume (L):	30			30			30		
Sample Location	ROOM 005			ROOM 123			ROOM 124		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	-	-	-	-	-	-
Aspergillus/Penicillium	2	200	28.6	1	100	50	3	300	100
Basidiospores	3	300	42.9	1	100	50	-	-	-
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	1	100	14.3	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	4*	100*	14.3	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Cercospora++	-	-	-	-	-	-	-	-	-
Fusicladium/Venturia	-	-	-	-	-	-	-	-	-
Total Fungi	**10**	**700**	**100**	**2**	**200**	**100**	**3**	**300**	**100**
Hyphal Fragment	-	-	-	1	100	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	109	-	-	109	-	-	109	-
Analyt. Sensitivity 300x	-	33*	-	-	33*	-	-	33*	-
Skin Fragments (1-4)	-	3	-	-	2	-	-	3	-
Fibrous Particulate (1-4)	-	2	-	-	1	-	-	2	-
Background (1-5)	-	1	-	-	1	-	-	1	-

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

[redacted]

Andrei Poluchowicz, Microbiology Technical Manager or other approved signatory

Samples received in good condition unless otherwise noted. 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. The report reflects the samples as received. When the information supplied by the customer can affect the validity of the result, it will be noted on the report.

Samples analyzed by EMSL Analytical, Inc. Hillside, IL AIHA-LAP, LLC--EMLAP Lab 102992

Initial report from: 09/19/2019 10:45:22

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

EMSL Analytical, Inc.
4140 Litt Drive Hillside, IL 60162
Tel/Fax: (773) 313-0099 / (773) 313-0139
http://www.EMSL.com / chicagolab@emsl.com

EMSL Order: 261909668
Customer ID: ENCG51
Customer PO:
Project ID:

Attn: Dan Brust
Environmental Consulting Group
105 South York Street
Suite 250
Elmhurst, IL 60126
Project: II192651-862

Phone: (630) 607-0060
Fax: (630) 607-0650
Collected: 09/17/2019
Received: 09/17/2019
Analyzed: 09/17/2019 - 09/19/2019

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

Lab Sample Number:	261909668-0031			261909668-0032			261909668-0033		
Client Sample ID:	125			127			129		
Volume (L):	30			30			30		
Sample Location	ROOM 125			ROOM 127			ROOM 129		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	1*	30*	13
Ascospores	-	-	-	-	-	-	-	-	-
Aspergillus/Penicillium	-	-	-	-	-	-	1	100	43.5
Basidiospores	2	200	60.6	-	-	-	-	-	-
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	2	200	87	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	1*	30*	13	-	-	-
Pithomyces++	1*	30*	9.1	-	-	-	-	-	-
Rust	1	100	30.3	-	-	-	1	100	43.5
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Cercospora++	-	-	-	-	-	-	-	-	-
Fusicladium/Venturia	-	-	-	-	-	-	-	-	-
Total Fungi	**4**	**330**	**100**	**3**	**230**	**100**	**3**	**230**	**100**
Hyphal Fragment	-	-	-	-	-	-	1	100	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	109	-	-	109	-	-	109	-
Analyt. Sensitivity 300x	-	33*	-	-	33*	-	-	33*	-
Skin Fragments (1-4)	-	3	-	-	3	-	-	3	-
Fibrous Particulate (1-4)	-	2	-	-	1	-	-	2	-
Background (1-5)	-	1	-	-	1	-	-	1	-

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

Andrei Poluchowicz, Microbiology Technical Manager
or other approved signatory

Samples received in good condition unless otherwise noted. 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. The report reflects the samples as received. When the information supplied by the customer can affect the validity of the result, it will be noted on the report.

Samples analyzed by EMSL Analytical, Inc. Hillside, IL AIHA-LAP, LLC--EMLAP Lab 102992

Initial report from: 09/19/2019 10:45:22

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

EMSL Analytical, Inc.

4140 Litt Drive Hillside, IL 60162

Tel/Fax: (773) 313-0099 / (773) 313-0139

http://www.EMSL.com / chicagolab@emsl.com

EMSL Order: 261909668
Customer ID: ENCG51
Customer PO:
Project ID:

Attn: Dan Brust
Environmental Consulting Group
105 South York Street
Suite 250
Elmhurst, IL 60126
Project: II192651-862

Phone: (630) 607-0060
Fax: (630) 607-0650
Collected: 09/17/2019
Received: 09/17/2019
Analyzed: 09/17/2019 - 09/19/2019

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

Lab Sample Number:	261909668-0034			261909668-0035			261909668-0036		
Client Sample ID:	131			105B			PE		
Volume (L):	30			30			30		
Sample Location	ROOM 131			ROOM 105B			PE OFFICE		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	2	200	21.5	-	-	-
Aspergillus/Penicillium	6	700	44.9	1	100	10.8	1	100	7.4
Basidiospores	3	300	19.2	4	400	43	8	900	66.2
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	2	200	12.8	-	-	-	3	300	22.1
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	1	100	6.4	-	-	-	-	-	-
Myxomycetes++	-	-	-	2	200	21.5	1*	30*	2.2
Pithomyces++	1*	30*	1.9	-	-	-	-	-	-
Rust	2	200	12.8	1*	30*	3.2	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	1*	30*	1.9	-	-	-	1*	30*	2.2
Zygomycetes	-	-	-	-	-	-	-	-	-
Cercospora++	-	-	-	-	-	-	-	-	-
Fusicladium/Venturia	-	-	-	-	-	-	-	-	-
Total Fungi	**16**	**1560**	**100**	**10**	**930**	**100**	**14**	**1360**	**100**
Hyphal Fragment	1	100	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	109	-	-	109	-	-	109	-
Analyt. Sensitivity 300x	-	33*	-	-	33*	-	-	33*	-
Skin Fragments (1-4)	-	3	-	-	3	-	-	3	-
Fibrous Particulate (1-4)	-	2	-	-	1	-	-	2	-
Background (1-5)	-	1	-	-	1	-	-	1	-

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

[redacted]

Andrei Poluchowicz, Microbiology Technical Manager or other approved signatory

Samples received in good condition unless otherwise noted. 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. The report reflects the samples as received. When the information supplied by the customer can affect the validity of the result, it will be noted on the report.

Samples analyzed by EMSL Analytical, Inc. Hillside, IL AIHA-LAP, LLC--EMLAP Lab 102992

Initial report from: 09/19/2019 10:45:22

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

EMSL Analytical, Inc.

4140 Litt Drive Hillside, IL 60162

Tel/Fax: (773) 313-0099 / (773) 313-0139

http://www.EMSL.com / chicagolab@emsl.com

EMSL Order: 261909668
Customer ID: ENCG51
Customer PO:
Project ID:

Attn: Dan Brust
Environmental Consulting Group
105 South York Street
Suite 250
Elmhurst, IL 60126
Project: II192651-862

Phone: (630) 607-0060
Fax: (630) 607-0650
Collected: 09/17/2019
Received: 09/17/2019
Analyzed: 09/17/2019 - 09/19/2019

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

Lab Sample Number:	261909668-0037			261909668-0038			261909668-0039		
Client Sample ID:	OUTDOOR			OUTDOOR			BLANK		
Volume (L):	30			30					
Sample Location	OUTDOOR			OUTDOOR					
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	2	200	1.3	-	-	-	-	-	-
Ascospores	4	400	2.7	2	200	1.6	-	-	-
Aspergillus/Penicillium	1	100	0.7	4	400	3.1	-	-	-
Basidiospores	81	8800	58.7	89	9700	76.4	-	-	-
Bipolaris++	2	200	1.3	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	32	3500	23.3	18	2000	15.7	-	-	-
Curvularia	2	200	1.3	-	-	-	-	-	-
Epicoccum	3	300	2	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	5	500	3.3	1	100	0.8	-	-	-
Myxomycetes++	1	100	0.7	2	200	1.6	-	-	-
Pithomyces++	4	400	2.7	-	-	-	-	-	-
Rust	2	200	1.3	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Cercospora++	1	100	0.7	-	-	-	-	-	-
Fusicladium/Venturia	-	-	-	1	100	0.8	-	-	-
Total Fungi	**140**	**15000**	**100**	**117**	**12700**	**100**	**-**	**No Trace**	**-**
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	109	-	-	109	-	-	0	-
Analyt. Sensitivity 300x	-	33*	-	-	33*	-	-	0*	-
Skin Fragments (1-4)	-	2	-	-	2	-	-	-	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	-	-
Background (1-5)	-	1	-	-	1	-	-	-	-

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

Andrei Poluchowicz, Microbiology Technical Manager
or other approved signatory

Samples received in good condition unless otherwise noted. 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. The report reflects the samples as received. When the information supplied by the customer can affect the validity of the result, it will be noted on the report.

