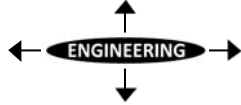


Environmental Safety Health Geotechnical

O'Reilly, Talbot & Okun
[A S S O C I A T E S]



293 Bridge Street
Suite 500
Springfield, MA 01103
Tel 413 788 6222
Fax 413 788 8830
www.oto-env.com

June 22, 2016
J0325-06-05

Hampden Wilbraham Regional School District
621 Main Street
Wilbraham, Massachusetts 01095

Att.: Mr. Samuel Boyd,
Maintenance Coordinator

Subject: Industrial Hygiene Assessment Services Report
Wilbraham Middle School

Dear Mr. Boyd,

Attached is the report for industrial hygiene assessment services performed at the Wilbraham Middle School, located at 466 Stony Hill Road in Wilbraham, Massachusetts. Specifically, the assessment was conducted to as part of a Hampden Wilbraham Regional School District request to document current indoor air quality conditions within the school.

This indoor air quality assessment was performed to provide information regarding the current conditions of the indoor air quality. There are no specific indoor air quality complaints from staff or occupants which prompted this assessment.

Industrial hygiene sampling with real-time instrumentation was conducted on May 18, 2016 and included measurements for indoor air quality parameters such as temperature, relative humidity, carbon dioxide, carbon monoxide, volatile organic compounds (VOC), total particulates and mold spores.

In general, the results of the indoor air quality sampling are within the consensus standards. There were elevated sample results for total particulate and VOC which were traced and attributed to a school activity in which tee shirts were being imprinted with a VOC aerosol paint.

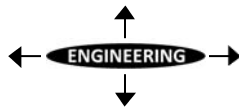
There were several areas where the carbon dioxide levels were elevated. Carbon dioxide monitoring is used to evaluate the quantity of fresh air entering the space. The elevated levels of carbon dioxide may indicate that the quantity of fresh air entering the space is inadequate for the number of occupants and the activities being performed.

We appreciate the opportunity to provide you with these industrial hygiene services. If you have any questions, please contact our office at your convenience.

Sincerely,
O'Reilly, Talbot & Okun Associates, Inc.


Robert F. Kirchherr, CSP
Senior Safety and Industrial Hygiene Specialist


Christine Arruda, CIEC, Project Manager
Certified Indoor Environmental Consultant



**INDUSTRIAL HYGIENE ASSESSMENT
WILBRAHAM MIDDLE SCHOOL
HAMPDEN-WILBRAHAM REGIONAL SCHOOL DISTRICT
WILBRAHAM, MASSACHUSETTS
JUNE 22, 2016**

INTRODUCTION

Industrial hygiene assessment services were performed on May 18, 2016 in the Wilbraham Middle School located in Wilbraham, Massachusetts. Specifically, the assessment was conducted to as part of a Hampden Wilbraham Regional School District request to document current indoor air quality conditions within the school.

The industrial hygiene assessment focused on gathering indoor air quality information in areas and rooms of the school selected in a random yet representative manner. Our assessment included using direct reading instrumentation to obtain real-time measurements for carbon monoxide, carbon dioxide, temperature, relative humidity, volatile organic compounds (VOC), and total particulates. In addition, air sampling for airborne microbiological (mold) spores was performed in randomly selected rooms, and from ambient (outside) conditions for control/comparison.

This report details the sampling methodology, monitoring results, and our observations and conclusions. The information provided in this report is subject to the Limitations as attached.

GENERAL BUILDING DESCRIPTION

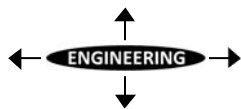
The Wilbraham Middle School is a public, regional school building constructed in approximately the mid to late 1960's. The building is a masonry and steel, multi-story structure. The exterior is finished primarily with brick; the roof is flat and finished with membrane roofing materials.

General interior finishes include resilient or ceramic flooring, or carpeting on concrete, painted block or gypsum wallboard walls, and architectural ceiling tiles (ACT) suspended by a grid system. The classrooms are heated by wall unit ventilator type units.

METHODOLOGY & RESULTS

The following describes the industrial hygiene assessment monitoring and assessment that was performed on May 18, 2016. The evaluation was conducted during afternoon hours, prior to, during and subsequent to release time of the school day. Areas and rooms assessed were selected throughout the school in a random yet representative manner.

Consensus documents and standards utilized in determining the recommended ranges of general air criteria are the American Society of Heating, Refrigeration Air Conditioning Engineers (ASHRAE), Occupational Safety & Health Administration (OSHA), the National Institute for Occupational Safety and Health (NIOSH), and the Environmental Protection Agency (EPA) National Ambient Air Quality Standards (NAAQS). Additionally, our assessment was performed in accordance with the American Conference of Governmental Industrial Hygienists (ACGIH) Assessment of Bioaerosols in the Indoor Environment, the Institute of Inspection, Cleaning and



Restoration Certification (IICRC) S500 Standard and Reference Guide for Professional Water Damage Restoration and the IICRC S520 Standard Reference Guide for Professional Mold Remediation.

