



Occupational Health & Safety, Environmental Consultants

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September 17, 2018

Cambridge School Department  
ATTN: Vedad Konjic  
456 Broadway  
Cambridge, MA 02138

RE: Mold Assessment  
Morse School  
40 Granite Street, Cambridge, MA

emailed to: [vkonjic@cpsd.us](mailto:vkonjic@cpsd.us)  
[fgeary@cpsd.us](mailto:fgeary@cpsd.us)

Dear Mr. Konjic:

OccuHealth, Inc. (OHI) conducted a mold assessment in the Morse School located at 40 Granite Street in Cambridge, Massachusetts on September 11, 2018. The assessment was conducted by Mr. Jay McNeff, Sr. Project Manager, of OHI who was escorted by Mr. Frank Geary of the Cambridge School Department. The assessment included a visual inspection of several rooms and collection of samples for airborne mold spore analysis.

## **INTERVIEW AND INSPECTION RESULTS**

Health concerns about the presence of mold had reportedly been communicated to the Facilities Group, which in turn requested OccuHealth conduct a mold assessment in several identified rooms at the school. Mr. Geary and Mr. Konjic requested the room air be sampled for airborne mold and a visual inspection be conducted. The rooms are identified below with observations noted. Pictures in some of these areas are included in this report also.

**Room E9**

- ceiling unit diffusers need cleaning



**Room B9**

- wall unit had a plugged condensate line causing water damage to floor
- stained ceiling tiles



**Room D21 (Gym Office)**

- Condensation from chilled water lines above dropped ceiling
- visible mold growth and water damage



**Room D22 (Gym Storage)**

- Condensation from chilled water lines above dropped ceiling
- visible mold growth and water damage on pipe insulation, ceiling and contents



## AIRBORNE MOLD SPORE TESTING

### *Sampling and Analytical Methodology*

OHI collected five air samples for mold spore analysis from the rooms as identified in the table below. OHI collected an air sample outdoors for comparison from the Morse School which was used for other Cambridge School assessments conducted on the same day.

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 results can be compared to levels seen outdoors and to results from available studies.

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

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

### *Analytical Results*

The results are summarized on the following table. To interpret the results, a total airborne mold spore concentration less than the outdoor level or less than 2,000 counts per cubic meter of air (cts/m<sup>3</sup>) is considered low or clean for an indoor environment. For single mold genera, concentrations less than the outdoor level or less than 1,000 cts/m<sup>3</sup> are considered normal for indoor environments.

The level of airborne mold spore levels identified were above normal ranges in Room A5, Gym Office D21 and Gym Storage Room D22.

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

Location	Sample Number	Total Mold Spores (cts/m <sup>3</sup> )	Predominant Genera (cts/m <sup>3</sup> )
Room E9	25591689	3,570	Mix tiny hyal Asco and Basidiospores (3,390) <i>Cladosporium</i> (113)
Room B9	25591643	1,420	Mix tiny hyal Asco and Basidiospores (1,190) <i>Aspergillus/Penicillium</i> (169) Pigmented Asco and Basidiospores (57)
Room A5	25591630	10,500	Mix tiny hyal Asco and Basidiospores (7,960) <b><i>Aspergillus/Penicillium</i> (2,200)</b> Pigmented Asco and Basidiospores (339)
Gym Office D21	25591644	14,500	Mix tiny hyal Asco and Basidiospores (8,810) <b><i>Aspergillus/Penicillium</i> (5,030)</b> Pigmented Asco and Basidiospores (339) <i>Cladosporium</i> (339)
Gym Office D22	25591656	22,200	<b><i>Aspergillus/Penicillium</i> (9,200)</b> <b><i>Cladosporium</i> (7,790)</b> Mix tiny hyal Asco and Basidiospores (5,140) Pigmented Asco and Basidiospores (113)
Outdoors	25591634	25,700	Mix tiny hyal Asco and Basidiospores (23,400) Pigmented Asco and Basidiospores (960) <i>Cladosporium</i> (576) Other hyaline fungi (384) <i>Aspergillus/Penicillium</i> (192) Smuts/Myxomycetes/Periconia (192)

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

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. There are no standards for exposure to mold spores.

## CONCLUSIONS

Based on the results of the inspection, OHI concludes that airborne mold spore levels were above normal ranges on the day of testing in Room A5, Gym Office D21 and Gym Storage Room D22. OccuHealth did not observe any visible conditions that would be an environment conducive to mold growth in Room A5 but did see visible mold growth and water damage in the Gym Office and Storage Room.

## RECOMMENDATIONS

OccuHealth offers the following recommendations.

