

November 15, 2023

Ms. Sandra Duran  
Combined Facilities Director  
Town of Sudbury  
275 Old Lancaster Road  
Sudbury, Massachusetts 01776

Re: Post-Remediation Follow-Up Mold & Moisture Assessment, Hosmer House, 299 Old Sudbury Drive, Sudbury, Massachusetts

Dear Ms. Duran:

#### **Introduction & Summary**

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The Town of Sudbury (Sudbury) retained Smith & Wessel Associates, Inc. (SWA) to perform a follow-up mold and moisture assessment at The Hosmer House located at 299 Old Sudbury Drive in Sudbury, Massachusetts. The assessments were conducted following mold mitigation efforts in the art storage room and adjacent entrance and bedroom spaces.

The follow-up assessments were conducted by Patrick Jewett, SWA's Indoor Environmentalist, on October 23 and November 13, 2023. The October 23 evaluation was immediately following remedial efforts and the November 13 site visit was to conduct confirmatory efforts to determine if conditions were remaining stable.

Alpine Environmental, Inc. (Alpine) of Chelmsford, Massachusetts was the mold remediation contractor who performed the work. Alpine first established engineering controls in the spaces by erecting polyethylene sheeting and established negative pressure via air filtration devices equipped with HEPA filters to continuously scrub the air during select demo and cleaning activities. All stored items in the art storage room were cleaned and moved into a storage area. In addition, all flooring was removed (carpet/linoleum) and a 1' x 1' wall section near the closet was surgically removed to further assess for mold within the wall cavity (none was observed).

## **Background & Observations**

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The October 23, 2023, visit was immediately following remediation activities. All work had finished inside the containment and the air filtration devices were turned off for two days prior to our visit to allow the air in the spaces to return to normal conditions prior to our testing. No odors or elevated moisture remained following remedial efforts. The art storage room and adjacent open space and bedroom were all part of the containment constructed by Alpine Environmental which was secured with polyethylene sheeting equipped with zipper flaps to enclose the bedroom, open space outside the art storage room, and the art storage room until final test results were available and acceptable levels of airborne mold spores was realized.

The return visit on October was conducted to determine if conditions were remaining stable following mitigation efforts and that no visible mold or elevated airborne mold spores were returning.

## **Sampling & Analytical Methods**

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*Airborne Mold* - In order to assess levels of mold present in the space, airborne mold testing was performed utilizing a Zefon International Air-O-Cell™ sampling device following all manufacturers' recommended sampling procedures.

The Air-O-Cell™ is a direct-read total particulate sampling device. It is designed for the rapid collection and analysis of airborne particulates, including mold. A known volume of air, at a flow rate of 15 liters/minute, was drawn through each cassette and the filters analyzed to detect types of mold present in the air and the total number of spores. The cassettes were assigned unique sample numbers that were recorded onto a chain-of-custody form.

Three air samples were collected on October 23, 2023 immediately following remediation; one in the art storage room, one in the space outside the art storage room, one in the adjacent bedroom at the art storage room, and one outside the garage overhang as a quality control sample.

Four air samples were collected during the November 13, 2023 follow-up visit; one in the art storage room, one in the space outside the art storage room, one in the

adjacent bedroom at the art storage room, and one outside the garage overhang as a quality control sample.

Laboratory results of all testing are presented as Appendix A of this report.

**Moisture Assessment** - Because elevated moisture is one of the leading causes of fungal amplification, contributes to the destruction of indoor building products, and can lead to the deterioration of buildings, SWA conducted testing on gypsum board walls and ceiling tiles using a Protimeter Surveymaster SM moisture meter.

This conductance-type meter combines a conventional two-pin inspection mode with a non-invasive radio frequency device enabling the consultant to assess moisture conditions not only on a component surface, but also at depth quickly and non-destructively. The radio frequency search mode uses a color-coded LED scale to identify degrees of dampness below the surface. In this mode the instrument employs radio frequency emissions (RFE) to measure moisture through most wall and floor coverings, including ceramic tiles. The two-pin mode identifies by means of green, yellow, and red LEDs whether a surface is in an air-dry (0-18%), borderline (18-22%), or damp condition (>22%) and quantifies this condition on an LCD in terms of percent wood-moisture-equivalent (%WME).

## **Findings**

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**Airborne Mold Results** – Results of follow-up airborne mold sampling indicated a significant reduction in total spore counts from those realized prior to remediation activities. Total spore counts for each interior sample both immediately following and several weeks after remediation were well within acceptable levels and contained low levels similar to the outdoor comparison samples. This confirms that no further mold or moisture concerns were present at the time of our follow-up assessments.

The EPA and the American Conference of Governmental Industrial Hygienists (ACGIH) both acknowledge that the types and levels of mold in indoor air samples should be similar to what is found in the local outdoor air. Indoor samples in all test locations were well within acceptable ranges and present no ongoing concerns at the time of the visit.

