

**MAIN OFFICE:**

One Pleasure Island Road  
Wakefield, MA 01880  
(781) 213-9198  
(781) 213-6992 Fax

**BRANCH OFFICES:**

46 Watergate Lane  
W. Barnstable, MA 02668  
(508) 274-5703  
(508) 732-0281 Fax

10 Diamond Drive  
Derry, NH 03038  
(603) 434-5245  
(603) 434-5172 Fax

[www.axiomenv.com](http://www.axiomenv.com)

February 13, 2019

Ms. Heather R. Forgione  
Supervisor of Facilities  
Haverhill Public Schools  
4 Summer Street, Room 104  
Haverhill MA 01830

**VIA EMAIL**

Project 01288.015

RE: Mold Air Sampling & General IAQ Testing, Whittier Middle School, 252 Concord St, Haverhill, MA

Dear Ms. Forgione,

At your request, Axiom Partners, Inc. (AXIOM) performed air sampling for mold and indoor air quality testing at the Whittier Middle School following parental concerns expressed to the Haverhill Public Schools (HPS) and other government agencies.

Mold air sampling was performed on February 1, 2019 by AXIOM Industrial Hygienists, Messrs. Peter Del Sette and David Rooney and IAQ testing was performed on February 8, 2019 by Ms. Heather Baron.

**MOLD (FUNGI) SPORE AIR SAMPLING**

AXIOM performed mold spore trap air sampling in random representative locations throughout the school including the basement mechanical and crawlspace. Mold spore trap air testing was performed when the school was unoccupied. A "control" (background) air sample was taken outdoors and adjacent to the building. A sample location plan is attached for reference.

The air samples were collected using Allergenco-D air sampling cassettes which are used for the rapid collection and analysis of a wide range of airborne aerosols, including fungal spores, pollen, insect parts, skin cell fragments, fibers, and inorganic particulates. The Allergenco-D sampling cassette is designed to draw air through the cassette at a rate of 15 liters per minute (LPM). AXIOM collected eleven (11) air samples inside the building and one (1) outdoor sample.

The samples were hand delivered to and analyzed by EMSL Analytical, Inc. (EMSL) located in Woburn, MA. A chain-of-custody form was used to specify the type of analysis and document sample handling. EMSL is accredited by the American Industrial Hygiene Association (AIHA) for the specified analysis. The samples were analyzed for non-viable fungi by direct optical microscopic analysis. Table 1 provides a summary of air testing results and the full laboratory report is attached.

**TABLE 1**  
**AIRBORNE FUNGI/MOLD SPORE COUNT SAMPLE RESULTS**

SAMPLE No.	LOCATION	TOTAL FUNGI (C/m <sup>3</sup> )*	PREDOMINANT MOLD SPORE, GENUS
2627379	Exterior of Building	No Trace	-



SAMPLE NO.	LOCATION	TOTAL FUNGI (C/m <sup>3</sup> )*	PREDOMINANT MOLD SPORE, GENUS
2637834	Cafetorium, NW Corner	630	Aspergillus/Penicillium, Basidiospores
2724594	Boiler Room	580	Aspergillus/Penicillium, Basidiospores, Cladosporium, Stachybotrys/Memnoniella
2724585	Library	600	Aspergillus/Penicillium, Basidiospores
2724604	Gymnasium	830	Aspergillus/Penicillium, Basidiospores, Myxomycetes++
2724589	Music Room	None Detected	N/A
2724590	East Wing, Room 14	2,540	Aspergillus/Penicillium, Basidiospores
2724578	East Wing, Room 19	1,700	Aspergillus/Penicillium, Basidiospores
2724593	North Hall, Outside Main Office	500	Aspergillus/Penicillium, Basidiospores
2724579	West Wing, Room 3	2,400	Aspergillus/Penicillium, Basidiospores
2724584	West Wing, Room 10	600	Aspergillus/Penicillium, Basidiospores
2724583	Crawlspace	20,510	Ascospores, Aspergillus/Penicillium, Basidiospores, Cladosporium, Hyphal Fragment

\* Spore counts per cubic meter of air (C/m<sup>3</sup>)

Bioaerosols (fungi/mold) are always present in the environment and it is the types and excess quantity of airborne microorganisms that can be of concern. By comparing the microbiological profiles of the samples to the outdoor "control" sample, it is often possible to determine if amplification of microorganisms is occurring in the building.