- 1. Inspect Room A5 to see if any water damage or mold growth is visible. Clean, any such areas identified as well as horizontal surfaces with Shockwave or equivalent.**
- 2. In the Gym Office and Storage Room, follow the protocols identified below.**
  - a. Complete the remediation work described in this report using trained remediation professionals in accordance with the Institute of Inspection, Cleaning and Restoration Certification , IICRC S520 “Standard and Reference Guide for Professional Mold Remediation”, ANSI/IICRC S520-2015.**
  - b. Establish containment for both rooms to protect the adjacent areas of the school.**
  - c. Remove all contents from inside containment and clean in accordance with the referenced standard. Non-porous items should be cleaned with a biocide cleaner such as Shockwave™. Porous items should be HEPA vacuumed or discarded.**
  - d. Remove water or mold damaged non-structural building materials (e.g., sheetrock ceiling and walls, insulation, etc.) inside containment. The remediation contractor should “chase” mold by removing all visibly mold-damaged materials and an additional 24 inches beyond visible mold.**
  - e. HEPA vacuum the water or mold damaged exposed wood structural elements (if any) inside containment.**
  - f. Remove mold by using an abrasive technique. Clean any exposed wood structural elements by applying Fiberlock Advanced Peroxide Cleaner. HEPA vacuum all surfaces, disinfect using Shockwave and encapsulate using Fiberlock 6000 in strict accordance with the manufacturer’s recommendations or use equivalent products.**
- 3. Consider confirmation of successful mold remediation activities with an assessment by OHI after remediation but before areas are covered with finish materials. Please note that areas should not be reinsulated until after the entire area is inspected. Our preference is to see encapsulant applied with a white tinting to help confirm complete coverage of the affected areas.**

4. **Confirm that cooling water lines are sufficiently insulated to prevent condensation of water from the air which could lead to a repeat of these events.**
5. **Consider addition of dehumidification capacity/equipment to maintain relative humidity levels below 60%, a level above which OccuHealth considers supportive of a mold growth environment.**

## LIMITATIONS

The contents of this report are based on OccuHealth, Inc.'s best professional judgment, comparison of collected data with established industry guidelines and information obtained from our client. Building materials that, as a result of our recommendations, may be removed or disturbed may need to be tested first for the presence of asbestos and/or lead and, if present, the removal must be completed according to Federal and state regulations. OHI was not contracted to test building materials for the presence of asbestos or lead. OccuHealth is not responsible for the testing, removal, or for any injuries, damages, or losses associated with the presence of asbestos or lead in the building.

Thank you for the opportunity to be of service. Please call either of the undersigned at (508) 339-9119 with any questions regarding this report.

Regards,  
OCCUHEALTH, INC.



Jay McNeff, Sr. Project Manager



Thomas E. Hamilton, CIH

JTM/smh

Attachments: lab results and chain of custody



**AIRBORNE MOLD SPORE ANALYSIS**

EAA Method #: MOLD-A01

Data Page 1 of 2

Client Name : OccuHealth, Inc.

Client Project # : 11770

Requested by : Jay McNeff

EAA Project# : 18-0862

Project description : Cambridge Schools- Morse

Date collected : 9/11/18

Sample received : 9/12/18

Sample condition : Acceptable as received

Client Sample#	Sample Description / Location	General Comments				
2559 1689	Room E9	Low dust, low-moderate mold spore concentrations				
2559 1643	Room B9	Low dust, low-moderate mold spore concentrations				
2559 1630	Room A5	Low dust, high mold spore concentrations				
2559 1644	Gym Office D21	Low dust, high mold spore concentrations				
2259 1656	Gym Storage D22	Low dust, high mold spore concentrations				
AIRBORNE MOLD SPORE CONCENTRATIONS (Cts./m <sup>3</sup> ) -- Spore Trap Sample Analysis <span style="float:right">High mag. used 600X</span>						
Category	Sample # -->	2559 1689	2559 1643	2559 1630	2559 1644	2259 1656
<b>Total Mold Spores (Cts/m<sup>3</sup>)</b>		<b>3570</b>	<b>1420</b>	<b>10500</b>	<b>14500</b>	<b>22200</b>
Alternaria						
Aspergillus/Penicillium			169	2200	5030	9200
Pigmented Asco & Basidio			57	339	339	113
Mix tiny, hyal Asco & Basidio		3390	1190	7960	8810	5140
Botrytis						
Chaetomium						
Cladosporium		113			339	7790
Curvularia						
Drechslera/Bipolaris						
Epicoccum						
Fusarium						
Nigrospora						
Oidium/Peronospora						
Pithomyces		68				
Rusts						
Smuts / Myxomycetes / Periconia						
Stachybotrys						
Stemphylium						
Torula						
Ulocladium						
Other Hyaline Fungi						
Other Fungi						
Unidentified Fungi						
Hyphae fragments		57				
Algal / fern spores						
Insect parts						
<b>POLLEN (Total cts/m<sup>3</sup>)</b>		<b>not analyzed</b>	<b>not analyzed</b>	<b>not analyzed</b>	<b>not analyzed</b>	<b>not analyzed</b>
Not specified						
Pinus						
<b>COMMON AEROSOLS (cts/m3)</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 / fabric fibers						
Unidentified opaque						
Soil / mineral dust						
<b>OTHER PARTICLES (cts/m3)</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 (m3)-high mag - 600x :		0.018	0.018	0.018	0.018	0.018
Detect limit(Cts/m <sup>3</sup> )-high magnification:		56.5	56.5	56.5	56.5	56.5
% sample analyzed-high magnification:		24%	24%	24%	24%	24%
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):		0.340	0.340	0.340	0.340	0.340