Air Monitoring

Carbon dioxide, carbon monoxide, temperature and relative humidity readings were taken in the areas of concern, and from ambient conditions using a Solomat MP Surveyor Pro Multimeter manufactured by Zellweger Analytics. The unit has a real-time readout in parts per million (PPM) carbon dioxide and carbon monoxide as well as real time relative humidity (%) and temperature (°F) readings.

Carbon Dioxide

Carbon dioxide levels are commonly used as a means of determining the adequacy of ventilation in occupied areas. Unless concentrations reach exceptionally high levels, such as in excess of 5,000 PPM, carbon dioxide is not considered a contaminate. Carbon dioxide monitoring is used as a surrogate for indicating elevated levels of other contaminants that are more difficult to measure. People exhale and generate carbon dioxide gas as part of normal respiration.

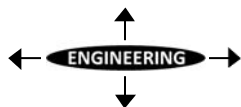
Outdoor ambient concentrations of carbon dioxide are typically in the 300-450 PPM range. Elevated levels of carbon dioxide that are 300 PPM above normal ambient air are usually found in urban areas. Increased levels of carbon dioxide above outdoor ambient conditions can also be related to the occupant load, various activities being performed within the space and the quantity of fresh air ventilation being introduced into the space.

The American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE) have determined that occupants are apt to experience stuffiness, headaches, fatigue, eye and respiratory tract irritation if the indoor levels of carbon dioxide levels exceed the outside ambient levels by 2-3 times. The concentration of carbon dioxide itself is not responsible for the complaints. Rather, it is an indicator that other contaminants in the building may have increased to undesirable levels.

As a result, the recommended level of carbon dioxide level for indoor air quality evaluation is to maintain a differential of less than 1,000 PPM above outdoor ambient levels. The carbon dioxide levels in several classrooms were in the 1,200 to 1,600 PPM range. This elevation of carbon dioxide may be an indication that the volume of fresh air entering the space is inadequate for the number of occupants and activities. Overall, the carbon dioxide levels inside Wilbraham Middle School averaged 732 on the day of our assessment and are summarized in Table 1 as a separate attachment.

Carbon Monoxide

Carbon monoxide concentrations were recorded throughout the school during the evaluation. Carbon monoxide is produced by the incomplete combustion of various fuels, such as natural gas fuel oil, and vehicle exhaust.



There was no carbon monoxide (i.e. less than 0.5 PPM) detected in the monitored areas on the day of our assessment.

Temperature & Relative Humidity

Temperature and relative humidity readings were taken throughout each area of concern involved in the evaluation. The temperature and relative humidity levels were generally uniform. The relative humidity levels inside the school averaged 34% and were within the range (relative humidity 30-60%) recommended by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE). However, temperature values were slightly above the recommended range of 70-73°, and averaged 74°.

Temperature and relative humidity values can change quickly due to occupancy level and type, the performance of the HVAC systems, ambient conditions, and other factors (i.e. solar heat gain or loss from the windows). The temperature and relative humidity levels are summarized in Table 1.

Volatile Organic Compounds (VOCs)

Volatile organic compounds (VOCs) are gases emitted from a wide variety of items including building materials, various furniture and contents, etc. Continuous monitoring for VOCs was conducted in the school building utilizing a MiniRAE hand held photoionization detector (PID). The unit had a real-time readout range of 1 to 1000 parts per million (PPM) total VOCs. The unit was calibrated utilizing an isobutylene standard. Overall, no VOCs (less than 0.5 PPM) were detected in any of the monitored areas on the day of our assessment. However, in one area (classroom), the results of the VOCs monitoring reached approximately 4.3 PPM, and was attributable to fabric spray painting activity being conducted by the teacher (no students were present). The overall goal is to maintain VOC concentrations below 0.5 PPM.

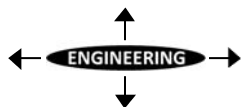
Total Particulate

Particulate monitoring was conducted using a Lighthouse 3016 particulate meter. This is a real time direct reading instrument that analyzes the air for particulates. Airborne particulate concentrations are measured by size from 0.3 microns to 10.0 microns.

The EPA's National Ambient Air Quality Standards (NAAQS) has established a Particulate Matter (PM₁₀) and (PM_{2.5}) limit value of 150 µg/m³ (microgram per cubic meter of air) and 35 µg/m³ respectively. The particulate sampling results indicate that overall Wilbraham Middle School levels were below the NAAQS standards on the day of our assessment.

However, at two times during the assessment the particulate levels were recorded to have exceeded the NAAQS limit values. The cause of the elevated values was attributable to a spray-painting activity occurring at one location, and the timing and location of sampling during student dismissal activities.

Results of the particulate sampling is summarized in Table 2 in a separate attachment.



Bioaerosol Sampling

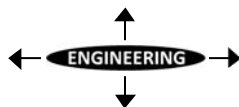
During the assessment bioaerosol samples were collected in various areas of the school using Air-O-Cell cassettes. The Air-O-Cell cassette is a particulate sampler/spore trap designed for the rapid collection and analysis of a wide range of aerosols including mold spores, pollen, and mycelial fragments.