While there is no well-established quantitative standard for fungal spores on surfaces or in air, mold contamination is considered present in a building when the total mold spore levels per cubic meter of air is above 10,000 (Baxter, et al).

Acceptable levels for individual species differ since species toxicity varies widely as does spore size, weight, and other features which affect risk to building occupants.

The levels of airborne mold spores recorded on October 23 and November 13, 2023 were all within acceptable levels and are presented in the following table.

Follow-up Airborne Mold Levels October 23, 2023 Hosmer House 299 Old Sudbury Rd, Sudbury, MA	
Location	Spores per Cubic Meter of Air
Art storage room	200
Space outside art storage room	240
Exterior	1800

Follow-up Airborne Mold Levels November 13, 2023 Hosmer House 299 Old Sudbury Rd, Sudbury, MA	
Location	Spores per Cubic Meter of Air
Art storage room	Present
Space outside art storage room	420
Bedroom adjacent to art storage room	320
Exterior	340

**Moisture Results** – SWA tested representative finishes throughout the impact areas and all finishes were determined to be within the air-dry 0-18%.

### **Conclusions and Recommendations**

Based on the post-remediation follow-up assessment of October 23 and November 13, 2023, SWA makes the following conclusions and recommendations:

- Levels of airborne mold spores in all interior air samples were well within acceptable ranges following mold mitigation efforts. The presence of total spore counts at low levels in the affected spaces is encouraging and

maintains that there are no concerns for the indoor air environment with regards to mold at this time.

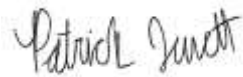
- Routine maintenance activities must include periodic visual monitoring for suspect staining that would be indicative of water intrusion or mold propagation. The relative humidity in the spaces must be maintained between 30-60% to promote normal conditions in the spaces. In addition, the doors to these spaces must not be closed for long periods of time as this would limit air flow that is necessary to promote dry conditions.
- SWA recommends continual periodic follow-up testing (once every three months) in the affected spaces due to the unique nature of the original findings and excessive airborne mold that was first realized.
- Another possible factor that may have contributed to the original elevated airborne mold spores is the mini-split heat/AC pump that was located in the art storage room. The mini-split was removed from the wall prior to remediation efforts and had not been replaced upon our follow-up assessments. Often, if mini-splits are in a space that is enclosed, during operations the space may realize conditions that promote moisture on finishes. In addition, the systems require periodic maintenance such as changing filters and the like. It may be prudent not to use the mini-split in this space or at a minimum, leave the space open to other areas.
- Based on our findings and follow-up test results, the spaces may be safely occupied and there is no immediate concerns for human health and safety at this time.
- Many factors contribute to actual and perceived air quality within a building or occupied space, including the amount of ventilation, human comfort responses, presence of toxins, allergic responses, and many other variables. Thus, routine testing does not address all factors that are contributing to air quality issues at this site. This assessment was limited in scope and is by no means to be considered a comprehensive evaluation of the indoor environment. Follow-up testing or evaluation would be necessary at additional cost to more thoroughly assess any other IAQ concerns.

- Levels of both airborne mold spores and active mold growth may change at any given time due to changes in temperature, moisture, air pressure changes, and the like. This report presents the results of visual assessments and mold levels at the time of the assessment; it makes no claims as to the status of environmental conditions outside of this sampling period.

Should you have any questions or concerns please do not hesitate to contact me.

Respectfully submitted,

***SMITH & WESSEL ASSOCIATES INC.***



Patrick Jewett

# Appendix A

## Laboratory Analytical Sheets



# EMSL Analytical, Inc.

5 Constitution Way, Unit A Woburn, MA 01801

Tel/Fax: (781) 933-8411 / (781) 933-8412

<http://www.EMSL.com/bostonlab@emsl.com>

EMSL Order: 132307325

Customer ID: SMIT50B

Customer PO:

Project ID:

**Attention:** Patrick Jewett  
Smith & Wessel Associates, Inc.  
188 Greenville Street  
Spencer, MA 01562

**Phone:** (978) 346-4800  
**Fax:** (978) 346-7265  
**Collected Date:** 11/13/2023  
**Received Date:** 11/13/2023 10:25 AM  
**Analyzed Date:** 11/15/2023