Note: Sample results are only applicable to the items or locations tested

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Raw/extrapolated count data are given on a separate page. Authorized / data reviewed by :

Report date: 9/13/18

Analyst : sw



**AIRBORNE MOLD SPORE ANALYSIS**

EAA Method #: MOLD-A01

Client Name : OccuHealth, Inc.

Data Page 2 of 2

Client Project # : 11770

Project description : Cambridge Schools- Morse

(end of data report)

Requested by : Jay McNeff

Date collected : 9/11/18

EAA Project#: 18-0862

Sample received : 9/12/18

Sample condition : Acceptable as received

Client Sample#	Sample Description / Location	General Comments
2559 1634	Outdoors (Duplicate)	Low dust, high mold spore concentrations

**AIRBORNE MOLD SPORE CONCENTRATIONS (Cts./m<sup>3</sup>) -- Spore Trap Sample Analysis**

High mag. used 600X

Category	Sample # -->	2559 1634
<b>Total Mold Spores (Cts/m<sup>3</sup>)</b>		<b>25700</b>
Alternaria		
Aspergillus/Penicillium		192
Pigmented Asco & Basidio		960
Mix tiny, hyal Asco & Basidio		23400
Botrytis		
Chaetomium		
Cladosporium		576
Curvularia		
Drechslera/Bipolaris		
Epicoccum		
Fusarium		
Nigrospora		
Oidium/Peronospora		
Pithomyces		
Rusts		
Smuts / Myxomycetes / Periconia		192
Stachybotrys		
Stemphylium		
Torula		
Ulocladium		
Other Hyaline Fungi		384
Other Fungi		
Unidentified Fungi		
Hyphae fragments		
Algal / fern spores		
Insect parts		
<b>POLLEN (Total cts/m<sup>3</sup>)</b>		<b>not analyzed</b>
Not specified		
Pinus		
<b>COMMON AEROSOLS (cts/m3)</b>		<b>not analyzed</b>
Skin cell fragments		
Fiberglass fibers		
Cellulosic / fabric fibers		
Unidentified opaque		
Soil / mineral dust		
<b>OTHER AEROSOLS (cts/m3)</b>		<b>not analyzed</b>
<b>Statistical Parameters</b>		
Vol. analyzed (m3)-high mag - 600x :		0.005
Detect limit(Cts/m <sup>3</sup> )-high magnification:		192.0
% sample analyzed-high magnification:		7%
Vol. analyzed(m <sup>3</sup> )/entire sple 150-300x:		0.075
* Detection limit (Cts/m <sup>3</sup> )/entire sple:		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
Sample trace length (mm):		14.40
Microscope field diameter (mm):		0.100

Note: Sample results are only applicable to the items or locations tested

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Raw/extrapolated count data are given on a separate page. Authorized / data reviewed by :

Report date: 9/13/18

Analyst : sw

# Chain-of-Custody and Analytical Request Form

1 8 - 0 8 6 2

**FAA**  
 306 5<sup>th</sup> Street, Suite 400  
 Bay City, MI 48708  
 (989) 895-4447

**Email results to:**  
 results@occuhealth.com

Client: OccuHealth, Inc.  
 44 Wood Avenue  
 Mansfield, MA 02048

Date Sampled: 09/11/2018  
 508-339-9119 voice  
 508-339-2893 fax

Project ID: Cambridge Schools - Morse  
 P.O.#: 11770  
 Date Submitted: 09/11/2018

Sample #	Sample Type: air, wipe, bulk, dust	Sample Volume Liters	Sample Location	Analysis Requested	Special Instructions & Comments
1 25591689	Air	75	Room E9	Fungi	
2 25591643	Air	75	Room B9	Fungi	
3 25591630	Air	75	Room A5	Fungi	
4 25591644	Air	75	Gym Office D21	Fungi	
5 25591656	Air	75	Gym Storage D22	Fungi	
6 25591634	Air	75	Outdoors (Duplicate)	Fungi	

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

Contact Person: Jay McNeff

Received by: (Sign) \_\_\_\_\_

(print) LISA HENSKILL

Date & Time Received: 9/12/18 10:00

(For lab use only) Samples processed by: \_\_\_\_\_

Date: 9/12/18