Samples were collected using the Air-O-Cell cassettes, connected to a Zefon Bio-Pump® Plus indoor air quality sampling pump. The pump was pre and post-calibrated, and set with a flow rate of 15 liters of air per minute. Each sample was collected over a 5-minute period to allow approximately 75 liters of air through the sampler. The sampler was set at a sampling height representative of the occupant breathing zone, in this case approximately three and a half (3 ½) to four (4) feet from the ground surface. The Environmental Health Laboratory Report is located in Appendix A, with the summarized results located below and on the following page in Table 3.

The results are expressed in total fungal spores (viable and non-viable). The species profiles and overall quantification of spores are low, considered common to the environment, and not typically pathogenic to healthy humans.

TABLE 3
AIR-O-CELL SAMPLE RESULTS
TOTAL FUNGAL SPORES

SAMPLE	LOCATION	TOTAL FUNGAL SPORES (count/m³)
22621128	Art Room Office	160
22621037	Library – Resource Center	40
22621031	Room 11	380
22621051	Room 9	80
22621164	Room 5	120
22621070	Room 24	160
22621050	Room 20	80
22621071	Room 28	80
22621132	Room 17	None Detect
22621069	Teacher’s Lounge	None Detect
22621090	Ambient	240



OBSERVATIONS & CONCLUSIONS

On May 18, 2016 OTO conducted industrial hygiene assessment services at the Wilbraham Middle School in Wilbraham, Massachusetts. Specifically, the assessment was conducted to as part of a Hampden Wilbraham Regional School District request to document current indoor air quality conditions within the school.

Industrial hygiene sampling with real-time instrumentation included measurements for indoor air quality parameters such as temperature, relative humidity, carbon dioxide, carbon monoxide, volatile organic compounds (VOCs), and total particulates.

Relative humidity levels were within the recommended range by ASHRAE (30-60%) and averaged 34%. The average temperature within the school (74°) was slightly above the recommended range of 70-73°; however, there were some rooms that had temperatures up to 77°.

The results of VOC sampling indicated no VOCs in the building, for the exception of the one location where fabric spray-painting was occurring; results in that area were recorded at approximately 4.3 parts per million (PPM).

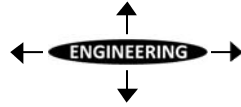
Overall results for particulate were below the NAAQS Particulate Matter limit value of 150 µg/m³ (microgram per cubic meter of air) (PM₁₀) and 35 µg/m³ (PM_{2.5}) respectively. However, at two times during the assessment the particulate levels were recorded to have exceeded the NAAQS limit values. The cause of the elevated values was attributable to a spray-painting activity occurring at one location, and the timing and location of sampling during student dismissal activities.

The results of the industrial hygiene sampling specifically for airborne microbiological (mold) spore sampling in the building indicate the species profiles and overall quantification of spores are low, and are considered common to the environment and not typically pathogenic to healthy humans. There is no amplification of mold spores when compared to the ambient air samples.

The results of our visual assessment indicated that in some areas, resilient flooring was observed to have either slight staining along edges or seams, or showed evidence of cracking or chipping. Some ceiling tiles throughout the school were observed to have water staining; however, no active water leaks were observed. No odors were observed during the evaluation.

No additional objective data was observed during our assessment.

Based on the results of our evaluation, we recommend activities that may introduce VOCs be conducted in accordance with School District policy, and manufacturer's recommendations. We also recommend the removal and replacement of stained ceiling tiles. Resilient flooring materials should be addressed in a manner consistent with the School's Operation and Maintenance program.



LIMITATIONS

1. The observations presented in this report were made under the conditions described herein. The conclusions presented in this report were based solely upon the services described in the report and not on scientific tasks or procedures beyond the scope of the project or the time and budgetary constraints imposed by the client. The work described in this report was carried out in accordance with the contract Terms and Conditions.
2. In preparing the report O'Reilly, Talbot, Okun & Associates, Inc. relied on certain information provided by other parties referenced herein. Although there may have been some degree of overlap in the information provided by these sources, O'Reilly, Talbot, Okun & Associates, Inc. did not attempt to independently verify the accuracy or completeness of all information reviewed or received during the course of this assessment.
3. Observations were made of the site and of the structures on the site as indicated within the report. Where access to portions of the site or to structures on the site was unavailable or limited, we render no opinion as to the presence of microbial growth or hazardous materials, or to the presence of indirect information relating to microbial growth or hazardous materials in that portion of the site. In addition, we render no opinion as to the presence of microbial growth or hazardous materials, where direct observations of portions of the site were obstructed by objects or coverings on or over these surfaces.
4. Unless otherwise specified in the Report, we did not perform testing or analyses to determine the presence or concentration of microbial growth or hazardous materials.
5. Our report was prepared for the exclusive benefit of our client. Reliance upon the report and its conclusions is not made to third parties or future property owners.