Samples analyzed by EMSL Analytical, Inc. Hillside, IL AIHA-LAP, LLC--EMLAP Lab 102992

Initial report from: 09/19/2019 10:45:22

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

EMSL Analytical, Inc.

4140 Litt Drive Hillside, IL 60162

Tel/Fax: (773) 313-0099 / (773) 313-0139

http://www.EMSL.com / chicagolab@emsl.com

EMSL Order: 261909668
Customer ID: ENCG51
Customer PO:
Project ID:

Attn: Dan Brust
Environmental Consulting Group
105 South York Street
Suite 250
Elmhurst, IL 60126
Project: II192651-862

Phone: (630) 607-0060
Fax: (630) 607-0650
Collected: 09/17/2019
Received: 09/17/2019
Analyzed: 09/17/2019 - 09/19/2019

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

Lab Sample Number:	261909668-0040			261909668-0041		
Client Sample ID:	101			107		
Volume (L):	30			30		
Sample Location	ROOM 101 (S/N 28618750)			ROOM 107 (S/N 28618770)		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-
Ascospores	-	-	-	-	-	-
Aspergillus/Penicillium	-	-	-	-	-	-
Basidiospores	1*	30*	9.1	-	-	-
Bipolaris++	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-
Cladosporium	3	300	90.9	-	-	-
Curvularia	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-
Rust	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-
Cercospora++	-	-	-	-	-	-
Fusicladium/Venturia	-	-	-	-	-	-
Total Fungi	**4**	**330**	**100**	**-**	**No Trace**	**-**
Hyphal Fragment	-	-	-	-	-	-
Insect Fragment	1	100	-	-	-	-
Pollen	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	109	-	-	109	-
Analyt. Sensitivity 300x	-	33*	-	-	33*	-
Skin Fragments (1-4)	-	3	-	-	-	-
Fibrous Particulate (1-4)	-	1	-	-	-	-
Background (1-5)	-	1	-	-	-	-

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

[redacted]

Andrei Poluchowicz, Microbiology Technical Manager or other approved signatory

Samples received in good condition unless otherwise noted. 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. The report reflects the samples as received. When the information supplied by the customer can affect the validity of the result, it will be noted on the report.

Samples analyzed by EMSL Analytical, Inc. Hillside, IL AIHA-LAP, LLC--EMLAP Lab 102992

Initial report from: 09/19/2019 10:45:22

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

EMSL Analytical, Inc.

4140 Litt Drive Hillside, IL 60162

Tel/Fax: (773) 313-0099 / (773) 313-0139

http://www.EMSL.com / chicagolab@emsl.com

EMSL Order: 261909665
Customer ID: ENCG51
Customer PO:
Project ID:

Attn: David Parry
Environmental Consulting Group
105 South York Street
Suite 250
Elmhurst, IL 60126
Project: II192651-862

Phone: (708) 510-0543
Fax: (630) 607-0650
Collected: 09/17/2019
Received: 09/17/2019
Analyzed: 09/17/2019 - 09/19/2019

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

Lab Sample Number:	261909665-0001			261909665-0002			261909665-0003		
Client Sample ID:	136			138			139		
Volume (L):	30			30			30		
Sample Location	ROOM 136			ROOM 138			ROOM 139		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	-	-	-	-	-	-
Aspergillus/Penicillium	-	-	-	7	700	100	4	400	100
Basidiospores	1	100	43.5	-	-	-	-	-	-
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	-	-	-	-	-	-
Curvularia	1*	30*	13	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	1	100	43.5	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Nigrospora	-	-	-	-	-	-	-	-	-
Torula-like	-	-	-	-	-	-	-	-	-
Total Fungi	**3**	**230**	**100**	**7**	**700**	**100**	**4**	**400**	**100**
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	104	-	-	104	-	-	104	-
Analyt. Sensitivity 300x	-	33*	-	-	33*	-	-	33*	-
Skin Fragments (1-4)	-	1	-	-	1	-	-	-	-
Fibrous Particulate (1-4)	-	1	-	-	-	-	-	-	-
Background (1-5)	-	1	-	-	1	-	-	1	-

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

[redacted]

Andrei Poluchowicz, Microbiology Technical Manager or other approved signatory

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

Samples received in good condition unless otherwise noted. 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. The report reflects the samples as received. When the information supplied by the customer can affect the validity of the result, it will be noted on the report.

Samples analyzed by EMSL Analytical, Inc. Hillside, IL AIHA-LAP, LLC--EMLAP Lab 102992

Initial report from: 09/19/2019 11:11:32

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

EMSL Analytical, Inc.

4140 Litt Drive Hillside, IL 60162

Tel/Fax: (773) 313-0099 / (773) 313-0139

http://www.EMSL.com / chicagolab@emsl.com

EMSL Order: 261909665
Customer ID: ENCG51
Customer PO:
Project ID:

Attn: David Parry
Environmental Consulting Group
105 South York Street
Suite 250
Elmhurst, IL 60126
Project: II192651-862

Phone: (708) 510-0543
Fax: (630) 607-0650
Collected: 09/17/2019
Received: 09/17/2019
Analyzed: 09/17/2019 - 09/19/2019

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

Lab Sample Number:	261909665-0004			261909665-0005			261909665-0006		
Client Sample ID:	140			142			144		
Volume (L):	30			30			30		
Sample Location	ROOM 140			ROOM 142			ROOM 144		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	1	100	6.7	-	-	-	-	-	-
Aspergillus/Penicillium	8	800	53.3	-	-	-	-	-	-
Basidiospores	5	500	33.3	1*	30*	50	-	-	-
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	1*	30*	50	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	1	100	6.7	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Nigrospora	-	-	-	-	-	-	-	-	-
Torula-like	-	-	-	-	-	-	-	-	-
Total Fungi	**15**	**1500**	**100**	**2**	**60**	**100**	**-**	**None Detect**	**-**
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	104	-	-	104	-	-	104	-
Analyt. Sensitivity 300x	-	33*	-	-	33*	-	-	33*	-
Skin Fragments (1-4)	-	2	-	-	1	-	-	1	-
Fibrous Particulate (1-4)	-	-	-	-	-	-	-	-	-
Background (1-5)	-	1	-	-	1	-	-	1	-

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

[redacted]

Andrei Poluchowicz, Microbiology Technical Manager or other approved signatory

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

Samples received in good condition unless otherwise noted. 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. The report reflects the samples as received. When the information supplied by the customer can affect the validity of the result, it will be noted on the report.

