



Occupational Health & Safety • Environmental Consultants

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March 24, 2023

Peabody Schools - City of Peabody  
ATTN: Mr. James Hafey  
50 Farm Road  
Peabody, MA 01960

emailed to: [James.hafey@peabody-ma.gov](mailto:James.hafey@peabody-ma.gov)

RE: Airborne Mold Assessment  
Center Elementary School  
18 Irving Street, Peabody, Massachusetts

Dear Mr. Hafey:

OccuHealth, Inc. (OHI) is submitting the enclosed report on the airborne mold assessment conducted on March 17, 2023 in various areas at the Center Elementary School.

Please call either of us at (508) 339-9119 with any questions. Thank you for opportunity to be of service.

Regards,  
OCCUHEALTH, INC.

Jay McNeff, Sr. Project Manager

Thomas E. Hamilton, CIH

JTM/mew

Enclosure



# OccuHealth

**AIRBORNE MOLD ASSESSMENT  
VARIOUS AREAS  
CENTER ELEMENTARY SCHOOL  
18 IRVING STREET  
PEABODY, MASSACHUSETTS**

*Prepared for:*

**MR. JAMES HAFEY  
CITY OF PEABODY - PEABODY SCHOOLS  
50 FARM ROAD  
PEABODY, MASSACHUSETTS**

*Conducted by:*

**OCCUHEALTH, INC.  
44 WOOD AVENUE  
MANSFIELD, MA 02048  
(508) 339-9119  
OHI PROJECT 23-11464**

*Report Date:*

**MARCH 24, 2023**

**AIRBORNE MOLD ASSESSMENT  
VARIOUS AREAS  
CENTER ELEMENTARY SCHOOL  
18 IRVING STREET  
PEABODY, MASSACHUSETTS**

**TABLE OF CONTENTS**

<b><u>SECTION</u></b>	<b><u>DESCRIPTION</u></b>	<b><u>PAGE</u></b>
1.0	Introduction .....	2
2.0	Inspection .....	2
3.0	Airborne Mold Spore Testing.....	3
4.0	Conclusions and Recommendations.....	4
5.0	Limitations .....	4

Attachments

Environmental Airborne Aerosol Analysis Laboratory Report  
EAA Chain-of-Custody Form

*Report Synopsis: On March 17, 2023, OccuHealth, Inc., (OHI) conducted an airborne mold assessment at the Center Elementary School located at 18 Irving Street in Peabody, Massachusetts. Concerns had been expressed about possible elevated airborne mold levels.*

*During this assessment, OHI collected four (4) samples for airborne mold spore analysis in various areas of concern in the school.*

*Based on observed conditions and the laboratory results of the air samples obtained, OHI concludes that airborne mold spore levels were within normal ranges. Some musty odors were observed in the cafeteria/gym area as well as the cafeteria hallway but there were no visible issues - their source could be either floor drains which have dried out or some minimal hidden mold growth associated with some ceiling water staining that was observed. The facilities team reported that roof leakage occurs during a driving rain but not when a rain event occurs with minimal wind. OHI observed a brick wall on the second level that appears to need some re-pointing work. The description of the timing of water leakage is consistent with water leakage through a masonry wall (brick) during a driving rain and unlikely the roof itself.*

*OccuHealth offers the following recommendations.*

1. **Replace ceiling tiles which have incurred water damage and confirm no mold growth is present in hidden water damaged areas.**
2. **Inspect and re-point/repair masonry walls where driving rain water leakage is suspected.**
2. **Confirm that floor drains are being filled on a frequency sufficient to prevent backflow of septic/sewer gas odor.**

## 1.0 INTRODUCTION

OccuHealth, Inc. (OHI) was requested to conduct mold assessments in four areas at the Center Elementary School located at 18 Irving Street in Peabody, Massachusetts. This work was requested and authorized by Mr. James Hafey, the City of Peabody Facilities Manager. OHI was asked to evaluate these areas where concerns about water damage and possible mold growth had been communicated. The assessments were conducted on March 17, 2023 by Mr. Jay McNeff under the supervision of Thomas E. Hamilton, CIH, both of OHI. Mr. Hafey escorted Mr. McNeff for these assessments.

## 2.0 INSPECTION

OHI observed evidence of water damaged ceiling tiles in the lobby and front office hallway areas. It was reported that the leakage issues seemed to occur during a driving rain but not when a rain event occurred with minimal wind. OccuHealth observed a second floor brick masonry wall which appeared to need re-pointing and could be the water leak source during a wind driven rain event. An intermittent musty odor was also observed - most notably in the cafeteria and adjacent hallway. It was uncertain if any of the floor drains in the area were dried out.