TABLE 1
WILBRAHAM MIDDLE SCHOOL
INDOOR AIR QUALITY DIRECT READING RESULTS
18-May-16

Location	Temperature (F°)	Relative Humidity (%)	Carbon Monoxide (PPM)	Carbon Dioxide (PPM)	Volatile Organic Compounds (PPM)	Additional Comments
Cafeteria	74	35	0	546	0	Approx. 6 occupants
Art Room Office	72	38	0	593	0	Approx. 2 occupants; doors open to two proximate rooms: Art and Sci. Tech.
Art Room	73	38	0	632	0	Approx. 18 occupants
Library (Resource Center)	75	35	0	767	0	Approx. 4 occupants
Health Class	75	36	0	729	0	Approx. 17 occupants
Room 11 - Science	73	38	0	748	0	Occupants in transition
Room 9 - Science	74	42	0	1026	0	Approx. 24 occupants
English Conference Room	73	38	0	863	0	Approx. 2 occupants
Room 6 - Social Studies	74	42	0	1142	0	Approx. 24 occupants
Room 5 - Math	74	41	0	1230	0	Approx. 23 occupants
Room 24 - History	75	38	0	1197	0	Approx. 28 occupants
Room 20 - Science	75	40	0	1322	0	Approx. 23 occupants
Room 19 - Language	77	42	0	1593	0	Approx. 17 occupants
Room 21 - ELA	77	41	0	1628	0	Approx. 15 occupants - transitioning for school dismissal
Room 23 - Language	77	39	0	1416	0	Approx. 2 occupants
Learning Center Room 6	75	37	0	1292	0	Approx. 2 occupants
Room 32- Food Arts	75	36	0	1128	4.3	Approx. 3 occupants; fabric spray painting activity occurring
Room 28 - Social Studies	75	34	0	929	0	Approx. 2 occupants
Room 30 - Social Studies	75	33	0	731	0	Approx. 2 occupants
Learning Center Room 7	75	33	0	705	0	Approx. 2 occupants
Room 13 - Math	74	35	0	718	0	Approx. 3 occupants
Room 17 - Math	73	36	0	667	0	Approx. 2 occupants
Room 15 - ELA	73	37	0	637	0	Approx. 1 occupant
Room 10 - Spanish	73	34	0	552	0	Approx. 3 occupants
Teacher's Lounge	76	35	0	679	0	Approx. 2 occupants
Small Gym	76	33	0	631	0	Approx. 2 occupants
Chorus Room	74	35	0	650	0	Approx. 2 occupants
Auditorium	73	33	0	594	0	Approx. 10 occupants
Principal's Office	74	36	0	748	0	Approx. 2 occupants
Nurse's Office	74	38	0	755	0	Approx. 2 occupants
Staff Room / Work & Storage	73	31	0	609	0	Approx. 2 occupants
Ambient/Outside Conditions	78	30	0	571	0	Mostly sunny, slight breeze
Building Interior Averages:	74	37	0	886	0	
Ambient Averages:	78	30	0	571	0	