Samples analyzed by EMSL Analytical, Inc. Hillside, IL AIHA-LAP, LLC--EMLAP Lab 102992

Initial report from: 09/19/2019 11:11:32

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

EMSL Analytical, Inc.

4140 Litt Drive Hillside, IL 60162

Tel/Fax: (773) 313-0099 / (773) 313-0139

http://www.EMSL.com / chicagolab@emsl.com

EMSL Order: 261909665
Customer ID: ENCG51
Customer PO:
Project ID:

Attn: David Parry
Environmental Consulting Group
105 South York Street
Suite 250
Elmhurst, IL 60126
Project: II192651-862

Phone: (708) 510-0543
Fax: (630) 607-0650
Collected: 09/17/2019
Received: 09/17/2019
Analyzed: 09/17/2019 - 09/19/2019

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

Lab Sample Number:	261909665-0007			261909665-0008			261909665-0009		
Client Sample ID:	146			148			151		
Volume (L):	30			30			30		
Sample Location	ROOM 146			ROOM 148			ROOM 151		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	1	100	8.3
Ascospores	-	-	-	-	-	-	-	-	-
Aspergillus/Penicillium	-	-	-	-	-	-	1	100	8.3
Basidiospores	-	-	-	1*	30*	23.1	1	100	8.3
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	-	-	-	1	100	8.3
Curvularia	-	-	-	-	-	-	1*	30*	2.5
Epicoccum	-	-	-	-	-	-	1	100	8.3
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	1	100	8.3
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	2*	70*	5.8
Rust	-	-	-	-	-	-	4	400	33.3
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	1	100	76.9	1	100	8.3
Zygomycetes	-	-	-	-	-	-	-	-	-
Nigrospora	-	-	-	-	-	-	-	-	-
Torula-like	-	-	-	-	-	-	-	-	-
Total Fungi	**-**	**None Detect**	**-**	**2**	**130**	**100**	**14**	**1200**	**100**
Hyphal Fragment	-	-	-	-	-	-	1*	30*	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	104	-	-	104	-	-	104	-
Analyt. Sensitivity 300x	-	33*	-	-	33*	-	-	33*	-
Skin Fragments (1-4)	-	1	-	-	-	-	-	2	-
Fibrous Particulate (1-4)	-	-	-	-	-	-	-	1	-
Background (1-5)	-	1	-	-	1	-	-	1	-

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

Andrei Poluchowicz, Microbiology Technical Manager or other approved signatory

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

Samples received in good condition unless otherwise noted. 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. The report reflects the samples as received. When the information supplied by the customer can affect the validity of the result, it will be noted on the report.

Samples analyzed by EMSL Analytical, Inc. Hillside, IL AIHA-LAP, LLC--EMLAP Lab 102992

Initial report from: 09/19/2019 11:11:32

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

EMSL Analytical, Inc.

4140 Litt Drive Hillside, IL 60162

Tel/Fax: (773) 313-0099 / (773) 313-0139

http://www.EMSL.com / chicagolab@emsl.com

EMSL Order: 261909665
Customer ID: ENCG51
Customer PO:
Project ID:

Attn: David Parry
Environmental Consulting Group
105 South York Street
Suite 250
Elmhurst, IL 60126
Project: II192651-862

Phone: (708) 510-0543
Fax: (630) 607-0650
Collected: 09/17/2019
Received: 09/17/2019
Analyzed: 09/17/2019 - 09/19/2019

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

Lab Sample Number:	261909665-0010			261909665-0011			261909665-0012		
Client Sample ID:	154			156			106		
Volume (L):	30			30			30		
Sample Location	ROOM 154			ROOM 156			ROOM 106		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	1	100	20	1	100	43.5
Aspergillus/Penicillium	-	-	-	-	-	-	-	-	-
Basidiospores	3	300	75	4	400	80	1	100	43.5
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	1*	30*	13
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	1	100	25	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Nigrospora	-	-	-	-	-	-	-	-	-
Torula-like	-	-	-	-	-	-	-	-	-
Total Fungi	**4**	**400**	**100**	**5**	**500**	**100**	**3**	**230**	**100**
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	104	-	-	104	-	-	104	-
Analyt. Sensitivity 300x	-	33*	-	-	33*	-	-	33*	-
Skin Fragments (1-4)	-	2	-	-	2	-	-	1	-
Fibrous Particulate (1-4)	-	-	-	-	-	-	-	-	-
Background (1-5)	-	1	-	-	1	-	-	1	-

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

[redacted]

Andrei Poluchowicz, Microbiology Technical Manager or other approved signatory

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

Samples received in good condition unless otherwise noted. 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. The report reflects the samples as received. When the information supplied by the customer can affect the validity of the result, it will be noted on the report.

Samples analyzed by EMSL Analytical, Inc. Hillside, IL AIHA-LAP, LLC--EMLAP Lab 102992

Initial report from: 09/19/2019 11:11:32

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

EMSL Analytical, Inc.

4140 Litt Drive Hillside, IL 60162

Tel/Fax: (773) 313-0099 / (773) 313-0139

http://www.EMSL.com / chicagolab@emsl.com

EMSL Order: 261909665
Customer ID: ENCG51
Customer PO:
Project ID:

Attn: David Parry
Environmental Consulting Group
105 South York Street
Suite 250
Elmhurst, IL 60126
Project: II192651-862

Phone: (708) 510-0543
Fax: (630) 607-0650
Collected: 09/17/2019
Received: 09/17/2019
Analyzed: 09/17/2019 - 09/19/2019

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

Lab Sample Number:	261909665-0013			261909665-0014			261909665-0015		
Client Sample ID:	108			110			112		
Volume (L):	30			30			30		
Sample Location	ROOM 108			ROOM 110			ROOM 112		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	1*	30*	5.7	-	-	-	-	-	-
Aspergillus/Penicillium	-	-	-	-	-	-	-	-	-
Basidiospores	2	200	37.7	1	100	100	-	-	-
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	3	300	56.6	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Nigrospora	-	-	-	-	-	-	-	-	-
Torula-like	-	-	-	-	-	-	-	-	-
Total Fungi	**6**	**530**	**100**	**1**	**100**	**100**	**-**	**None Detect**	**-**
Hyphal Fragment	-	-	-	2*	70*	-	1*	30*	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	104	-	-	104	-	-	104	-
Analyt. Sensitivity 300x	-	33*	-	-	33*	-	-	33*	-
Skin Fragments (1-4)	-	1	-	-	-	-	-	-	-
Fibrous Particulate (1-4)	-	-	-	-	-	-	-	-	-
Background (1-5)	-	1	-	-	1	-	-	1	-

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

[redacted]

Andrei Poluchowicz, Microbiology Technical Manager or other approved signatory

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

Initial report from: 09/19/2019 11:11:32

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

EMSL Analytical, Inc.

4140 Litt Drive Hillside, IL 60162

Tel/Fax: (773) 313-0099 / (773) 313-0139

http://www.EMSL.com / chicagolab@emsl.com

EMSL Order: 261909665
Customer ID: ENCG51
Customer PO:
Project ID:

Attn: David Parry
Environmental Consulting Group
105 South York Street
Suite 250
Elmhurst, IL 60126
Project: II192651-862

Phone: (708) 510-0543
Fax: (630) 607-0650
Collected: 09/17/2019
Received: 09/17/2019
Analyzed: 09/17/2019 - 09/19/2019

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

Lab Sample Number:	261909665-0016			261909665-0017			261909665-0018		
Client Sample ID:	114			116			116B		
Volume (L):	30			30			30		
Sample Location	ROOM 114			ROOM 116			ROOM 116B		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	1	100	50	-	-	-	-	-	-
Aspergillus/Penicillium	-	-	-	-	-	-	-	-	-
Basidiospores	-	-	-	1	100	43.5	-	-	-
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	1	100	50	1	100	43.5	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	1*	30*	13	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Nigrospora	-	-	-	-	-	-	-	-	-
Torula-like	-	-	-	-	-	-	-	-	-
Total Fungi	**2**	**200**	**100**	**3**	**230**	**100**	**-**	**None Detect**	**-**
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	104	-	-	104	-	-	104	-
Analyt. Sensitivity 300x	-	33*	-	-	33*	-	-	33*	-
Skin Fragments (1-4)	-	1	-	-	-	-	-	1	-
Fibrous Particulate (1-4)	-	-	-	-	-	-	-	-	-
Background (1-5)	-	1	-	-	1	-	-	1	-

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

Andrei Poluchowicz, Microbiology Technical Manager or other approved signatory

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

Samples received in good condition unless otherwise noted. 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. The report reflects the samples as received. When the information supplied by the customer can affect the validity of the result, it will be noted on the report.