The pictures below show the roof over the area with intermittent water leakage that reportedly only occurs during a wind-driven rain event.



### 3.0 AIRBORNE MOLD SPORE TESTING

#### *Sampling and Analytical Methodology*

OHI collected four air samples for mold spore analysis in various areas throughout the school as listed in the table below. An outdoor sample was taken for comparison. The air samples were collected using a high volume pump with Zefon Air-O-Cell cassettes. An Air-O-Cell cassette is a spore and dust trap which allows for rapid detection and identification of mold spores using bright light microscopy. Culturable and non-viable mold spores are collected and counted. The analytical results can be compared to data from available studies and to levels seen outdoors.

The sample pump was calibrated to a flow rate of 15 liters per minute and the samples were collected for 5 minutes. The sample pump utilized for the air sampling was calibrated before the sampling event using a precision rotameter. This rotameter was in turn calibrated using a primary standard.

The samples were submitted under chain-of-custody for quantitative analysis to Environmental Analysis Associates, Inc. (EAA) in Bay City, Michigan. Copies of the laboratory report and chain-of-custody form are attached.

#### *Analytical Results*

The analytical results are summarized in Table 1 below. To interpret the results, an airborne mold spore concentration of less than 2,000 counts per cubic meter of air (cts/m<sup>3</sup>) as a total spore count, and less than 1,000 cts/m<sup>3</sup> for any one mold genus is considered low or clean for an indoor environment. Total counts above 2,000 cts/m<sup>3</sup> in indoor air samples are considered elevated if they are different genera from those detected outdoors.

The laboratory detected normal mold spore concentrations in all samples. Based on experience, OccuHealth knows that the source of the mix tiny, hyal Asco & Basidiospores is outdoor air. On occasion, results will show a higher level indoors than out as happened in this case. We believe this occurs when higher levels are present outdoors, when that air enters the indoor space it gets “trapped” indoors while a rain or similar event “cleans” the outdoor air resulting in this occasional discrepancy. Based on experience, OccuHealth is confident that the presence of mix tiny, hyal Asco & Basidiospores is not an indicator of an indoor mold growth source.

Mold samples alone cannot be used to verify whether a space is safe or unsafe for human occupancy. However, results of air sampling, together with a thorough history of the building’s water damage, information obtained from interviews with building occupants and field observations, can help the independent environmental professional develop an opinion on the extent of the mold and the appropriate remediation plan.

**Table 1: Airborne Mold Spore Testing Results**

Location	Sample Number	Total Mold Spores (cts/m <sup>3</sup> )	Predominant Mold Genera (cts/m <sup>3</sup> )
Cafeteria/Gym	34607807	6,440	Mix tiny, hyal Asco & Basidiospores (6,260) Aspergillus/Penicillium (91) Pigmented Asco & Basidiospores (137) Cladosporium (46)
Hallway by room 101	34607823	2,380	Mix tiny, hyal Asco & Basidiospores (2,380)
Cafeteria hallway by food by serving counter	34608108	1,410	Mix tiny, hyal Asco & Basidiospores (1,230) Aspergillus/Penicillium (137)) Cladosporium (46)
2 <sup>nd</sup> floor hallway by room 201	34608106	960	Mix tiny, hyal Asco & Basidiospores (594) Aspergillus/Penicillium (366)
Outdoors	34607776	1,550	Mix tiny, hyal Asco & Basidiospores (1,230) Pigmented Asco & Basidiospores (229) Cladosporium (91)

cts/m<sup>3</sup>= counts per cubic meter of air

#### 4.0 CONCLUSIONS AND RECOMMENDATIONS

Based on observed conditions and the laboratory results of the air samples obtained, OHI concludes that airborne mold spore levels are acceptable and within normal ranges in all locations sampled. The intermittent odors and water damaged ceilings should be addressed proactively when able. The discussion of water leakage into the building during a driving rain points to brick and mortar wall damage with re-pointing of the affected walls indicated.

**OccuHealth offers the following recommendations which were also stated at the end of the executive summary.**

1. **Replace ceiling tiles which have incurred water damage and confirm no mold growth is present in hidden water damaged areas.**
2. **Inspect and re-point/repair masonry walls where driving rain water leakage is suspected.**
2. **Confirm that floor drains are being filled on a frequency sufficient to prevent backflow of septic/sewer gas odor.**

#### 5.0 LIMITATIONS

The contents of this report are based on OccuHealth, Inc.'s best professional judgement, comparison of collected data with established industry guidelines, and information obtained from our client.