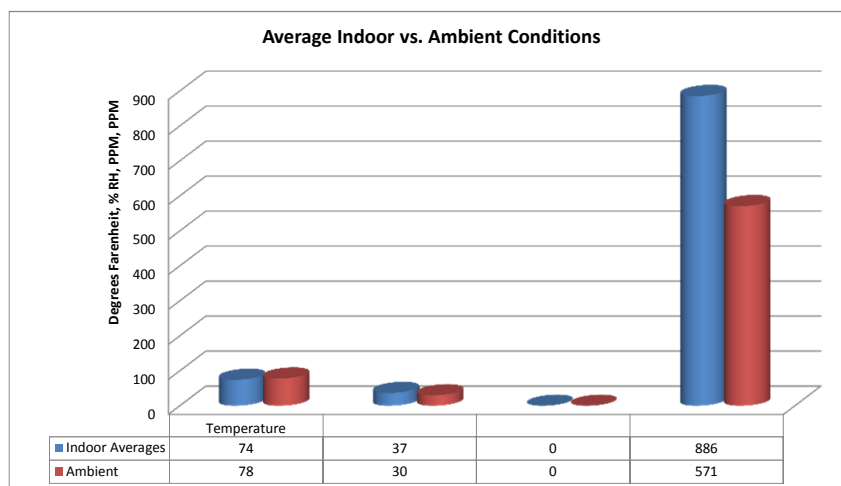


TABLE 2
TOTAL PARTICULATE RESULTS
WILBRAHAM MIDDLE SCHOOL
MAY 18, 2016

Particle Data: Differential					
Particle Density: 2.500 g/ml					
Timestamp	Location (Name)	2.5 micron (ug/m ³)	10.0 micron (ug/m ³)	PM2.5 (ug/m ³)	PM10.0 (ug/m ³)
5/18/2016 13:10:29	Cafeteria	5.12	11.09	2.34	14.48
5/18/2016 13:11:49	Cafeteria	5.24	5.55	2.26	14.92
5/18/2016 13:13:09	Cafeteria	4.97	6.93	2.33	13.16
5/18/2016 13:14:29	Cafeteria	4.31	8.32	2.33	11.91
5/18/2016 13:25:16	Art Room Office	5.00	13.87	2.61	13.46
5/18/2016 13:26:36	Art Room Office	4.85	16.18	2.68	12.41
5/18/2016 13:28:24	Art Room	8.41	51.77	3.12	27.52
5/18/2016 13:36:35	Library	27.11	86.91	3.50	96.14
5/18/2016 13:37:55	Library	24.55	61.48	3.29	87.12
5/18/2016 13:40:44	Health Room	8.87	43.45	2.40	25.31
5/18/2016 13:50:23	Room 11	18.94	70.26	2.93	57.17
5/18/2016 13:51:43	Room 11	15.14	44.84	2.59	42.10
5/18/2016 13:53:03	Room 9	14.31	53.62	2.56	44.18
5/18/2016 13:54:23	Room 9	8.58	34.21	2.31	25.91
5/18/2016 14:01:22	English Conference Room	7.34	11.09	2.48	18.21
5/18/2016 14:06:09	Room 6	13.75	36.98	2.85	35.90
5/18/2016 14:07:29	Room 6	13.92	38.37	2.93	33.43
5/18/2016 14:12:56	Room 5	29.50	156.71	4.77	91.80
5/18/2016 14:18:56	Room 24	19.06	68.88	4.06	49.84
5/18/2016 14:20:16	Room 24	18.31	61.94	4.10	43.66
5/18/2016 14:25:37	Room 20	23.01	38.37	4.64	53.78
5/18/2016 14:30:34	Room 21	41.83	177.51	5.67	127.27
5/18/2016 14:37:16	Room 23	36.96	93.38	5.98	88.57
5/18/2016 14:38:36	Room 23	33.40	69.34	5.58	86.95
5/18/2016 14:41:23	Learning Center Room 6	32.11	105.40	5.26	85.15
5/18/2016 14:42:43	Learning Center Room 6	30.23	93.84	5.05	78.97
5/18/2016 14:47:29	Room 32	208.38	32.36	58.21	315.93
5/18/2016 14:48:49	Room 32	259.72	25.89	80.06	389.90
5/18/2016 14:50:09	Room 32	309.84	24.04	102.48	466.73
5/18/2016 14:53:17	Room 28	12.94	28.66	2.69	32.21
5/18/2016 14:54:37	Room 28	12.07	18.03	2.55	32.56
5/18/2016 14:55:57	Room 28	10.85	20.80	2.48	27.37
5/18/2016 15:01:16	Room 30	3.14	10.63	1.62	7.30
5/18/2016 15:02:36	Room 30	3.34	7.86	1.61	8.07
5/18/2016 15:07:22	Learning Center Room 7	5.44	6.47	1.99	14.44
5/18/2016 15:13:08	Room 13	9.53	9.71	3.75	21.27
5/18/2016 15:18:56	Room 17	5.48	5.55	2.27	11.65
5/18/2016 15:20:16	Room 17	5.02	2.31	2.34	10.87
5/18/2016 15:21:36	Room 17	4.31	7.40	2.14	8.79
5/18/2016 15:25:52	Room 15	4.78	7.40	2.20	10.29
5/18/2016 15:32:05	Room 10	2.32	5.55	1.20	6.25
5/18/2016 15:33:25	Room 10	2.02	3.24	1.15	5.13
5/18/2016 15:34:45	Room 10	2.27	5.08	1.24	8.38
5/18/2016 15:41:18	Teacher's Lounge	3.56	2.31	1.81	8.49
5/18/2016 15:42:38	Teacher's Lounge	4.10	12.94	1.69	9.29
5/18/2016 15:43:58	Teacher's Lounge	5.00	4.16	1.77	10.48
5/18/2016 15:50:22	Small Gym	2.63	3.70	1.21	5.21
5/18/2016 15:51:42	Small Gym	2.07	6.01	1.24	5.26
5/18/2016 15:53:02	Small Gym	2.49	3.70	1.19	6.99
5/18/2016 15:55:45	Room 3	9.73	9.71	2.35	18.13
5/18/2016 16:00:50	Principal's Office	6.53	14.79	1.29	20.31
5/18/2016 16:04:01	Principal's Office	7.73	14.33	2.08	19.17
5/18/2016 16:10:44	Nurse's Office	7.26	16.18	2.32	15.04
5/18/2016 16:17:26	School Psychologist's Room	1.27	5.55	1.19	3.04
5/18/2016 16:18:46	School Psychologist's Room	1.19	4.16	1.21	3.38
5/18/2016 16:27:15	Ambient/Outside	3.75	9.71	1.94	9.79
5/18/2016 16:28:35	Ambient/Outside	4.12	8.32	1.98	12.54
5/18/2016 16:29:55	Ambient/Outside	3.39	6.01	1.87	9.74
	Average	23.81	31.08	6.65	48.51
	Maximum	309.84	177.51	102.48	466.73
	Minimum	1.19	2.31	1.15	3.04
	Standard Deviation	57.16	37.41	17.87	86.85



EMSL Analytical, Inc.