**Project:** Hosmer House

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

Lab Sample Number: Client Sample ID: Volume (L): Sample Location:	132307325-0001 A-01 75 Air Storage Room			132307325-0002 A-02 75 Area Outside Art Storage			132307325-0003 A-03 75 Bedroom at Art Storage			
	Spore Types	Raw Count†	Count/m <sup>3</sup>	% of Total	Raw Count†	Count/m <sup>3</sup>	% of Total	Raw Count†	Count/m <sup>3</sup>	% of Total
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	-	-	-	-	-	-	-
Aspergillus/Penicillium	Present	Present	-	7	300	71.4	4	200	62.5	
Basidiospores	Present	Present	-	1	40	9.5	1	40	12.5	
Bipolaris++	-	-	-	-	-	-	-	-	-	-
Chaetomium++	-	-	-	-	-	-	-	-	-	-
Cladosporium	Present	Present	-	-	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-	-
Fusarium++	-	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-	-
Myxomycetes++	Present*	Present*	-	2	80	19	2	80	25	
Pithomyces++	-	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-	-
<b>Total Fungi</b>	-	-	-	<b>10</b>	<b>420</b>	<b>100</b>	<b>7</b>	<b>320</b>	<b>100</b>	
Hyphal Fragment	-	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	41	-	-	41	-	-	41	-	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-	-
Skin Fragments (1-4)	-	1	-	-	1	-	-	1	-	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-	-
Background (1-5)	-	5	-	-	3	-	-	2	-	-

132307325-0001 - Overloaded

† Due to method stopping rules, extrapolated raw counts are reported in parenthesis.

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

Steve Grise, Laboratory Manager  
or other Approved Signatory

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

Skin Fragment and Fibrous Particulate ratings are based on the percent of non-fungal material they represent: 1 (1-25%), 2 (26-50%), 3 (51-75%), or 4 (76-100%). Background ratings are based on the total area covered by non-fungal particles: 1 (1-25%), 2 (26-50%), 3 (51-75%), 4 (76-99%), or 5 (100%; overloaded, prohibiting accurate detection and quantification). High levels of background will obscure spores and other particulates, leading to underestimation. 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. Interpretation and use of test results are the responsibility of the client. 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. The report reflects the samples as received. When the information supplied by the customer can affect the validity of the result, it will be noted on the report.

Samples analyzed by EMSL Analytical, Inc. Woburn, MA AIHA LAP, LLC-EMLAP Accredited #180179

Initial report from: 11/15/2023 10:23 AM

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

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EMSL Order: 132307325

Customer ID: SMIT50B

Customer PO:

Project ID:

**Attention:** Patrick Jewett  
Smith & Wessel Associates, Inc.  
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**Phone:** (978) 346-4800

**Fax:** (978) 346-7265

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**Project:** Hosmer House

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

Lab Sample Number:	132307325-0004		
Client Sample ID:	A-04		
Volume (L):	75		
Sample Location:	Exterior		
Spore Types	Raw Count†	Count/m³	% of Total
Alternaria (Ulocladium)	-	-	-
Ascospores	2	80	23.5
Aspergillus/Penicillium	3	100	29.4
Basidiospores	2	80	23.5
Bipolaris++	-	-	-
Chaetomium++	-	-	-
Cladosporium	-	-	-
Curvularia	-	-	-
Epicoccum	-	-	-
Fusarium++	-	-	-
Ganoderma	-	-	-
Myxomycetes++	1	40	11.8
Pithomyces++	1	40	11.8
Rust	-	-	-
Scopulariopsis/Microascus	-	-	-
Stachybotrys/Memnoniella	-	-	-
Unidentifiable Spores	-	-	-
Zygomycetes	-	-	-
<b>Total Fungi</b>	<b>9</b>	<b>340</b>	<b>100</b>
Hyphal Fragment	-	-	-
Insect Fragment	-	-	-
Pollen	-	-	-
Analyt. Sensitivity 600x	-	41	-
Analyt. Sensitivity 300x	-	13*	-
Skin Fragments (1-4)	-	1	-
Fibrous Particulate (1-4)	-	1	-
Background (1-5)	-	1	-

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

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EMSL Order: 132306870

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Lab Sample Number: Client Sample ID: Volume (L): Sample Location:	132306870-0001 A-01 75 Art Storage			132306870-0002 A-02 75 Outside Art Storage			132306870-0003 A-03 75 Exterior		
	Raw Count†	Count/m <sup>3</sup>	% of Total	Raw Count†	Count/m <sup>3</sup>	% of Total	Raw Count†	Count/m <sup>3</sup>	% of Total
Spore Types									
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	-	-	-	-	-	-
Aspergillus/Penicillium	-	-	-	-	-	-	-	-	-
Basidiospores	4	200	100	2	80	33.3	44	1800	100
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium++	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium++	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	2	80	33.3	-	-	-
Pithomyces++	-	-	-	2	80	33.3	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
<b>Total Fungi</b>	<b>4</b>	<b>200</b>	<b>100</b>	<b>6</b>	<b>240</b>	<b>100</b>	<b>44</b>	<b>1800</b>	<b>100</b>
Hypal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	41	-	-	41	-	-	41	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	1	-	-	1	-	-	-	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	1	-	-	1	-	-	1	-

† Due to method stopping rules, extrapolated raw counts are reported in parenthesis.

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

Steve Grise, Laboratory Manager  
or other Approved Signatory

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Samples analyzed by EMSL Analytical, Inc. Woburn, MA AIHA LAP, LLC-EMLAP Accredited #180179

Initial report from: 10/24/2023 09:51 AM

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