# Chain-of-Custody and Analytical Request Form

23 - 0597

## EAA

306 5<sup>th</sup> Street, Suite 2A

Bay City, MI 48708

(989) 895-4447

Client: OccuHealth, Inc.

44 Wood Avenue

Mansfield, MA 02048

Date Sampled: 3/17/2023

508-339-9119 voice

508-339-2893 fax

Email results to:

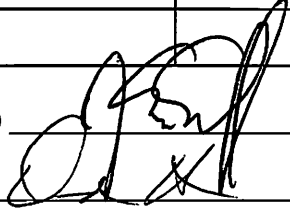
results@occuhealth.com

Project ID: City of Peabody, Center School


P.O.#: 13528

Date Submitted: 3/17/2023

Sample #	Sample Type: air, wipe, bulk, dust	Sample Volume Liters	Sample Location	Analysis Requested	Special Instructions & Comments
1 34607807	Air	75	Cafeteria/Gym	Fungi	
2 34607823	Air	75	Hallway by Room 101	Fungi	
3 34608108	Air	75	Cafeteria Hallway by Serving Counter	Fungi	
4 34608106	Air	75	2 <sup>nd</sup> floor Hallway by Room 201	Fungi	
5 34607776	Air	75	Outdoors	Fungi	

Submitted By: (Sign)  \_\_\_\_\_

Contact Person: Jay McNeff

Received by: (Sign)  (print) David Hornsby Date & Time Received: 3/20/23 10A

(For lab use only) Samples processed by:  \_\_\_\_\_ Date: 3/20/23



# ENVIRONMENTAL ANALYSIS ASSOCIATES, INC.

306 5th Street, Suite 2A - Bay City, MI 48708



## LABORATORY REPORT

### AIRBORNE MOLD SPORE ANALYSIS

**Report prepared for : OccuHealth, Inc.**

Client Project # : 13528  
Project Description : City of Peabody, Center School

EAA Project # : 23-0597

Samples Collected : 03/17/23  
Samples Received : 03/20/23  
Date of Analysis : 03/21/23

Authorized / data reviewed by : Joseph R. Heintskill

Joseph R. Heintskill  
Laboratory Manager

**AIHA-LAP, LLC Accredited, Lab ID#: 220804**

The EAA sample results are only applicable to the items tested and locations as received. Sample descriptions and volumetric data are provided by the client. All particle concentrations are rounded to 3 significant figures. In order for chart clarity, cells where the particle category was not detected are intentionally left blank.

Environmental Analysis Associates, Inc. (EAA) shall not be liable to the client or the client's customer with respect to interpretation, recommendations made or actions implemented by either the client or the client's customer as a result of or based upon the test results.

All samples were received in acceptable condition unless noted in the General Comments section of the data report.



**AIRBORNE MOLD SPORE ANALYSIS**

EAA Method #: MOLD-A01

Client Name : OccuHealth, Inc.

Page 2 of 4

Client Project # : 13528

Project description : City of Peabody, Center School

Requested by : Jay McNeff

Date collected : 3/17/23

Sample condition : Acceptable as received

EAA Project# : 23-0597

Sample received : 3/20/23

Client Sample#	Sample Description / Location	Background dust Loading - General Comments
34607807	Cafeteria / Gym	Typical dust
34607823	Hallway by Room 101	Typical dust
34608108	Cafeteria Hallway by Serving Counter	Typical dust
34608106	2nd Floor Hallway by Room 201	Typical dust
34607776	Outdoors	Typical dust

AIRBORNE MOLD SPORE CONCENTRATIONS (Cts./m <sup>3</sup> ) -- Spore Trap Sample Analysis						High mag. used 500X
Category	Sample # -->	34607807	34607823	34608108	34608106	34607776
<b>Total Mold Spores (Cts/m<sup>3</sup>)</b>		<b>6440</b>	<b>2380</b>	<b>1410</b>	<b>960</b>	<b>1550</b>