Although there are no definitive levels set by Federal or State regulators for airborne fungi or fungal spores, the World Health Organization (WHO) and the industrial hygiene community have adopted guidelines for assessing airborne fungal spores. Fungal spore count concentrations below **2,000 C/m<sup>3</sup>** are normally not a concern for indoor environments. Outdoor levels are normally between **500** and **5,000 C/m<sup>3</sup>** but can easily exceed **20,000 C/m<sup>3</sup>** during the spring and summer months in New England. Indoor airborne levels that exceed **5,000 C/m<sup>3</sup>** are typically considered elevated.

#### INDOOR AIR QUALITY (IAQ) TESTING

AXIOM also performed indoor air quality testing in random locations throughout the facility. The testing was performed between approximately 1330 hours and 1530 hours on February 8, 2019 by Industrial Hygienist, Heather Baron.

Some of the measurements were made while the school was occupied by students and staff and some were made after spaces were vacated. The building HVAC system was operating normally during this testing.

AXIOM performed testing of the following indoor air quality parameters:



**Parameter(s)**

**Device**

- |   |  |
|---|--|
| 1. Carbon Monoxide (CO), Carbon Dioxide (CO <sub>2</sub> ),<br>Temperature (T) and Relative Humidity (rH) | TSI Q-Trak® IAQ Monitor                |
| 2. Total Volatile Organic Compounds (TVOCs)   | BW Technologies Gas Max Five Gas Meter |

These factory calibrated devices are portable, battery powered instruments that provided direct and continuous readout of the specified parameters.

Carbon Monoxide, Carbon Dioxide, temperature and Relative Humidity are all indicators of acceptable or unacceptable indoor air quality and are typically compared to the ASHRAE recommended ranges or limits. Screening for VOCs was also performed since elevated concentrations can also be of concern.

Table 2 provides a summary of the testing results.

**TABLE 2**  
**SUMMARY OF INDOOR AIR QUALITY MEASUREMENTS**

AIR QUALITY PARAMETER	RANGE OF MEASURED VALUES (Low - High)	GUIDELINES
Temperature (T)	66.2 – 76.3 °F	68 – 78 °F <sup>a,b</sup> 73 – 79 °F (Summer)
Relative Humidity (RH)	26.8 – 59.3%	30 – 60% <sup>a,b</sup>
Carbon Monoxide (CO)	0.6 – 2.7 ppm	9 ppm <sup>a</sup> ; 50 ppm <sup>b,d</sup>
Carbon Dioxide (CO <sub>2</sub> )	635 – 1,540 ppm	800 - 1,200 ppm <sup>a,b,c</sup>
Volatile Organic Compounds (VOCs)	0.0 – 0.0 ppm	5 ppm <sup>b</sup>

<sup>a</sup> ASHRAE 55-2013 Std. (American Society of Heating, Refrigerating & Air Conditioning Engineers).

<sup>b</sup> < = “less than”, ≤ = “less than or equal to”, °F = degrees Fahrenheit, % = percent, ppm = parts per million

<sup>c</sup> Occupational Safety & Health Administration proposed indoor air quality (IAQ) rule (59 FR 15968).

<sup>d</sup> OSHA (Occupational Safety and Health Administration) Permissible Exposure Limit.

**DISCUSSION AND RECOMMENDATIONS**

Mold air sampling results indicate that indoor mold spore levels in seven of the areas were low and moderate in three locations. The only elevated level was measured in the crawlspace where wet soils and persistent historical steam pipe leaks are no doubt contributing to mold levels within the crawlspace(s).

Based on the air testing performed by AXIOM on February 8 we have concluded the following:

**Volatile organic compound (VOC)** readings were all zero.

The **temperature** readings were generally within the acceptable range of 68°F to 78°F. Some spot readings were slightly below the ASHRAE recommended minimum of 68°F.