Samples analyzed by EMSL Analytical, Inc. Hillside, IL AIHA-LAP, LLC--EMLAP Lab 102992

Initial report from: 09/19/2019 11:11:32

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

EMSL Analytical, Inc.

4140 Litt Drive Hillside, IL 60162

Tel/Fax: (773) 313-0099 / (773) 313-0139

http://www.EMSL.com / chicagolab@emsl.com

EMSL Order: 261909665
Customer ID: ENCG51
Customer PO:
Project ID:

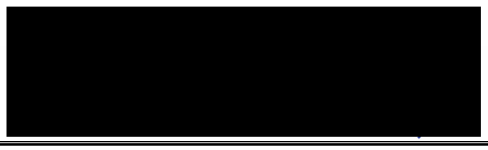
Attn: David Parry
Environmental Consulting Group
105 South York Street
Suite 250
Elmhurst, IL 60126
Project: II192651-862

Phone: (708) 510-0543
Fax: (630) 607-0650
Collected: 09/17/2019
Received: 09/17/2019
Analyzed: 09/17/2019 - 09/19/2019

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

Lab Sample Number:	261909665-0019			261909665-0020			261909665-0021		
Client Sample ID:	104			121			102		
Volume (L):	30			30			30		
Sample Location	ROOM 104			ROOM 121			ROOM 102		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	1	100	6.3
Ascospores	1	100	100	1	100	20	1	100	6.3
Aspergillus/Penicillium	-	-	-	1	100	20	2	200	12.5
Basidiospores	-	-	-	3	300	60	10	1000	62.5
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	-	-	-	1	100	6.3
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	1	100	6.3
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Nigrospora	-	-	-	-	-	-	-	-	-
Torula-like	-	-	-	-	-	-	-	-	-
Total Fungi	**1**	**100**	**100**	**5**	**500**	**100**	**16**	**1600**	**100**
Hyphal Fragment	-	-	-	-	-	-	2*	70*	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	104	-	-	104	-	-	104	-
Analyt. Sensitivity 300x	-	33*	-	-	33*	-	-	33*	-
Skin Fragments (1-4)	-	2	-	-	1	-	-	3	-
Fibrous Particulate (1-4)	-	-	-	-	-	-	-	1	-
Background (1-5)	-	1	-	-	1	-	-	1	-

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



Andrei Poluchowicz, Microbiology Technical Manager or other approved signatory

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

Samples received in good condition unless otherwise noted. 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. The report reflects the samples as received. When the information supplied by the customer can affect the validity of the result, it will be noted on the report.

Samples analyzed by EMSL Analytical, Inc. Hillside, IL AIHA-LAP, LLC--EMLAP Lab 102992

Initial report from: 09/19/2019 11:11:32

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

EMSL Analytical, Inc.

4140 Litt Drive Hillside, IL 60162

Tel/Fax: (773) 313-0099 / (773) 313-0139

http://www.EMSL.com / chicagolab@emsl.com

EMSL Order: 261909665
Customer ID: ENCG51
Customer PO:
Project ID:

Attn: David Parry
Environmental Consulting Group
105 South York Street
Suite 250
Elmhurst, IL 60126
Project: II192651-862

Phone: (708) 510-0543
Fax: (630) 607-0650
Collected: 09/17/2019
Received: 09/17/2019
Analyzed: 09/17/2019 - 09/19/2019

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

Lab Sample Number:	261909665-0022			261909665-0023			261909665-0024		
Client Sample ID:	100			202			204		
Volume (L):	30			30			30		
Sample Location	ROOM 100			ROOM 202			ROOM 204		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	1	100	9.3	-	-	-	-	-	-
Ascospores	-	-	-	-	-	-	-	-	-
Aspergillus/Penicillium	-	-	-	-	-	-	1	100	23.3
Basidiospores	4	400	37.4	2*	70*	9.6	-	-	-
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	1	100	9.3	2	200	27.4	1	100	23.3
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	1	100	9.3	1*	30*	4.1	1*	30*	7
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	2*	70*	6.5	1*	30*	4.1	-	-	-
Pithomyces++	1	100	9.3	3*	100*	13.7	-	-	-
Rust	3*	100*	9.3	2	200	27.4	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	1	100	9.3	1	100	13.7	1	100	23.3
Zygomycetes	-	-	-	-	-	-	-	-	-
Nigrospora	-	-	-	-	-	-	-	-	-
Torula-like	-	-	-	-	-	-	1	100	23.3
Total Fungi	**14**	**1070**	**100**	**12**	**730**	**100**	**5**	**430**	**100**
Hyphal Fragment	1	100	-	2*	70*	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	104	-	-	104	-	-	104	-
Analyt. Sensitivity 300x	-	33*	-	-	33*	-	-	33*	-
Skin Fragments (1-4)	-	3	-	-	3	-	-	3	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	1	-	-	2	-	-	1	-

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

Andrei Poluchowicz, Microbiology Technical Manager or other approved signatory

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

Samples received in good condition unless otherwise noted. 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. The report reflects the samples as received. When the information supplied by the customer can affect the validity of the result, it will be noted on the report.

Samples analyzed by EMSL Analytical, Inc. Hillside, IL AIHA-LAP, LLC--EMLAP Lab 102992

Initial report from: 09/19/2019 11:11:32

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

EMSL Analytical, Inc.

4140 Litt Drive Hillside, IL 60162

Tel/Fax: (773) 313-0099 / (773) 313-0139

http://www.EMSL.com / chicagolab@emsl.com

EMSL Order: 261909665
Customer ID: ENCG51
Customer PO:
Project ID:

Attn: David Parry
Environmental Consulting Group
105 South York Street
Suite 250
Elmhurst, IL 60126
Project: II192651-862

Phone: (708) 510-0543
Fax: (630) 607-0650
Collected: 09/17/2019
Received: 09/17/2019
Analyzed: 09/17/2019 - 09/19/2019

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

Lab Sample Number:	261909665-0025			261909665-0026			261909665-0027		
Client Sample ID:	206			002			004		
Volume (L):	30			30			30		
Sample Location	ROOM 206			ROOM 002			ROOM 004		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	1*	30*	7.7
Ascospores	-	-	-	-	-	-	-	-	-
Aspergillus/Penicillium	1	100	13.2	3	300	60	2	200	51.3
Basidiospores	1*	30*	3.9	-	-	-	-	-	-
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	1	100	13.2	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	1*	30*	3.9	-	-	-	1*	30*	7.7
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	3*	100*	13.2	1	100	20	-	-	-
Pithomyces++	1	100	13.2	-	-	-	-	-	-
Rust	3	300	39.5	1	100	20	1	100	25.6
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Nigrospora	-	-	-	-	-	-	1*	30*	7.7
Torula-like	-	-	-	-	-	-	-	-	-
Total Fungi	**11**	**760**	**100**	**5**	**500**	**100**	**6**	**390**	**100**
Hyphal Fragment	1*	30*	-	1*	30*	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	104	-	-	104	-	-	104	-
Analyt. Sensitivity 300x	-	33*	-	-	33*	-	-	33*	-
Skin Fragments (1-4)	-	3	-	-	3	-	-	2	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	1	-	-	1	-	-	1	-

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

Andrei Poluchowicz, Microbiology Technical Manager or other approved signatory

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

Samples received in good condition unless otherwise noted. 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. The report reflects the samples as received. When the information supplied by the customer can affect the validity of the result, it will be noted on the report.