Alternaria						
Aspergillus/Penicillium	91			137	366	
Pigmented Asco & Basidio	46					229
Mix tiny, hyal Asco & Basidio	6260	2380		1230	594	1230
Botrytis						
Chaetomium						
Cladosporium	46			46		91
Curvularia						
Drechslera/Bipolaris						
Epicoccum						
Fusicladium-like						
Nigrospora						
Oidium/Peronospora						
Pithomyces						
Rusts						
Smuts / Myxomycetes / Periconia						
Stachybotrys						
Stemphylium						
Torula						
Ulocladium						
Other Hyaline Fungi						
Other Fungi						
Unidentified Fungi						

Hyphae fragments						91
Algal / fern spores						
Insect parts						

POLLEN (Total cts/m <sup>3</sup> )	not analyzed	not analyzed	not analyzed	not analyzed	not analyzed
------------------------------------	--------------	--------------	--------------	--------------	--------------

Not specified					
Pinus / other					

COMMON AEROSOLS (cts/m <sup>3</sup> )	not analyzed	not analyzed	not analyzed	not analyzed	not analyzed
---------------------------------------	--------------	--------------	--------------	--------------	--------------

Skin cell fragments					
Fiberglass fibers					
Cellulosic / synthetic fibers					
Unidentified opaque					
Mineral / clay soil dust					

OTHER AEROSOLS (cts/m <sup>3</sup> )	not analyzed	not analyzed	not analyzed	not analyzed	not analyzed
--------------------------------------	--------------	--------------	--------------	--------------	--------------

**Statistical Parameters**

Vol. analyzed (m <sup>3</sup> )-high mag - 500x :	0.022	0.022	0.022	0.022	0.022
Detect limit(Cts/m <sup>3</sup> )-high magnification:	45.7	45.7	45.7	45.7	45.7
% sample analyzed-high magnification:	29%	29%	29%	29%	29%
Vol. analyzed(m <sup>3</sup> )/entire sple 150-300x:	0.075	0.075	0.075	0.075	0.075
* Detection limit (Cts/m <sup>3</sup> )/entire sple:	13.3	13.3	13.3	13.3	13.3

\* Note: The "entire sample" detection limit applies to the "large" particle categories analyzed during the low magnification examination of the entire sample

Sample flow rate (lpm):	15.0	15.0	15.0	15.0	15.0
Sample trace length (mm):	14.40	14.40	14.40	14.40	14.40
Microscope field diameter (mm):	0.420	0.420	0.420	0.420	0.420

Note: Sample results are only applicable to the items tested and locations as received. Sample descriptions and volumetric data are provided by the client.

rev.2021-3 8/25/21

Background dust loading criteria (Estimated area%): Typical-low <5%, Typical 5-20%, Atypical, 20-40%, Elevated 40-80%, Overloaded >80%

Authorized / data reviewed by: Joseph R. Heintskill

Report date: 3/21/23

Analyst: err

Date analyzed: 3/21/23



**AIRBORNE MOLD SPORE ANALYSIS**  
**(Mold and Dust Comparison Summary - Cts/m<sup>3</sup>)**

EAA Method #: MOLD-A01

Page 3 of 4

Client Name : OccuHealth, Inc.

Client Project # : 13528

Requested by : Jay McNeff

Project description : City of Peabody, Center School

EAA Project# : 23-0597

Sample # Description	Mold Spores * Total	Aspergillus / Penicillium	Chronic		Outdoor Spores	Hyphae Fragments	Pollen	Skin cell Fragments	Fibrous Dust		Non-Fibrous dust		Other Particles
			W.I. Fungi						Min. wool / Fiberglass	Cellulose/ Synthetic	Unident. Opaque	Crystalline Minerals	
34607807 Cafeteria / Gym	<b>6,440</b>	<b>91</b>			<b>6,350</b>								
34607823 Hallway by Room 101	<b>2,380</b>				<b>2,380</b>								
34608108 Cafeteria Hallway by Serving Counter	<b>1,410</b>	<b>137</b>			<b>1,280</b>								
34608106 2nd Floor Hallway by Room 201	<b>960</b>	<b>366</b>			<b>594</b>								
34607776 Outdoors	<b>1,550</b>				<b>1,550</b>	<b>91</b>							

Note: Sample results are only applicable to the items tested and locations as received. Sample descriptions and volumetric data are provided by the client. All individual particle category values are rounded to 3 significant figures. In order to provide chart clarity, measurements where the particle category was not detected are intentionally left blank. This test report shall not be reproduced except in full, without the written approval of the laboratory.