**Relative Humidity (rH)** levels were generally within the ASHRAE-recommended accepted range of 30-60%. A few readings were slightly below 30%.

**Carbon Monoxide (CO)** all measurements were acceptable.

**Carbon Dioxide (CO<sub>2</sub>)** Concentrations were generally below 1,200 ppm, however, several readings exceed 1,200 ppm.

Consistently elevated CO<sub>2</sub> levels are often associated with improperly balanced or improperly operating air ventilation systems, higher than normal occupancy and/or the introduction of combustion emissions. Since the second two possibilities are not likely factors, it is possible that the system is not operating or balanced properly. However, since the air testing was cursory in nature (instantaneous readings conducted over a short period of time), the cause of the elevated CO<sub>2</sub> levels cannot be determined. AXIOM recommends one or both of the following to address this potential deficiency:

1. Engage an HVAC engineer or contractor to evaluate the existing system to determine if is functioning properly; and/or;
2. Perform additional longer-term testing of the ASHRAE indoor air comfort parameters (temperature, relative humidity, Carbon Monoxide and Carbon Dioxide) to further evaluate indoor air quality comfort factors.

With respect to the crawlspace, AXIOM recommends continuing efforts to abate and remediate the crawlspace and make repairs to or replace the existing heating system pipes.

Although recent roof repairs and mold remediation measures by HPS should improve or completely eliminate the water intrusion and excess moisture problems in the building, AXIOM recommends conducting additional air testing for airborne fungi levels if complaints from occupants (students, teachers, staff) persist.

Please do not hesitate to contact us if you have any questions or wish to discuss.

Sincerely,



Stephen E. Minassian  
Principal/Project Manager



Randal D. Ames  
Principal

attachment: EMSL lab report



# EMSL Analytical, Inc.

5 Constitution Way, Unit A Woburn, MA 01801  
Phone/Fax: (781) 933-8411 / (781) 933-8412  
<http://www.EMSL.com> / [bostonlab@emsl.com](mailto:bostonlab@emsl.com)

Order ID: 131900815  
Customer ID: AXIO80  
Customer PO:  
Project ID:

**Attn:** David A. Rooney  
Axiom Partners, Inc.  
One Pleasure Island Road  
Suite 2C  
Wakefield, MA 01880

**Phone:** (781) 213-9198  
**Fax:** (781) 213-6992  
**Collected:** 02/01/2019  
**Received:** 02/04/2019  
**Analyzed:** 02/05/2019

**Proj:** Whittier Mold / 01288.015

## Test Report: Allergenco-D(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods MICRO-SOP-201, ASTM D7391)

Lab Sample Number: Client Sample ID: Volume (L): Sample Location:	131900815-0001 2627379 75 Building Exterior, North			131900815-0002 2637384 75 Cafetorium, NW Corner			131900815-0003 2724594 75 Boiler Room		
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	-	-	-	14	590	93.7	4	200	34.5
Basidiospores	-	-	-	1	40	6.3	6	300	51.7
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	-	-	-	1	40	6.9
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	1	40	6.9
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Total Fungi	-	No Trace	-	15	630	100	12	580	100
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	42	-	-	42	-	-	42	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	-	-	-	1	-	-	2	-
Fibrous Particulate (1-4)	-	-	-	-	1	-	-	2	-
Background (1-5)	-	-	-	-	1	-	-	3	-

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

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

Steve Grise, Laboratory 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.

Initial report from: 02/05/2019 12:02:52

For Information on the fungi listed in this report please visit the Resources section at [www.emsl.com](http://www.emsl.com)



# EMSL Analytical, Inc.

5 Constitution Way, Unit A Woburn, MA 01801  
Phone/Fax: (781) 933-8411 / (781) 933-8412  
<http://www.EMSL.com> / [bostonlab@emsl.com](mailto:bostonlab@emsl.com)

Order ID: 131900815  
Customer ID: AXIO80  
Customer PO:  
Project ID:

**Attn:** David A. Rooney  
Axiom Partners, Inc.  
One Pleasure Island Road  
Suite 2C  
Wakefield, MA 01880  
  
**Proj:** Whittier Mold / 01288.015

**Phone:** (781) 213-9198  
**Fax:** (781) 213-6992  
**Collected:** 02/01/2019  
**Received:** 02/04/2019  
**Analyzed:** 02/05/2019