2205 Corporate Plaza Parkway SE, Suite 200 Smyrna, GA
Tel/Fax: (770) 956-9150 / (770) 956-9181
<http://www.EMSL.com> / atlantab@emsl.com

EMSL Order: 071603428
Customer ID: ENVI07
Customer PO:
Project ID:

Attn: Christine Arruda
O'Reilly, Talbot & Okun Associates, Inc.
293 Bridge Street
Springfield, MA 01103

Phone: (413) 788-6222
Fax: (413) 788-8830
Collected: 05/18/2016
Received: 05/20/2016
Analyzed: 05/26/2016

Project: HWRSD - WMS

Test Report: Air-O-Cell™ Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods EMSL 05-TP-003, ASTM D7391)

Lab Sample Number:	071603428-0001			071603428-0002			071603428-0003		
Client Sample ID:	22621128			22621037			22621031		
Volume (L):	75			75			75		
Sample Location	Art Room Office			Library - Resource Center			Room 11		
Spore Types	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total
Alternaria	-	-	-	-	-	-	-	-	-
Ascospores	1	40	25	-	-	-	-	-	-
Aspergillus/Penicillium	-	-	-	-	-	-	-	-	-
Basidiospores	2	80	50	-	-	-	1	40	10.5
Bipolaris++	-	-	-	1	40	100	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	1	40	25	-	-	-	3	100	26.3
Curvularia	-	-	-	-	-	-	1	40	10.5
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	4	200	52.6
Pithomyces	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis	-	-	-	-	-	-	-	-	-
Stachybotrys	-	-	-	-	-	-	-	-	-
Torula	-	-	-	-	-	-	-	-	-
Ulocladium	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Helicomycetes	-	-	-	-	-	-	-	-	-
Total Fungi	4	160	100	1	40	100	9	380	100
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	1	40	-
Analyt. Sensitivity 600x	-	42	-	-	42	-	-	42	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	2	-	-	2	-	-	2	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	2	-	-	2	-	-	2	-

Bipolaris++ = Bipolaris/Drechslera/Exserohilum
Myxomycetes++ = Myxomycetes/Periconia/Smut

Michael Murphy
or other approved signatory

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

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Samples analyzed by EMSL Analytical, Inc Smyrna, GA AIHA-LAP, LLC--EMLAP Lab 100662

Initial report from: 05/26/2016 11:07:45

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



EMSL Analytical, Inc.

2205 Corporate Plaza Parkway SE, Suite 200 Smyrna, GA
Tel/Fax: (770) 956-9150 / (770) 956-9181
<http://www.EMSL.com> / atlantab@emsl.com

EMSL Order: 071603428
Customer ID: ENVI07
Customer PO:
Project ID:

Attn: Christine Arruda
O'Reilly, Talbot & Okun Associates, Inc.
293 Bridge Street
Springfield, MA 01103

Phone: (413) 788-6222
Fax: (413) 788-8830
Collected: 05/18/2016
Received: 05/20/2016
Analyzed: 05/26/2016

Project: HWRSD - WMS

Test Report: Air-O-Cell™ Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods EMSL 05-TP-003, ASTM D7391)

Lab Sample Number:	071603428-0004			071603428-0005			071603428-0006		
Client Sample ID:	22621051			22621164			22621070		
Volume (L):	75			75			75		
Sample Location	Room 9			Room 5			Room 24		
Spore Types	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total
Alternaria	-	-	-	-	-	-	-	-	-
Ascospores	1	40	50	1	40	33.3	-	-	-
Aspergillus/Penicillium	1	40	50	-	-	-	-	-	-
Basidiospores	-	-	-	1	40	33.3	1	40	25
Bipolaris++	-	-	-	-	-	-	1	40	25
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	-	-	-	1	40	25
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	1	40	33.3	1	40	25
Pithomyces	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis	-	-	-	-	-	-	-	-	-
Stachybotrys	-	-	-	-	-	-	-	-	-
Torula	-	-	-	-	-	-	-	-	-
Ulocladium	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Helicomycetes	-	-	-	-	-	-	-	-	-
Total Fungi	2	80	100	3	120	100	4	160	100
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	1	40	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	42	-	-	42	-	-	42	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	2	-	-	2	-	-	3	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	3	-	-	3	-	-	4	-

Bipolaris++ = Bipolaris/Drechslera/Exserohilum
Myxomycetes++ = Myxomycetes/Periconia/Smut

Michael Murphy
or other approved signatory

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

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

Samples analyzed by EMSL Analytical, Inc Smyrna, GA AIHA-LAP, LLC--EMLAP Lab 100662

Initial report from: 05/26/2016 11:07:45

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EMSL Order: 071603428
Customer ID: ENVI07
Customer PO:
Project ID:

Attn: Christine Arruda
O'Reilly, Talbot & Okun Associates, Inc.
293 Bridge Street
Springfield, MA 01103

Phone: (413) 788-6222
Fax: (413) 788-8830
Collected: 05/18/2016
Received: 05/20/2016
Analyzed: 05/26/2016

Project: HWRSD - WMS

Test Report: Air-O-Cell™ Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods EMSL 05-TP-003, ASTM D7391)

