



Rely on the Eye of the...

**TIGER**  
*Mold Inspection Division*

GROUP, INC.

1353 BOSTON POST ROAD • MADISON, CONNECTICUT 06443  
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## MOLD ASSESSMENT REPORT

Client: Mr. & Mrs. John Smith

Sampling Address: 10 Any Avenue, Anytown, CT

Date of Sampling: July 5, 2021

Samples Description – Three air samples: outdoor; basement; crawl space.  
One surface sample: basement main beam.

Mr. & Mrs. Smith,

Attached is your mold assessment report in pdf format. Please review the report and feel free to call Tiger Group with any questions.

### **Purpose and Scope:**

The purpose of the mold assessment is to evaluate conditions within the building regarding the presence of mold growth and airborne mold spore levels, and to evaluate conditions conducive to mold growth.

The visual mold assessment is limited to the readily accessible, visible surfaces and components of the building. The inspector will not dismantle and/or move equipment, systems, furniture, appliances, floor coverings, finished or fastened surfaces or components, personal property or other items to conduct this assessment or to otherwise expose concealed or inaccessible conditions. The assessment will not include destructive testing of any kind. The evaluation of airborne mold spore levels is limited to the areas where air samples are obtained. Any tools used to aid the inspector such as infrared thermography, moisture meters, etc. do not constitute any separate or additional comprehensive inspection, review or evaluation of the property; these instruments are aids to the mold assessment. Infrared thermography is dependent on differing surface temperatures that may or may not be present at the time of the assessment, and cannot “see” into walls or other cavities. The assessment and report are limited to conditions present at the time of the assessment, representing a “snapshot-in-time” of conditions, and cannot accurately predict future conditions.

Whenever possible, samples are taken with the client's approval. Due to cost constraints and other factors, it is not always possible to gain approval for the number of samples necessary to obtain a comprehensive overview of existing and potential mold conditions throughout a structure. Any interpretation of the sample analysis is based solely on the samples taken, sometimes combined with visual observations. Your samples were analyzed by Hayes Microbial Consulting, a fully accredited indoor air quality (IAQ) analysis lab.

### **Summary of Recommendations:**

Based on the lab analysis and visual observations, professional mold remediation is warranted and is recommended for the crawl space. Homeowner level cleanup is recommended for the remaining areas of apparent visible mold: basement beam and subfloor; 1<sup>st</sup> floor piano; 1<sup>st</sup> floor corner cabinet door; 2nd floor back left bedroom closet walls.

### **Air Sample Analysis:**

The crawl space air sample lab analysis revealed elevated levels of airborne *Aspergillus*/*Penicillium* and *Cladosporium* mold spores when compared to the outdoor sample. (*Aspergillus* and *Penicillium* mold genera are combined in the air sample analysis because the spores of these two genera cannot be visually differentiated at this level of analysis. A culturable sample would be needed to differentiate between these spores.) The remaining spores found in the indoor air sample(s) are either reflective of the outdoor ecology or are of such low quantity as to be considered statistically insignificant.

### **Surface Sample Analysis:**

The surface sample obtained from the basement main beam confirmed very light concentrations of *Alternaria* and *Ascospores* molds, neither of which displayed any attendant mycelial fragments. This indicates that the molds are likely dormant at this time. The presence of mycelial fragments in a surface sample is a strong indicator of active growth. Mycelial fragments are pieces of mycelia, the filament-like structures of many molds. They are somewhat analogous to plant roots, but only superficially so. They are one method mold uses to spread out across or into a surface.

### **Apparent Visible Mold:**

In addition to the above-cited confirmed mold growth, apparent visible mold was noted at the following locations.

- Crawl space joists and beam
- Basement subfloor
- 1<sup>st</sup> floor corner cabinet door
- 1<sup>st</sup> floor piano
- 2<sup>nd</sup> floor back left bedroom closet walls.

See photos.

### **Mold Conducive Conditions:**

Mold conducive conditions are those conditions that allow or encourage an ongoing source of water or high humidity. Any relative humidity (RH) level consistently over 50% can encourage mold growth. Exterior efforts to direct all surface water and roof runoff away from the building will help reduce moisture levels in basements. Operating a dehumidifier in any basement area, particularly in a finished basement area, is advisable. Lowering the RH will also help reduce “sweating” on cold water pipes and well equipment. Attic ventilation should be reviewed to ensure it is adequate. Vapor barriers on insulation should be properly placed on the warm-in-winter side of the insulation. Vapor barriers should also be in place beneath any carpeting installed directly on concrete floors. Please refer to your home inspection report for additional moisture-related recommendations.

### **Recommendations & Discussion:**

Based on the lab analysis and visual observations, professional mold remediation is warranted and is recommended for the crawl space. I recommend contacting at least one professional mold remediation company to obtain scope of work and cost estimates.