Samples analyzed by EMSL Analytical, Inc. Hillside, IL AIHA-LAP, LLC--EMLAP Lab 102992

Initial report from: 09/19/2019 11:11:32

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

EMSL Analytical, Inc.

4140 Litt Drive Hillside, IL 60162

Tel/Fax: (773) 313-0099 / (773) 313-0139

http://www.EMSL.com / chicagolab@emsl.com

EMSL Order: 261909665
Customer ID: ENCG51
Customer PO:
Project ID:

Attn: David Parry
Environmental Consulting Group
105 South York Street
Suite 250
Elmhurst, IL 60126
Project: II192651-862

Phone: (708) 510-0543
Fax: (630) 607-0650
Collected: 09/17/2019
Received: 09/17/2019
Analyzed: 09/17/2019 - 09/19/2019

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

Lab Sample Number:	261909665-0028			261909665-0029			261909665-0030		
Client Sample ID:	006			120			122		
Volume (L):	30			30			30		
Sample Location	ROOM 006			ROOM 120			ROOM 122		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	-	-	-	-	-	-
Aspergillus/Penicillium	1	100	38.5	-	-	-	1	100	25
Basidiospores	-	-	-	1	100	25	3	300	75
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	1	100	38.5	2	200	50	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	1*	30*	11.5	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	1*	30*	11.5	1	100	25	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Nigrospora	-	-	-	-	-	-	-	-	-
Torula-like	-	-	-	-	-	-	-	-	-
Total Fungi	**4**	**260**	**100**	**4**	**400**	**100**	**4**	**400**	**100**
Hyphal Fragment	1	100	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	104	-	-	104	-	-	104	-
Analyt. Sensitivity 300x	-	33*	-	-	33*	-	-	33*	-
Skin Fragments (1-4)	-	3	-	-	3	-	-	3	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	1	-	-	1	-	-	1	-

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

[redacted]

Andrei Poluchowicz, Microbiology Technical Manager or other approved signatory

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

Samples received in good condition unless otherwise noted. 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. The report reflects the samples as received. When the information supplied by the customer can affect the validity of the result, it will be noted on the report.

Samples analyzed by EMSL Analytical, Inc. Hillside, IL AIHA-LAP, LLC--EMLAP Lab 102992

Initial report from: 09/19/2019 11:11:32

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

EMSL Analytical, Inc.

4140 Litt Drive Hillside, IL 60162

Tel/Fax: (773) 313-0099 / (773) 313-0139

http://www.EMSL.com / chicagolab@emsl.com

EMSL Order: 261909665
Customer ID: ENCG51
Customer PO:
Project ID:

Attn: David Parry
Environmental Consulting Group
105 South York Street
Suite 250
Elmhurst, IL 60126
Project: II192651-862

Phone: (708) 510-0543
Fax: (630) 607-0650
Collected: 09/17/2019
Received: 09/17/2019
Analyzed: 09/17/2019 - 09/19/2019

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

Lab Sample Number:	261909665-0031			261909665-0032			261909665-0033		
Client Sample ID:	126			128			130		
Volume (L):	30			30			30		
Sample Location	ROOM 126			ROOM 128			ROOM 130		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	1*	30*	50	1	100	3.7
Aspergillus/Penicillium	-	-	-	-	-	-	5	500	18.3
Basidiospores	-	-	-	-	-	-	5	500	18.3
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	-	-	-	6	600	22
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	2	200	7.3
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	1*	30*	50	1	100	3.7
Pithomyces++	-	-	-	-	-	-	1*	30*	1.1
Rust	1*	30*	100	-	-	-	5	500	18.3
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	2	200	7.3
Zygomycetes	-	-	-	-	-	-	-	-	-
Nigrospora	-	-	-	-	-	-	-	-	-
Torula-like	-	-	-	-	-	-	-	-	-
Total Fungi	**1**	**30**	**100**	**2**	**60**	**100**	**28**	**2730**	**100**
Hyphal Fragment	-	-	-	-	-	-	1	100	-
Insect Fragment	-	-	-	-	-	-	1	100	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	104	-	-	104	-	-	104	-
Analyt. Sensitivity 300x	-	33*	-	-	33*	-	-	33*	-
Skin Fragments (1-4)	-	2	-	-	2	-	-	3	-
Fibrous Particulate (1-4)	-	-	-	-	-	-	-	1	-
Background (1-5)	-	1	-	-	1	-	-	2	-

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

Andrei Poluchowicz, Microbiology Technical Manager or other approved signatory

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

Samples received in good condition unless otherwise noted. 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. The report reflects the samples as received. When the information supplied by the customer can affect the validity of the result, it will be noted on the report.

Samples analyzed by EMSL Analytical, Inc. Hillside, IL AIHA-LAP, LLC--EMLAP Lab 102992

Initial report from: 09/19/2019 11:11:32

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

EMSL Analytical, Inc.

4140 Litt Drive Hillside, IL 60162

Tel/Fax: (773) 313-0099 / (773) 313-0139

http://www.EMSL.com / chicagolab@emsl.com

EMSL Order: 261909665
Customer ID: ENCG51
Customer PO:
Project ID:

Attn: David Parry
Environmental Consulting Group
105 South York Street
Suite 250
Elmhurst, IL 60126
Project: II192651-862

Phone: (708) 510-0543
Fax: (630) 607-0650
Collected: 09/17/2019
Received: 09/17/2019
Analyzed: 09/17/2019 - 09/19/2019

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

Lab Sample Number:	261909665-0034			261909665-0035			261909665-0036		
Client Sample ID:	132			133			007		
Volume (L):	30			30			30		
Sample Location	ROOM 132			ROOM 133			ROOM 007		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	2	200	11.4	-	-	-	1*	30*	6.5
Aspergillus/Penicillium	7	700	39.8	-	-	-	-	-	-
Basidiospores	6	600	34.1	-	-	-	-	-	-
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	1	100	5.7	-	-	-	4	400	87
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	1*	30*	1.7	-	-	-	-	-	-
Rust	1	100	5.7	-	-	-	1*	30*	6.5
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Nigrospora	-	-	-	-	-	-	-	-	-
Torula-like	1*	30*	1.7	-	-	-	-	-	-
Total Fungi	**19**	**1760**	**100**	**-**	**None Detect**	**-**	**6**	**460**	**100**
Hyphal Fragment	-	-	-	1	100	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	1	100	-	-	-	-
Analyt. Sensitivity 600x	-	104	-	-	104	-	-	104	-
Analyt. Sensitivity 300x	-	33*	-	-	33*	-	-	33*	-
Skin Fragments (1-4)	-	3	-	-	3	-	-	1	-
Fibrous Particulate (1-4)	-	-	-	-	1	-	-	-	-
Background (1-5)	-	1	-	-	1	-	-	1	-

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

Andrei Poluchowicz, Microbiology Technical Manager or other approved signatory

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

Samples received in good condition unless otherwise noted. 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. The report reflects the samples as received. When the information supplied by the customer can affect the validity of the result, it will be noted on the report.