Lab Sample Number:	071603428-0007			071603428-0008			071603428-0009		
Client Sample ID:	22621050			22621071			22621132		
Volume (L):	75			75			75		
Sample Location	Room 20			Room 28			Room 17		
Spore Types	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total
Alternaria	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	-	-	-	-	-	-
Aspergillus/Penicillium	-	-	-	-	-	-	-	-	-
Basidiospores	-	-	-	-	-	-	-	-	-
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	-	-	-	-	-	-
Curvularia	1	40	50	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	1	40	50	2	80	100	-	-	-
Pithomyces	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis	-	-	-	-	-	-	-	-	-
Stachybotrys	-	-	-	-	-	-	-	-	-
Torula	-	-	-	-	-	-	-	-	-
Ulocladium	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Helicomycetes	-	-	-	-	-	-	-	-	-
Total Fungi	2	80	100	2	80	100	-	None Detect	-
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	42	-	-	42	-	-	42	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	3	-	-	2	-	-	2	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	4	-	-	3	-	-	2	-

Bipolaris++ = Bipolaris/Drechslera/Exserohilum
Myxomycetes++ = Myxomycetes/Periconia/Smut

Michael Murphy
or other approved signatory

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Samples analyzed by EMSL Analytical, Inc Smyrna, GA AIHA-LAP, LLC--EMLAP Lab 100662

Initial report from: 05/26/2016 11:07:45

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EMSL Order: 071603428
Customer ID: ENVI07
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O'Reilly, Talbot & Okun Associates, Inc.
293 Bridge Street
Springfield, MA 01103

Phone: (413) 788-6222
Fax: (413) 788-8830
Collected: 05/18/2016
Received: 05/20/2016
Analyzed: 05/26/2016

Project: HWRSD - WMS

Test Report: Air-O-Cell™ Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods EMSL 05-TP-003, ASTM D7391)

Lab Sample Number:	071603428-0010			071603428-0011		
Client Sample ID:	22621069			22621090		
Volume (L):	75			75		
Sample Location	Teacher's Lounge			Ambient		
Spore Types	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total
Alternaria	-	-	-	-	-	-
Ascospores	-	-	-	1	40	16.7
Aspergillus/Penicillium	-	-	-	-	-	-
Basidiospores	-	-	-	2	80	33.3
Bipolaris++	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-
Cladosporium	-	-	-	2	80	33.3
Curvularia	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-
Pithomyces	-	-	-	-	-	-
Rust	-	-	-	-	-	-
Scopulariopsis	-	-	-	-	-	-
Stachybotrys	-	-	-	-	-	-
Torula	-	-	-	-	-	-
Ulocladium	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-
Helicomycetes	-	-	-	1	40	16.7
Total Fungi	-	None Detect	-	6	240	100
Hyphal Fragment	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-
Pollen	-	-	-	10	420	-
Analyt. Sensitivity 600x	-	42	-	-	42	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	2	-	-	1	-
Fibrous Particulate (1-4)	-	1	-	-	1	-
Background (1-5)	-	2	-	-	2	-

Bipolaris++ = Bipolaris/Drechslera/Exserohilum
Myxomycetes++ = Myxomycetes/Periconia/Smut

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Initial report from: 05/26/2016 11:07:45

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Microbiology Chain of Custody

EMSL Order Number (Lab Use Only):

071603428

PHONE:
FAX:

Company: O'Reilly, Talbot and Okun Associates, Inc.		EMSL-Bill to: <input type="checkbox"/> Different <input type="checkbox"/> Same <small>If Bill to is Different note instructions in Comments**</small>	
Street: 293 Bridge Street, Suite 500		<i>Third Party Billing requires written authorization from third party</i>	
City: Springfield	State/Province: MA	Zip/Postal Code: 01103	Country: US
Report To (Name): Christine Arruda		Telephone #: 413-788-6222	
Email Address: cdarruda@oto-env.com		Fax #: 413-788-8830	Purchase Order: 0325-06-05
Project Name/Number: HWRSD - WMS		Please Provide Results: <input type="checkbox"/> FAX <input type="checkbox"/> E-mail <input type="checkbox"/> Mail	
U.S. State Samples Taken: MA		Connecticut Samples: <input type="checkbox"/> Commercial <input type="checkbox"/> Residential	

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) – Test Codes

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

Other Microbiology Test Codes

- | | | |
|---|--|---|
| <ul style="list-style-type: none"> • M041 Fungal Direct Examination • M005 Viable Fungi ID and Count • M006 Viable Fungi ID and Count (Speciation) • M007 Culturable Fungi • M008 Culturable Fungi (Speciation) • M009 Gram Stain Culturable Bacteria • M010 Bacterial Count and ID – 3 Most Prominent • M011 Bacterial Count and ID – 5 Most Prominent • M013 Sewage Contamination in Buildings | <ul style="list-style-type: none"> • M014 Endotoxin Analysis • M015 Heterotrophic Plate Count • M180 Real Time Q-PCR-ERMI 36 Panel • M018 Total Coliform (Membrane Filtration) • M020 Fecal <i>Streptococcus</i> (Membrane Filtration) • M210-215 <i>Legionella</i> Detection • M026 Recreational Water Screen • M027 Mycotoxin Analysis | <ul style="list-style-type: none"> • M029 <i>Enterococcus</i> • M019 Fecal Coliform • M133 MRSA Analysis • M028 <i>Cryptosporidium parvum</i> Detection • M120 <i>Histoplasma capsulatum</i> Detection • M033-39 Allergen Testing (Cat, Dog, Cockroach, Dustmites) • M044 Group Allergen • Other See Analytical Price Guide |
|---|--|---|