While professional mold remediation is always preferred, cleanup of the amount of visible mold noted in the remaining areas noted above would be considered by EPA standards to be a homeowner job. All appropriate precautions should be taken to prevent spreading mold spores to other areas and to minimize personal exposure. Homeowner cleanup guidelines can be found on the [epa.gov](http://epa.gov) or the [ct.gov/dph/mold](http://ct.gov/dph/mold) website. All areas of suspected mold growth should be addressed. Eliminating the source of moisture that allowed the mold to grow is critical in preventing further growth.

A successful remediation will include eliminating all sources of water and excessive humidity; this step is critical to preventing future mold growth and should be carried out prior to or concurrent with any remediation efforts. All visible mold and suspected mold growth should be removed; spraying or “fogging” alone is not considered adequate by any nationally recognized remediation protocol. Any mold remediation undertaken should be done according to a nationally recognized set of remediation standards of practice, such as the IICRC S-520 (Institute for Inspection, Cleaning and Restoration Certification Standard and Reference Guide for Professional Mold Remediation - 2008) or similar industry protocol. These standards include guidelines to effectively remove the mold, clean the air and surrounding surfaces of residual spores, prevent contamination of unaffected areas and adequately protect all workers. They do not include addressing the underlying moisture concerns that allowed the mold to flourish; any moisture concerns will need to be addressed separately.

Post-remediation evaluation is recommended to confirm the success of the remediation work. This may include a visual assessment, review of remediation documentation and additional air sampling. Any post-remediation air samples should reflect the outdoor mold spore ecology with fewer indoor spores. Tiger Group can perform the post-remediation testing at your request for an additional cost.

It is not the intent of this Assessment Report to provide mold remediation protocol or detail all aspects of the remediation work; it is the responsibility of the remediator to implement protocol and procedures deemed applicable to the situation. If remediation protocol is required by a remediator, Tiger Group can provide it at an additional cost.

#### **Lab Report Analysis Guidelines:**

For air samples, the first section of the lab analysis displays specific spore counts for each air sample taken. The “raw ct.” (raw count) column displays the actual number of spores counted in the sample. The “per m<sup>3</sup>” (per cubic meter) column displays the extrapolated number of spores per cubic meter of air. This allows a direct comparison of the indoor samples to the outdoor sample. Generally, if the count for a spore type is significantly higher indoors than outdoors, it is likely that that particular mold is growing inside the house. The “% of total” column displays the percentage of that particular spore type compared to all spores found in the sample. Highlighted levels are generally considered to be a concern. Additional information on specific molds is included in the lab analysis glossary for your convenience.

If surface or bulk samples were taken, the lab analysis displays the mold spores identified, their concentration and the concentration of mycelium found. Mycelium is a group of hyphae, which can be thought of as the “roots” or “branches” of mold. Their presence typically indicates active growth.

Please read this report in its entirety. If you have any questions, feel free to contact me through the above number. Thank you for using Tiger Group.

Sincerely,

William Denslow  
Tiger Group, Inc.



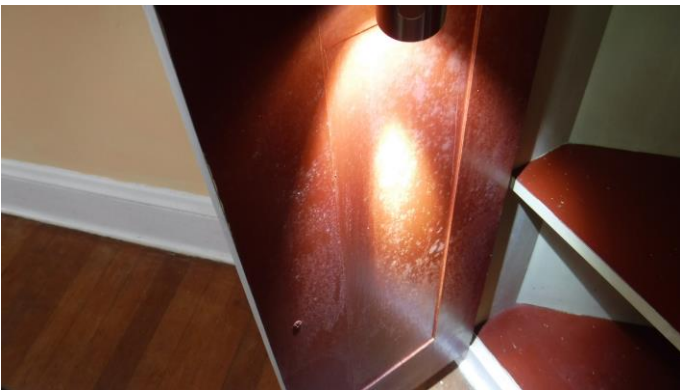
Confirmed mold growth on basement main beam.



Apparent visible mold on crawl space joists.



Apparent visible mold on basement subfloor.



Apparent visible mold on 1<sup>st</sup> floor corner cabinet door.



Apparent visible mold on 2<sup>nd</sup> floor back left bedroom closet walls.



#21023623

Analysis Report prepared for

## Tiger Group, Inc.

1353 Boston Post Rd  
Madison, CT 06443

Phone: (800) 328-4677

194 Gardner Ave  
New London, CT

Collected: July 5, 2021  
Received: July 7, 2021  
Reported: July 7, 2021

We would like to thank you for trusting Hayes Microbial for your analytical needs!  
We received 4 samples by FedEx in good condition for this project on July 7th, 2021.

The results in this analysis pertain only to this job, collected on the stated date, and should not be used in the interpretation of any other job. This report may not be duplicated, except in full, without the written consent of Hayes Microbial Consulting, LLC..