## Test Report: Allergenco-D(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods MICRO-SOP-201, ASTM D7391)

Lab Sample Number: Client Sample ID: Volume (L): Sample Location:	131900815-0004 2724585 75 Library			131900815-0005 2724604 75 Gymnasium			131900815-0006 2724589 75 Music Room		
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	9	400	66.7	14	590	71.1	-	-	-
Basidiospores	4	200	33.3	4	200	24.1	-	-	-
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	1	40	4.8	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Total Fungi	13	600	100	19	830	100	-	None Detected	-
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	42	-	-	42	-	-	42	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	2	-	-	2	-	-	1	-
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.

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

Steve Grise, Laboratory 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.

Initial report from: 02/05/2019 12:02:52

For Information on the fungi listed in this report please visit the Resources section at [www.emsl.com](http://www.emsl.com)



# EMSL Analytical, Inc.

5 Constitution Way, Unit A Woburn, MA 01801  
Phone/Fax: (781) 933-8411 / (781) 933-8412  
<http://www.EMSL.com> / [bostonlab@emsl.com](mailto:bostonlab@emsl.com)

Order ID: 131900815  
Customer ID: AXIO80  
Customer PO:  
Project ID:

**Attn:** David A. Rooney  
Axiom Partners, Inc.  
One Pleasure Island Road  
Suite 2C  
Wakefield, MA 01880  
  
**Proj:** Whittier Mold / 01288.015

**Phone:** (781) 213-9198  
**Fax:** (781) 213-6992  
**Collected:** 02/01/2019  
**Received:** 02/04/2019  
**Analyzed:** 02/05/2019

## Test Report: Allergenco-D(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods MICRO-SOP-201, ASTM D7391)

Lab Sample Number: Client Sample ID: Volume (L): Sample Location:	131900815-0007 2724590 75 East Wing, Room 14			131900815-0008 2724578 75 East Wing, Room 19			131900815-0009 2724593 75 North Hall Outside Main Office		
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	60	2500	98.4	38	1600	94.1	8	300	60
Basidiospores	1	40	1.6	3	100	5.9	4	200	40
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Total Fungi	61	2540	100	41	1700	100	12	500	100
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	42	-	-	42	-	-	42	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	1	-	-	1	-	-	1	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	1	-	-	1	-	-	1	-

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

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

Steve Grise, Laboratory 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.

Initial report from: 02/05/2019 12:02:52

For Information on the fungi listed in this report please visit the Resources section at [www.emsl.com](http://www.emsl.com)





# EMSL Analytical, Inc.

5 Constitution Way, Unit A Woburn, MA 01801  
Phone/Fax: (781) 933-8411 / (781) 933-8412  
<http://www.EMSL.com> / [bostonlab@emsl.com](mailto:bostonlab@emsl.com)

Order ID: 131900815  
Customer ID: AXIO80  
Customer PO:  
Project ID:

**Attn:** David A. Rooney  
Axiom Partners, Inc.  
One Pleasure Island Road  
Suite 2C  
Wakefield, MA 01880  
  
**Proj:** Whittier Mold / 01288.015

**Phone:** (781) 213-9198  
**Fax:** (781) 213-6992  
**Collected:** 02/01/2019  
**Received:** 02/04/2019  
**Analyzed:** 02/05/2019

## Test Report: Allergenco-D(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods MICRO-SOP-201, ASTM D7391)

Lab Sample Number: Client Sample ID: Volume (L): Sample Location:	131900815-0010 2724579 75 West Wing, Room 3			131900815-0011 2724584 75 West Wing, Room 10			131900815-0012 2724583 75 Crawlspace		
Spore Types	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	-	-	-	8	300	1.5
Aspergillus/Penicillium	6	300	12.5	2	90	15	462	19600	95.6
Basidiospores	50	2100	87.5	12	510	85	3	100	0.5
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	-	-	-	1	40	0.2
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	11	470	2.3
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Total Fungi	56	2400	100	14	600	100	485	20510	100
Hyphal Fragment	-	-	-	-	-	-	2	90	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	42	-	-	42	-	-	42	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	1	-	-	1	-	-	2	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	1	-	-	1	-	-	3	-

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

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

Steve Grise, Laboratory 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.