For additional information regarding interpretation of the results, refer to the document "Air Profile Summary Report" which is available at: <https://eaalab.com/news-publications/>. This reference document is only intended as a preliminary comparison of data collected on your project with historical measurements from other buildings. Final conclusions and interpretation regarding how the tested items apply to site-specific conditions on your project are not provided within this EAA laboratory report, and can only be provided by the IEP or client that conducted the original inspection and sample collection.



**AIRBORNE MOLD SPORE ANALYSIS**

EAA Method #: MOLD-A01

RAW COUNT DATA ONLY - Do not use for volumetric concentration comparisons

Page 4 of 4

Client Name : OccuHealth, Inc.

Description : City of Peabody, Center School

end of report

Client Project # : 13528

Date collected : 3/17/23

EAA Project# : 23-0597

Sample received : 3/20/23

Analysis magnification : 500x

Client Sample#	Sample Description / Location	Raw / Extrapolated Count Comments				
34607807	Cafeteria / Gym	Note: When a <u>fractional</u> raw particle count is present, (e.g. 0.3), the count is based on counting the "entire sample" at low magnification. The results are then "back-calculated" to the high magnification detection limit for that specific particle category. This "raw" count page is required to be reported to the client as directed by the AIHA-LAP accreditation program.				
34607823	Hallway by Room 101					
34608108	Cafeteria Hallway by Serving Counter					
34608106	2nd Floor Hallway by Room 201					
34607776	Outdoors					
AIRBORNE MOLD / DUST (Raw / Extrapolated Spore Counts Only) - Spore Trap Sample Analysis						
Category	Sample # -->	34607807	34607823	34608108	34608106	34607776
<b>Total Mold Spores - Total Cts.</b>		<b>141</b>	<b>52</b>	<b>31</b>	<b>21</b>	<b>34</b>
Alternaria						
Aspergillus/Penicillium		2		3	8	
Pigmented Asco & Basidio		1				5
Mix tiny, hyal Asco & Basidio		137	52	27	13	27
Botrytis						
Chaetomium						
Cladosporium		1		1		2
Curvularia						
Drechslera/Bipolaris						
Epicoccum						
Fusicladium-like						
Nigrospora						
Oidium/Peronospora						
Pithomyces						
Rusts						
Smuts / Myxomycetes / Periconia						
Stachybotrys						
Stemphylium						
Torula						
Ulocladium						
Other Hyaline Fungi						
Other Fungi						
Unidentified Fungi						
Hyphae fragments						2
Algal / fern spores						
Insect parts						
<b>POLLEN (Total cts)</b>		<b>not analyzed</b>	<b>not analyzed</b>	<b>not analyzed</b>	<b>not analyzed</b>	<b>not analyzed</b>
Not specified						
Pinus / other						
<b>COMMON AEROSOLS</b>		<b>not analyzed</b>	<b>not analyzed</b>	<b>not analyzed</b>	<b>not analyzed</b>	<b>not analyzed</b>
Skin cell fragments						
Fiberglass fibers						
Cellulosic / synthetic fibers						
Unidentified opaque						
Mineral / clay soil dust						
<b>OTHER PARTICLES</b>		<b>not analyzed</b>	<b>not analyzed</b>	<b>not analyzed</b>	<b>not analyzed</b>	<b>not analyzed</b>
<b>Statistical Parameters</b>						
Vol. analyzed (m <sup>3</sup> )-high mag - 500x :		0.022	0.022	0.022	0.022	0.022
Detect limit(Cts/m <sup>3</sup> )-high magnification:		45.7	45.7	45.7	45.7	45.7
% sample analyzed-high magnification:		29%	29%	29%	29%	29%
Vol. analyzed(m <sup>3</sup> )/entire sple 150-300x:		0.075	0.075	0.075	0.075	0.075
* Detection limit (Cts/m <sup>3</sup> )/entire sple:		13.3	13.3	13.3	13.3	13.3
* Note: The "entire sample" detection limit applies to the "large" particle categories analyzed during the low magnification examination of the entire sample						
Sample flow rate (lpm):		15.0	15.0	15.0	15.0	15.0
Sample trace length (mm):		14.40	14.40	14.40	14.40	14.40
Microscope field diameter (mm):		0.420	0.420	0.420	0.420	0.420

NOTE: The raw particle count data cannot be used as a measure of the actual airborne concentration and only represents the number of "raw" or extrapolated particles counted.

Where a fractional value is present (e.g. 0.3 or 1.3) for any mold or dust category, the entire trace for this category was analyzed and the "entire sample detection limit" applies.