This laboratory bears no responsibility for sample collection activities, analytical method limitations, or your use of the test results. Interpretation and use of test results are your responsibility. Any reference to health effects or interpretation of mold levels is strictly the opinion of Hayes Microbial. In no event, shall Hayes Microbial or any of its employees be liable for lost profits or any special, incidental or consequential damages arising out of the use of these test results.

Steve Hayes, BSMT(ASCP)  
Laboratory Director  
Hayes Microbial Consulting, LLC.



EPA Laboratory ID: VA01419

Lab ID: #188863

DPH License: #PH-0198



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**Spore Trap**  
 SOP - HMC#101

Sample Number	1			2			3					
Sample Name	Outdoor			Basement			Crawlspace					
Sample Volume	150.00 liter			150.00 liter			150.00 liter					
Reporting Limit	7 spores/m <sup>3</sup>			7 spores/m <sup>3</sup>			7 spores/m <sup>3</sup>					
Background	2			2			2					
Fragments	13/m <sup>3</sup>			20/m <sup>3</sup>			ND					
Organism	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												
Ascospores	516	3440	79.4%	34	227	47.2%	28	187	4.2%			
Aspergillus Penicillium	4	27	<1%	9	60	12.5%	588	3920	89.2%			
Basidiospores	92	613	14.2%									
Bipolaris Drechslera												
Chaetomium												
Cladosporium	36	240	5.5%	28	187	38.9%	42	280	6.4%			
Curvularia												
Epicoccum												
Fusarium												
Memnoniella												
Myxomycetes	1	7	<1%	1	7	1.4%						
Pithomyces	1	7	<1%				1	7	<1%			
Stachybotrys												
Stemphylium												
Torula												
Ulocladium												
Total	650	4334	100%	72	481	100%	659	4394	100%			

Water Damage Indicator      Common Allergen      Slightly Higher than Baseline      Significantly Higher than Baseline      Ratio Abnormality



Collected: Jul 5, 2021

Received: Jul 7, 2021

Reported: Jul 7, 2021

Project Analyst:  
 Ronzo Lee, *Ronzo Lee*

Date:  
**07 - 07 - 2021**

Reviewed By:  
 Steve Hayes, BSMT *Stephen N. Hayes*

Date:  
**07 - 07 - 2021**



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**Direct Analysis**  
 SOP - HMC#102

#4	Bio-Tape (1.00 cm2)	Organism	Spore Estimate	Mycelial Estimate
4 - Basement Main Beam		Alternaria	Rare	ND
		Ascospores	Rare	ND



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Project Analyst:  
 Ronzo Lee, 

Date:  
**07 - 07 - 2021**

Reviewed By:  
 Steve Hayes, BSMT 

Date:  
**07 - 07 - 2021**





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**Spore Trap Information**

<b>Reporting Limit</b>	The Reporting Limit is the lowest number of spores that can be detected based on the total volume of the sample collected and the percentage of the slide that is counted. At Hayes Microbial, 100% of the slide is read so the LOD is based solely on the total volume. Raw spore counts that exceed 500 spores will be estimated.					
<b>Blanks</b>	Results have not been corrected for field or laboratory blanks.					
<b>Background</b>	<p>The Background is the amount of debris that is present in the sample. This debris consists of skin cells, dirt, dust, pollen, drywall dust and other organic and non-organic matter. As the background density increases, the likelihood of spores, especially small spores such as those of Aspergillus and Penicillium may be obscured. The background is rated on a scale of 1 to 5 and each level is determined as follows:</p> <p><b>NBD:</b> No background detected due to possible pump or cassette malfunction. Recollect sample. (Field Blanks will display NBD)</p> <p><b>1 :</b> &lt;5% of field occluded. No spores will be uncountable.</p> <p><b>2 :</b> 5-25% of field occluded.</p> <p><b>3 :</b> 25-75% of field occluded.</p> <p><b>4 :</b> 75-90% of field occluded.</p> <p><b>5 :</b> &gt;90% of field occluded. Suggested recollection of sample.</p>					
<b>Fragments</b>	Fragments are small pieces of fungal mycelium or spores. They are not identifiable as to type and when present in very large numbers, may indicate the presence of mold amplification.					
<b>Control Comparisons</b>	There are no national standards for the numbers of fungal spores that may be present in the indoor environment. As a general rule and guideline that is widely accepted in the indoor air quality field, the numbers and types of spores that are present in the indoor environment should not exceed those that are present outdoors at any given time. There will always be some mold spores present in "normal" indoor environments. The purpose of sampling and counting spores is to help determine whether an abnormal condition exists within the indoor environment and if it does, to help pinpoint the area of contamination. Spore counts should not be used as the sole determining factor of mold contamination. There are many factors that can cause anomalies in the comparison of indoor and outdoor samples due to the dynamic nature of both of those environments.					
<table border="1"> <tr><td>Water Damage Indicator</td></tr> <tr><td>Common Allergen</td></tr> <tr><td>Slightly Higher than Baseline</td></tr> <tr><td>Significantly Higher than Baseline</td></tr> <tr><td>Ratio Abnormality</td></tr> </table>	Water Damage Indicator	Common Allergen	Slightly Higher than Baseline	Significantly Higher than Baseline	Ratio Abnormality	<p><b>Blue:</b> These molds are commonly seen in conditions of prolonged water intrusion and usually indicate a problem.</p> <p><b>Green:</b> Although all molds are potential allergens, these are the most common allergens that may be found indoors.</p> <p><b>Orange:</b> The spore count is slightly higher than the outside count and may or may not indicate a source of contamination.</p> <p><b>Red:</b> The spore count is significantly higher than the baseline count and probably indicates a source of contamination.</p> <p><b>Violet:</b> The types of spores found indoors should be similar to the ones that were identified in the baseline sample. Significant increases (more than 25%) in the ratio of a particular spore type may indicate the presence of abnormal levels of mold, even if the total number of spores of that type is lower in the indoor environment than it was outdoors.</p>
Water Damage Indicator						
Common Allergen						
Slightly Higher than Baseline						
Significantly Higher than Baseline						
Ratio Abnormality						
<b>Color Coding</b>	Fungi that are present in indoor samples at levels lower than 200 per cubic meter are not color coded on the report, unless they are one of the water damage indicators.					