Samples analyzed by EMSL Analytical, Inc. Hillside, IL AIHA-LAP, LLC--EMLAP Lab 102992

Initial report from: 09/19/2019 11:11:32

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

EMSL Analytical, Inc.

4140 Litt Drive Hillside, IL 60162

Tel/Fax: (773) 313-0099 / (773) 313-0139

http://www.EMSL.com / chicagolab@emsl.com

EMSL Order: 261909665
Customer ID: ENCG51
Customer PO:
Project ID:

Attn: David Parry
Environmental Consulting Group
105 South York Street
Suite 250
Elmhurst, IL 60126
Project: II192651-862

Phone: (708) 510-0543
Fax: (630) 607-0650
Collected: 09/17/2019
Received: 09/17/2019
Analyzed: 09/17/2019 - 09/19/2019

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

Lab Sample Number:	261909665-0037			261909665-0038			261909665-0039		
Client Sample ID:	100 AP			100 C			100P		
Volume (L):	30			30			30		
Sample Location	ASSISTANT PRINCIPAL			ROOM 100C			PRINCIPAL'S OFFICE		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	-	-	-	1*	30*	13
Aspergillus/Penicillium	-	-	-	-	-	-	1	100	43.5
Basidiospores	1*	30*	13	-	-	-	1	100	43.5
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	2	200	87	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	2	200	100	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Nigrospora	-	-	-	-	-	-	-	-	-
Torula-like	-	-	-	-	-	-	-	-	-
Total Fungi	**3**	**230**	**100**	**2**	**200**	**100**	**3**	**230**	**100**
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	104	-	-	104	-	-	104	-
Analyt. Sensitivity 300x	-	33*	-	-	33*	-	-	33*	-
Skin Fragments (1-4)	-	1	-	-	-	-	-	1	-
Fibrous Particulate (1-4)	-	-	-	-	-	-	-	-	-
Background (1-5)	-	1	-	-	1	-	-	1	-

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

Andrei Poluchowicz, Microbiology Technical Manager or other approved signatory

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

Samples received in good condition unless otherwise noted. 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. The report reflects the samples as received. When the information supplied by the customer can affect the validity of the result, it will be noted on the report.

Samples analyzed by EMSL Analytical, Inc. Hillside, IL AIHA-LAP, LLC--EMLAP Lab 102992

Initial report from: 09/19/2019 11:11:32

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

OrderID: 261909665

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

261909665
EMSL Order Number (*Lab Use Only*):

EMSL ANALYTICAL, INC
4140 L[illegible] DR.
HILLSIDE, IL 60162
PHONE: 773-313-0099

Company : ECG

EMSL-Bill to: ☒ Same ☐ Different
If Bill to is Different please note in Comments**

Street: 105 South York Street

Third Party Billing requires written authorization from third party

City: Elmhurst	**State/Province:** IL	**Zip/Postal Code:** 60126	**Country:** USA
Report To (Name): David Parry		**Fax #:**	
Telephone #: 630 607 0060		**E-mail Address:** dparry@envcg.com	
Project Name/ Number: IL192651-862		**EMSL Rep:** Lisa Parker	
Please Provide Results: ☐ Fax ☒ E-mail	**PO#**	**State Samples Taken:**	

Turnaround Time (TAT) Options* - Please Check

☐ 3 Hour	☐ 6 Hour	☐ 24 Hour	☒ 48 Hour	☐ 72 Hour	☐ 96 Hour	☐ 1 Week	☐ 2 Week

**Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide. TATs are subject to methodology requirements*

Non Culturable Air Samples (Spore Traps)

• **M001** Air-O-Cell	• **M173** Allegro M2	• **M004** Allergenco	• **M032** Allergenco-D	• **M172** Versa Trap
• **M049** BioSIS	• **M003** Burkard	• **M043** Cyclex	• **M002** Cyclex-d	
• **M030** Micro 5	• **M174** MoldSnap	• **M176** Relle Smart	• **M130** Via-Cell	

Other Microbiology Test Codes

• **M041** Fungal Direct Examination	• **M014** Endotoxin Analysis	• **M029** *Enterococci*
• **M005** Viable Fungi ID and Count	• **M015** Heterotrophic Plate Count	• **M019** Fecal Coliform
• **M006** Viable Fungi ID and Count (Speciation)	• **M180** Real Time Q-PCR-ERMI 36	• **M133** MRSA Analysis
• **M007** Culturable Fungi	• Panel	• **M028** *Cryptococcus neoformans* Detection
• **M008** Culturable Fungi (Speciation)	• **M018** Total Coliform (Membrane Filtration)	• **M120** *Histoplasma capsulatum* Detection
• **M009** Gram Stain Culturable Bacteria	• **M020** Fecal *Streptococcus* (Membrane Filtration)	• **M033-39** Allergen Testing
• **M010** Bacterial Count and ID – 3 Most Prominent	• **M210-215** *Legionella* Detection	• **M044** Group Allergen (Cat, Dog, Cockroach, Dustmites)
• **M011** Bacterial Count and ID – 5 Most Prominent	• **M026** Recreational Water Screen	• **Other** See Analytical Price Guide
• **M013** Sewage Contamination in Buildings	• **M027** Mycotoxin Analysis	

Preservation Method (Water):

Name of Sampler: David Parry

Signature of Sampler: [signature]

Sample #	Sample Location	Sample Type	Test Code	Volume/Area	Date/Time Collected
136	Room 136	AIR	M001	30	9/17/19 - 7:24
138	Room 138	AIR	M001	30	- 7:27
139	Room 139	AIR	M001	30	- 7:31
140	Room 140	AIR	M001	30	- 7:34
142	Room 142	AIR	M001	30	- 7:37
144	Room 144	AIR	M001	30	- 7:41
146	Room 146	AIR	M001	30	- 7:44
148	Room 148	AIR	M001	30	- 7:47
151	Room 151	AIR	M001	30	- 7:52
154	Room 154	AIR	M001	30	- 7:56

Client Sample # (s): 136 - 100P **Total # of Samples:** 40*

Relinquished (Client): [redacted] **Date:** 09/17/19 **Time:** 10:45

Received (Client): [redacted] **Date:** 9-17-19 **Time:** 12:47 pm

Comments: WR

* 39 samples on COC & submitted - MF 9/17/19

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

-910665
EMSL Order Number (*Lab Use Only*):

EMSL ANALYTICAL, INC.
4140 LITT DR.
HILLSIDE IL 60162

PHONE: 773-313-0099

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Sample #	Sample Location	Sample Type	Test Code	Volume/Area	Date/Time Collected
156	Room 156	AIR	M001	30	9/17/19 - 8:02
106	Room 106	AIR	M001	30	- 8:08
108	Room 108	AIR	M001	30	- 8:14
110	Room 110	AIR	M001	30	- 8:17
112	Room 112	AIR	M001	30	- 8:21
114	Room 114	AIR	M001	30	- 8:25
116	Room 116	AIR	M001	30	- 8:28
116 B	Room 116 B	AIR	M001	30	- 8:32
104	Room 104	AIR	M001	30	- 8:36
121	Room 121	AIR	M001	30	- 8:40
102	Room 102	AIR	M001	30	- 8:46
100	Room 100	AIR	M001	30	- 8:51
202	Room 202	AIR	M001	30	- 8:55
204	Room 204	AIR	M001	30	- 8:58
206	Room 206	AIR	M001	30	- 9:01
Q02	Room Q02	AIR	M001	30	- 9:10
Q04	Room Q04	AIR	M001	30	- 9:15
006	Room 006	AIR	M001	30	- 9:18
120	Room 120	AIR	M001	30	- 9:24
122	Room 122	AIR	M001	30	- 9:28
126	Room 126	AIR	M001	30	- 9:35
128	Room 128	AIR	M001	30	- 9:38
130	Room 130	AIR	M001	30	- 9:42
132	Room 132	AIR	M001	30	- 9:47