Initial report from: 02/05/2019 12:02:52

For Information on the fungi listed in this report please visit the Resources section at [www.emsl.com](http://www.emsl.com)



EMSL ANALYTICAL, INC.  
LABORATORY • PRODUCTS • TRAINING

## Microbiology Chain of Custody

EMSL Order Number (Lab Use Only):

131900815

EMSL ANALYTICAL, INC.  
7 CONSTITUTION WAY  
SUITE 107  
WOBURN, MA 01801  
PHONE: 781-933-8411  
FAX: 781-933-8412

Company : AXIOM Partners Inc			EMSL-Bill to: <input checked="" type="checkbox"/> Same <input type="checkbox"/> Different If Bill to is Different please note in Comments**		
Street: One Pleasure Island Rd, Suite 2C			Third Party Billing requires written authorization from third party		
City: Wakefield	State/Province: MA	Zip/Postal Code: 01880	Country: USA		
Report To (Name): David A. Rooney			Fax #:		
Telephone #: 603-505-5877			E-mail Address: drooney@axiomenv.com		
Project Name/ Number: Whittier Mold / 01288.015					
Please Provide Results: <input type="checkbox"/> Fax <input checked="" type="checkbox"/> E-mail		PO#	State Samples Taken: MA		
Turnaround Time (TAT) Options* - Please Check					
<input type="checkbox"/> 3 Hour	<input type="checkbox"/> 6 Hour	<input checked="" type="checkbox"/> 24 Hour	<input type="checkbox"/> 48 Hour	<input type="checkbox"/> 72 Hour	<input type="checkbox"/> 96 Hour
		<input type="checkbox"/> 1 Week	<input type="checkbox"/> 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 Cycllex	• M002 Cycllex-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 <i>Cryptococcus neoformans</i> Detection			
• M008 Culturable Fungi (Speciation)	• M018 Total Coliform (Membrane Filtration)	• M120 <i>Histoplasma capsulatum</i> Detection			
• M009 Gram Stain Culturable Bacteria	• M020 Fecal <i>Streptococcus</i> (Membrane Filtration)	• M033-39 Allergen Testing			
• M010 Bacterial Count and ID – 3 Most Prominent	• M210-215 <i>Legionella</i> 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:			Signature of Sampler:		
Sample #	Sample Location	Sample Type	Test Code	Volume/Area	Date/Time Collected
2627379	Building Exterior, North	AIR	M032	75 L	02/01/19
2627384	Cafetorium, NW Corner	AIR	M032	75 L	0201/19
2724594	Boiler Room	AIR	M032	75 L	02/01/19
2724585	Library	AIR	M032	75 L	02/01/19
2724604	Gymnasium	AIR	M032	75 L	02/01/19
2724589	Music Room	AIR	M032	75 L	02/01/19
2724590	East Wing, Room 14	AIR	M032	75 L	02/01/19
2724578	East Wing, Room 19	AIR	M032	75 L	02/01/19
2724593	North Hall Outside Main Office	AIR	M032	75 L	02/01/19
2724579	West Wing, Room 3	AIR	M032	75 L	02/01/19
Client Sample # (s):		Total # of Samples:		12	
Relinquished (Client): <i>David Rooney</i>		Date: 02-01-19		Time: 10:22 AM	
Received (Client):		Date:		Time:	
Comments:					

REC'D *RHS* 0830 DROP  
EMSL-BOSTON FEB 04 2019 *Box*



**EMSL ANALYTICAL, INC.**  
LABORATORY • PRODUCTS • TRAINING

EMSL ANALYTICAL, INC.  
7 CONSTITUTION WAY  
SUITE 107  
WOBBURN, MA 01801  
PHONE: 781-933-8411  
FAX: 781-933-8412

[illegible]

REC'D RIPB 0837 DNP  
EMSL-BOSTON FEB 04 2019 Bf