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## Direct Analysis Information

Spore Estimate		Percentages
ND	None Detected	0%
Rare	Less than 10 spores	< 1%
Light	10 - 99 spores	1-10%
Moderate	100 - 999 spores	11-25%
Heavy	1000 - 9999 spores	26-50%
Very Heavy	10000 or greater spores	51-100%

Mycelial Estimate	
ND	None Detected No active growth at site.
Trace	Very small amount of Mycelium Probably no active growth at site.
Few	Some Mycelium Possible active growth at site.
Many	Large amount of Mycelium Probable active growth at site.



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## Organism Descriptions

<b>Alternaria</b>	<b>Habitat:</b> Commonly found outdoors in soil and decaying plants. Indoors, it is commonly found on window sills and other horizontal surfaces. <b>Effects:</b> A common allergen and has been associated with hypersensitivity pneumonitis. Alternaria is capable of producing toxic metabolites which may be associated with disease in humans or animals. Occasionally an agent of onychomycosis, ulcerated cutaneous infection and chronic sinusitis, principally in the immunocompromised patient.
<b>Ascospores</b>	<b>Habitat:</b> A large group consisting of more than 3000 species of fungi. Common plant pathogens and outdoor numbers become very high following rain. Most of the genera are indistinguishable by spore trap analysis and are combined on the report. <b>Effects:</b> Health affects are poorly studied, but many are likely to be allergenic.
<b>Aspergillus Penicillium</b>	<b>Habitat:</b> The most common fungi isolated from the environment. Very common in soil and on decaying plant material. Are able to grow well indoors on a wide variety of substrates. <b>Effects:</b> This group contains common allergens and many can cause hypersensitivity pneumonitis. They may cause extrinsic asthma, and many are opportunistic pathogens. Many species produce mycotoxins which may be associated with disease in humans and other animals. Toxin production is dependent on the species, the food source, competition with other organisms, and other environmental conditions.
<b>Basidiospores</b>	<b>Habitat:</b> A common group of Fungi that includes the mushrooms and bracket fungi. They are saprophytes and plant pathogens. In wet conditions they can cause structural damage to buildings. <b>Effects:</b> Common allergens and are also associated with hypersensitivity pneumonitis.
<b>Cladosporium</b>	<b>Habitat:</b> One of the most common genera worldwide. Found in soil and plant debris and on the leaf surfaces of living plants. The outdoor numbers are lower in the winter and often relatively high in the summer, especially in high humidity. The outdoor numbers often spike in the late afternoon and evening. Indoors, it can be found growing on textiles, wood, sheetrock, moist window sills and in HVAC supply ducts. <b>Effects:</b> A common allergen, producing more than 10 allergenic antigens and a common cause of hypersensitivity pneumonitis.
<b>Myxomycetes</b>	<b>Habitat:</b> Found on decaying plant material and as a plant pathogen. <b>Effects:</b> Some allergenic properties reported, but generally pose no health concerns to humans.



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## Organism Descriptions

### Pithomyces

**Habitat:** Common fungus isolated from soil, decaying plant material. Rarely found indoors.

**Effects:** Allergenic properties are poorly studied. No cases of infection in humans.