**Comments/Special Instructions

Page 2 of 3 pages

OrderID: 261909665

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

- 91665
EMSL Order Number (*Lab Use Only*):

EMSL ANALYTICAL, INC.
4140 LITT DR
HILLSIDE, IL 60162

PHONE: 773-313-0099

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Sample #	Sample Location	Sample Type	Test Code	Volume/Area	Date/Time Collected
133	ROOM 133	AIR	M001	30	9/17/19 - 9:52
007	ROOM 007	AIR	M001	30	10:01
~~P1~~ 100 AP	ASSISTANT PRINCIPLE	AIR	M001	30	10:27
100 C	ROOM 100 C	AIR	M001	30	10:30
100 P	PRINCIPLES OFFICE	AIR	M001	30	10:33

**Comments/Special Instructions

Page 3 of 3 pages

OrderID: 261909668

Microbiology Chain of Custody

EMSL Order Number (*Lab Use Only*).

261909668

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
FAX.(856) 786-0262

Company Name: ECG		**EMSL-Bill to:** ☐Same ☐Different If Bill to is Different note instructions in Comments	
Street: 105 S. York St		*Third Party Billing requires written authorization from third party*	
City: Elmhurst	**State/Province:** IL	**Zip/Postal Code:**	**Country:**
Report To (Name): Dan Brost		**Telephone #:**	
Email Address: DBrost@ECG.com		**Fax #:**	**Purchase Order:**
Project Name/Number: TI192651-862		**Please Provide Results:** ☐ Fax ☐ Email	
U.S. State Samples Taken:	**Project Zip Code:**	**Connecticut Samples:** ☐ Commercial ☐ Residential	

Sterile, Sodium Thiosulfate Preserved Bottle Used: ☐ **Biocide Used in Source (specify):** ☐

Public Water Supply Samples: ☐ **Note: All results may automatically be reported to DOH if required by state.**

Turnaround Time (TAT) Options - Please Check

☐ 3 Hour	☐ 6 Hour	☐ 24 Hour	☒ 48 Hour	☐ 72 Hour	☐ 96 Hour	☐ 1 Week	☐ 2 Week

Microbiology Test Codes

M001 Air-O-Cell
M174 MoldSnap
M030 Micro 5
M032 Allergenco-D
M041 Fungal Direct Examination
M169 Pollen ID & Enumeration
M280 Dust Characterization Level-1
M281 Dust Characterization Level-2
M005 Viable Fungi- Air Samples (Genus ID & Count)
M006 Viable Fungi- Air Samples (Includes *Penicillium, Aspergillus, Cladosporium, Stachybotrys* Species ID & Count)
M007 Culturable fungi - Surface Samples (Genus ID & Count)
M008 Culturable fungi - Surface Samples (Includes *Penicillium, Aspergillus, Cladosporium, Stachybotrys* Species ID & Count)
M009 Bacteria Culture Gram Stain & Count
M010 Bacteria Count & ID - 3 Most Prominent
M011 Bacteria Count & ID - 5 Most Prominent

M012 *Pseudomonas aeruginosa* (P/A***)
M024 *Pseudomonas aeruginosa* (MFT*)
M015 Heterotrophic Plate Count
M017 Total Coliform & *E. coli* (Colilert P/A***)
M018 Total Coliform & *E. coli* (MFT*)
M114 Total Coliform & *E. coli* Enumeration (Colilert MPN**)
M019 Fecal Coliform (MFT*)
M020 Fecal *Streptococcus* (MFT*)
M029 *Enterococci* (MFT*)
M129 *Enterococci* (Enterolert P/A***)
M180 Real Time qPCR-ERMI 36 Panel
M025 Sewage Screen –Water (MFT*)

M115 Sewage Screen - Water (P/A***)
M116 Sewage Screen - Water (MPN**)
M117 Sewage Screen - Swab (P/A***)
M013 Sewage Screen - Swab (MFT*)
M133 *Methicillin-resistant Staph aureus* (MRSA)
M031 Rapid-growing non-TB *Mycobactena* Detection & Enumeration
M014 Endotoxin Analysis
M044 Group Allergen (Cat, Dog, Cockroach, Dust Mite)
Other See Analytical Price Guide
***Legionella* Analysis** Please use EMSL *Legionella* COC

*MFT= Membrane Filtration Technique
**MPN= Most Probable Number
***P/A= Presence/Absence

Name of Sampler: **Signature of Sampler:**

Sample #	Sample Location/Description	Sample Type	Potable/ NonPotable (Only for Waters)	Test Code	Volume/ Area	Date/Time Collected	Temperature (°C) (Lab Use Only)
Example A1	Kitchen Sink/Tap	Water	☒ P ☐ NP	M017	100 mL	9/1/13 4:00 PM	
134	Room 134	Air	☐ P ☐ NP	Mold		7:14	
135	135		☐ P ☐ NP			7:20	
137	137		☐ P ☐ NP			7:24	
141	141		☐ P ☐ NP			7:28	
143			☐ P ☐ NP			7:37	

Client Sample # (s) [redacted] **Total # of Samples:** 38 **Samples Received Chilled?** Yes / No (Lab Use Only)

Relinquished (Clier [redacted] **Date:** 9-17-19 **Time:**

Received (Lab): ☐ **Date:** 9-17-19 **Time:** 12:47pm WI

Comments/Special Instructions:

cpuggi
D:20171129105937-05'00'11/29/2017 9.59:37 AM

Completed set by cpuggi

13 five samples missing vol. - emailed client MF 9-17-19

OrderID: 261909668

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Microbiology Chain of Custody

EMSL Order Number (*Lab Use Only*):

– 96668

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
FAX:(856) 786-0262

Additional pages of the chain of custody are only necessary if needed for additional sample information

Sample #	Sample Location/Description	Sample Type	Potable/ NonPotable (Only for Waters)	Test Code	Volume/ Area	Date/Time Collected	Temperature (°C) (Lab Use Only)
145	Room 145	AIR	☐P ☐NP	Mold	30	7:35	
147	147		☐P ☐NP			7:38	
149			☐P ☐NP			7:41	
150			☐P ☐NP			7:44	
153			☐P ☐NP			7:54	
155			☐P ☐NP			7:58	
157			☐P ☐NP			8:09	
107			☐P ☐NP			8:14	
109			☐P ☐NP			8:19	
111			☐P ☐NP			8:21	
113			☐P ☐NP			8:25	
115			☐P ☐NP			8:28	
117			☐P ☐NP			8:30	
105			☐P ☐NP			8:37	
103			☐P ☐NP			8:40	
100E			☐P ☐NP			8:45	
201			☐P ☐NP			8:48	
203			☐P ☐NP			8:55	
205			☐P ☐NP			9:00	
207			☐P ☐NP			9:03	
001			☐P ☐NP			9:06	
003			☐P ☐NP			9:10	
005			☐P ☐NP			9:15	

Comments/Special Instructions:

Controlled Document – COC-34 Micro R8 11/14/2017

OrderID: 261909668

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Microbiology Chain of Custody

EMSL Order Number *(Lab Use Only)*:

- 96668

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE. (800) 220-3675
FAX:(856) 786-0262

Additional pages of the chain of custody are only necessary if needed for additional sample information.