Preservation Method (Water):

Name of Sampler:

Signature of Sampler:

Sample #	Sample Location	Sample Type	Test Code	Volume/Area	Date/Time Collected
Example: A1	Kitchen	Air	M001	75L	1/1/12 4:00 PM
22621128	Art Room Office	Air	M001	75L	5/18/16 1254
22621037	Library - Resource Center	Air	M001	75L	5/18/16 1305
22621031	Room 11	Air	M001	75L	5/18/16 1317
22621051	Room 9	Air	M001	75L	5/18/16 1327
22621164	Room 5	Air	M001	75L	5/18/16 1336
22621070	Room 24	Air	M001	75L	5/18/16 1348
22621050	Room 20	Air	M001	75L	5/18/16 1356
22621071	Room 28	Air	M001	75L	5/18/16 1423
22621132	Room 17	Air	M001	75L	5/18/16 14472262

Client Sample # (s): 22621128 - 22621090 **Total # of Samples:** 11

Relinquished (Client): **Date:** 5/18/16 **Time:** 1921

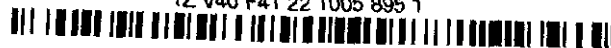
Received (Client): **Date:** 5/20/16 **Time:** 9:15AM

Comments:

Please forward invoice to Mary McCoullough at above noted address. Thank you!

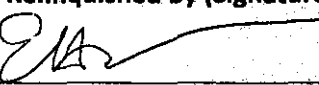
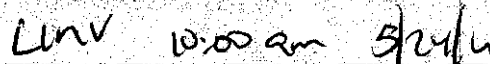


1Z V40 F41 22 1005 895 1



EMSL Analytical, Inc.

Sample Transfer Form

Receiving Lab:	EMSL- Cinnaminson	Phone Number:		
		Fax Number:		
Relinquished to:	EMSL- Atlanta	Phone Number:		
		Fax Number:		
Does new lab hold equivalent or additional accreditation? *				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
EMSL Customer ID # (if known):	See attached			
Client Name:				
Client Project:				
Tests to be Performed:				
Date Received:				
Date Relinquished:				
Date Due:				
Special Instructions: (e.g. Work Order # , required qualifications, project specific procedures/modifications)				
Relinquished by (Signature):	Date:	Received by (Signature):	Date:	
	5/23/10			
Relinquished by (Signature):	Date:	Received by (Signature):	Date:	
Customer Agreement- Please sign form and send to the receiving laboratory. By signing below, you agree to permit the above named receiving lab to transfer samples to a separate EMSL lab with equivalent qualifications* for analysis. The final report will be issued from the analyzing laboratory. Ensure any requirements are listed in special instructions.				
Name (please print):	Signature:	Agent of:	Date:	
per sales rep.				
<i>If this is a recurring project or sample type that may require samples to be relinquished on a regular basis, a Standing Agreement form must be completed.</i>				

* Receiving and analyzing labs shall be aware of required qualifications of project prior to transfer of samples.

Note: If customer has been notified and approved this transfer verbally or by e-mail, the receiving lab must sign for the customer above. EMSL employee filling out form on behalf of customer shall print name of person to whom they spoke, date agreement was received, and then sign under Signature.

Date Received	DueDay	TAT	CustomerName	Test	Sample Count	Comments
5/23/2016	5/25/2016	48 Hr	BERM50	M001	3	
5/23/2016	5/26/2016	72 Hr	BERM50	M001	18	
5/23/2016	5/25/2016	48 Hr	BERM50	M001	6	
5/23/2016	5/26/2016	72 Hr	BERM50	M041	3	
5/23/2016	5/25/2016	48 Hr	BERM50	M041	1	
5/23/2016	5/26/2016	72 Hr	BERM50	M041	4	
5/23/2016	5/25/2016	48 Hr	PPRT25	M032	2	
5/23/2016	5/25/2016	48 Hr	PPRT25	M032	2	
5/21/2016	5/28/2016	1 Wk	CHER63	M001	5	Saturday is included in our TATs
5/20/2016	5/27/2016	1 Wk	HARD55	M113	3	Quantitative Direct Exam
5/20/2016	5/27/2016	1 Wk	ENVI07	M001	11	
5/20/2016	6/4/2016	1 Wk	ENVI07	M001	1	Added one day for holiday - Due Saturday
5/20/2016	5/27/2016	2 Wk	AEI50	M001	6	M006 samples kept in Cinnaminson Lab

Total 65