Sample #	Sample Location/Description	Sample Type	Potable/ NonPotable (Only for Waters)	Test Code	Volume/ Area	Date/Time Collected	Temperature (°C) (Lab Use Only)
123	Room 123	Air	☐P ☐NP	Mold	30	9-17-19	
124	124		☐P ☐NP				
125	125		☐P ☐NP				
127	127B		☐P ☐NP				
129	129		☐P ☐NP				
131	131		☐P ☐NP				
105B	105D		☐P ☐NP				
P.E.	P.E. office		☐P ☐NP				
OUTDOOR	OUTDOOR		☐P ☐NP				
OUTDOOR	OUTDOOR		☐P ☐NP				
Blank			☐P ☐NP				
			☐P ☐NP				
			☐P ☐NP				
			☐P ☐NP				
			☐P ☐NP				
			☐P ☐NP				
			☐P ☐NP				
			☐P ☐NP				
			☐P ☐NP				
			☐P ☐NP				
			☐P ☐NP				
			☐P ☐NP				
			☐P ☐NP				
			☐P ☐NP				
			☐P ☐NP				

Comments/Special Instructions:

Appendix C

Methodology

Temperature and Relative Humidity

Temperature and relative humidity are occupant comfort parameters that play an important role in the perceived quality of an indoor work environment. Buildings with large window areas sometimes have acute problems of discomfort due to radiant heat gains and losses. Humidity also has an impact on thermal comfort. Elevated relative humidity levels reduce a person's ability to dissipate heat through perspiration and evaporation. Humidity extremes can also create other IAQ problems. Excessively high or low relative humidity can produce discomfort, while high relative humidity can promote the growth of mold, bacteria, and dust mites, which can aggravate allergies and asthma.

Testing Methodology

Temperature and relative humidity readings were obtained using a 3M QUEST EVM-7 indoor air quality monitor. The 3M QUEST EVM-7 simultaneously monitors, displays, and records a multitude of IAQ parameters, including CO, CO_2, temperature, and relative humidity. In each test location, the instrument was set on a surface in the room within the breathing zone, and a single 1-minute average reading was obtained.

Carbon Dioxide

Carbon Dioxide (CO_2) is produced by human metabolism and exhaled through the lungs. CO_2 can serve as a surrogate for measuring the adequacy of ventilation and outside fresh air intake. Normal CO_2 levels for occupied buildings range from 300 to 1,000 ppm. Levels exceeding 1,000 ppm suggest an inadequate rate of ventilation.

Testing Methodology

CO_2 readings were obtained using a TSI Q-Trak indoor air quality monitor. The 3M QUEST EVM-7 simultaneously monitors, displays, and records a multitude of IAQ parameters, including CO, CO_2, temperature, and relative humidity. In each test location, the instrument was set on a surface in the room within the breathing zone, and a single 1-minute average reading was obtained.

Carbon Monoxide

Carbon Monoxide (CO) is an odorless, colorless, asphyxiant gas that is the product of incomplete combustion. Potential indoor sources include unvented gas heaters, leaking furnaces, gas stoves, automobile exhaust fumes, and environmental tobacco smoke. Concentrations greater than 9 parts per million (ppm) may indicate the presence of exhaust gases in the indoor environment and should be investigated. At low concentrations, CO can cause fatigue in healthy people and chest pains in people with heart disease. At higher concentrations, CO can cause impaired vision and coordination, headaches, dizziness, confusion, and nausea. At very high concentrations, CO can be fatal.

Testing Methodology

CO readings were obtained using a 3M QUEST EVM-7 indoor air quality monitor. The 3M QUEST EVM-7 simultaneously monitors, displays, and records a multitude of IAQ parameters, including CO, CO_2, temperature, and relative humidity. In each test location, the instrument was set on a surface in the room within the breathing zone, and a single 1-minute average reading was obtained.

Particulate Matter (PM-10)

Total Suspended Particulate (TSP) matter is generally considered to consist of all airborne particles less than a few hundred micrometers in diameter. In general, the concentration of TSP is significantly lower indoors than outdoors.

Certain portions of TSP consist of inhalable, thoracic, and respirable fractions. Inhalable particulate consists of particles of any size that may deposit anywhere in the respiratory tract. Thoracic particulate consists of particles, generally less than 10µm in diameter (PM-10), which may deposit in the lung airways or gas-exchange region. Respirable particulate consists of particles, generally less than 4µm in diameter, which may deposit in the gas-exchange region of the lungs.

Testing Methodology

ECG obtained PM-10 dust measurements with a 3M QUEST EVM-7. The 3M QUEST EVM-7 is a portable battery-operated, data-logging, light-scattering laser photometer that gives you real-time aerosol mass readings. It is suitable for clean office settings as well as harsh industrial workplaces, construction and environmental sites, and other outdoor applications. The 3M QUEST EVM-7 measures aerosol contaminants such as dust, smoke, fumes, and mists.

Total Volatile Organic Compounds

Airborne volatile organic compounds (VOCs) can be present in the workplace as a result of office supplies, commercial cleaners and solvents, paints, new building materials, furnishings, and consumable products, etc. A variety of organic materials can exist in the indoor air, including aliphatic, aromatic, and chlorinated hydrocarbons. While some organics have been suggested as possible carcinogens (e.g. benzene and tetrachloroethylene), the actual health implications for many other VOCs are not presently well defined.

Because the specific identities of individual VOCs in the building are unknown, this study focused on measuring total volatile organic compound (TVOC) levels.

There is insufficient evidence that TVOC measurements can be used to predict health or comfort effects. In addition, odor and irritation responses to VOCs are highly variable. Furthermore, no single method currently in use measures all individual VOCs that may be of interest. Setting target concentrations for specific VOCs of concern is the preferred practice when the presence of a specific VOC is known. In general, setting target concentrations for TVOCs is not recommended; however such broad guidelines do exist.

Testing Methodology

Total volatile organic compounds (TVOC) were measured using a 3M QUEST EVM-7 photo ionization detector (PID). The 3M QUEST EVM-7 is a direct-read instrument, which provides an instantaneous measurement of TVOC concentrations.

Formaldehyde

Formaldehyde is a gas that may be emitted from many indoor sources, such as wood particleboard, plywood, fiberboard, glues and adhesives, carpeting, permanent pressed fabrics, and combustion sources. These materials may release formaldehyde into the air, usually when they are newer. This process, commonly referred to as "off-gassing," may cause short-term health effects with symptoms including eye, nose, throat, and skin irritation, nausea, headache, allergic sensitization, and exacerbation of asthma.

Testing Methodology

Formaldehyde measurements were obtained with a ToxiRae Pro single-gas direct-read meter. The ToxiRae Pro measures gases utilizing electro-chemical sensors to provide instantaneous measurements of formaldehyde levels. Results are provided immediately upon sample completion through a digital LCD display. In each test area, the ToxiRae pro was set on a surface within the breathing zone and left until readings stabilized.

Ozone

Most people recognize ozone from its presence in the ozonosphere, or ozone layer, where it functions to protect the Earth from harmful ultraviolet rays. Ozone on the ground level occurs when sunlight reacts with volatile organic compounds, which exist in sources such as hydrocarbon vehicle emissions. Electrical sparks which create ozone may occur inside the home in any equipment which uses high voltage or ultraviolet light. These items include electric motors, high power office equipment (photocopiers or laser printers), or electronic air filters which have been improperly installed.

However, indoor concentrations should be monitored since they can adversely affect building occupants, and the gas can have more serious effects if a buildup occurs.

Testing Methodology

Ozone measurements were obtained using a BW Gas Alert Extreme ozone gas monitor. The ozone monitor and datalogger with Ozone sensor is capable of datalogging up to 8,000 data points. The meter allows direct-read measurements via a LCD display. In each test area, the ozone monitor was set on a surface within the breathing zone and left until readings stabilized.

Appendix D

Floor Plans