HAYES MICROBIAL CONSULTING

#20020032

Analysis Report prepared for

Indoor Environmental Testing, Inc

1213 N Sherman Ave.
Suite #298
Madison, WI 53704

Phone: **(608) 241-9883**

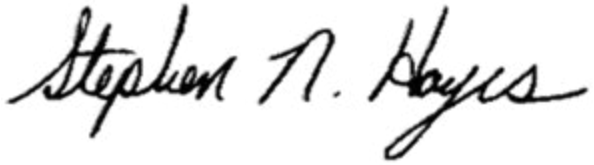
1826-19
Stadler- G. Lewis

Collected: **June 19, 2020**
Received: **June 20, 2020**
Reported: **June 20, 2020**

We would like to thank you for trusting Hayes Microbial for your analytical needs!
We received 16 samples by FedEx in good condition for this project on June 20th, 2020.

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.



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Direct Analysis +
SOP - HMC#102

#1	Swab (1.00 cm2)	Organism	Spore Estimate	Mycelial Estimate	Raw Count	% Total
PS01 - Sump Room and Elec. Closet Drywall		Cladosporium	Light	Trace	41	82%
	Reporting Limit: 1 spore/cm2	Aspergillus|Penicillium	Rare	ND	9	18%

#2	Swab (1.00 cm2)	Organism	Spore Estimate	Mycelial Estimate	Raw Count	% Total
PS02 - Under Floor Sump Room		Aspergillus|Penicillium	Light	Trace	22	56.4%
	Reporting Limit: 1 spore/cm2	Cladosporium	Light	ND	17	43.6%

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Spore Trap
SOP - HMC#101

Sample Number	3	4143339		4	4143323		5	4204933		6	4204922	
Sample Name	E. Wall S End Lab			E Wall N End Lab			W Wall Audio Room			N Wall Audio Room		
Sample Volume	45.00 liter			45.00 liter			45.00 liter			45.00 liter		
Reporting Limit	22 spores/m³			22 spores/m³			22 spores/m³			22 spores/m³		
Background	4			4			3			2		
Fragments	ND			ND			ND			ND		
Organism	**Raw Count**	**Count / m³**	**% of Total**	**Raw Count**	**Count / m³**	**% of Total**	**Raw Count**	**Count / m³**	**% of Total**	**Raw Count**	**Count / m³**	**% of Total**
Alternaria												
Ascospores							5	111	29.4%	1	22	1.1%
Aspergillus|Penicillium	> 5600	> 124444	100.0%	> 5600	> 124444	100.0%	11	244	64.7%	86	1911	95.6%
Basidiospores										1	22	1.1%
Bipolaris|Drechslera												
Chaetomium							1	22	5.9%			
Cladosporium										2	44	2.2%
Curvularia												
Epicoccum												
Fusarium												
Memnoniella												
Myxomycetes												
Pithomyces												
Stachybotrys												
Stemphylium												
Torula												
Ulocladium												
Total	> 5600	> 124444	100%	> 5600	> 124444	100%	17	377	100%	90	1999	100%

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

Collected: **Jun 19, 2020** Received: **Jun 20, 2020** Reported: **Jun 20, 2020**

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Project Analyst: Carlie Hampton, BS

Date: **06 - 20 - 2020**

Reviewed By: Ramesh Poluri, PhD

Date: **06 - 20 - 2020**

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Spore Trap
SOP - HMC#101

Sample Number	7	4143311		8	4204923		9	4143344		10	4143312	
Sample Name	E Wall by Bath (Hall)			S Wall Bath			E Wall Behind Toilet			S Wall Under Wind Ex Room		
Sample Volume	45.00 liter			45.00 liter			45.00 liter			45.00 liter		
Reporting Limit	22 spores/m³			22 spores/m³			22 spores/m³			22 spores/m³		
Background	4			3			4			4		
Fragments	ND			ND			89/m³			ND		
Organism	**Raw Count**	**Count / m³**	**% of Total**	**Raw Count**	**Count / m³**	**% of Total**	**Raw Count**	**Count / m³**	**% of Total**	**Raw Count**	**Count / m³**	**% of Total**
Alternaria												
Ascospores										2	44	16.7%
Aspergillus|Penicillium	> 5600	> 124444	100.0%	47	1044	100.0%	> 5600	> 124444	100.0%	10	222	83.3%
Basidiospores												
Bipolaris|Drechslera												
Chaetomium												
Cladosporium												
Curvularia												
Epicoccum												
Fusarium												
Memnoniella												
Myxomycetes												
Pithomyces												
Stachybotrys												
Stemphylium												
Torula												
Ulocladium												
Total	> 5600	> 124444	100%	47	1044	100%	> 5600	> 124444	100%	12	266	100%

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

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Spore Trap
SOP - HMC#101

Sample Number	11	4204906		12	4204912		13	4143307		14	4204917	
Sample Name	S. Wall Ex Room by Sump			Outside			Audio Room			Lab		
Sample Volume	45.00 liter			75.00 liter			75.00 liter			75.00 liter		
Reporting Limit	22 spores/m^3			13 spores/m^3			13 spores/m^3			13 spores/m^3		
Background	4			2			2			2		
Fragments	ND			ND			ND			13/m^3		
Organism	**Raw Count**	**Count / m^3**	**% of Total**	**Raw Count**	**Count / m^3**	**% of Total**	**Raw Count**	**Count / m^3**	**% of Total**	**Raw Count**	**Count / m^3**	**% of Total**
Alternaria												
Ascospores				151	2013	49.8%				2	27	1.2%
Aspergillus|Penicillium	> 5600	> 124444	100.0%	2	27	<1%	532	7093	99.8%	160	2133	98.8%
Basidiospores				114	1520	37.6%	1	13	<1%			
Bipolaris|Drechslera												
Chaetomium												
Cladosporium				36	480	11.9%						
Curvularia												
Epicoccum												
Fusarium												
Memnoniella												
Myxomycetes												
Pithomyces												
Stachybotrys												
Stemphylium												
Torula												
Ulocladium												
Total	> 5600	> 124444	100%	303	4040	100%	533	7106	100%	162	2160	100%

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

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Spore Trap
SOP - HMC#101

Sample Number	15	4143316		16	4143320	
Sample Name	**Exercise Room**			**W. Wall (Sump// Audio Hall)**		
Sample Volume	75.00 liter			45.00 liter		
Reporting Limit	13 spores/m^3			22 spores/m^3		
Background	2			4		
Fragments	ND			ND		
Organism	**Raw Count**	**Count / m^3**	**% of Total**	**Raw Count**	**Count / m^3**	**% of Total**
Alternaria						
Ascospores	1	13	100.0%	2	44	<1%
Aspergillus|Penicillium				441	9800	99.5%
Basidiospores						
Bipolaris|Drechslera						
Chaetomium						
Cladosporium						
Curvularia						
Epicoccum						
Fusarium						
Memnoniella						
Myxomycetes						
Pithomyces						
Stachybotrys						
Stemphylium						
Torula						
Ulocladium						
Total	1	13	100%	443	9844	100%

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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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Spore Trap Information

Reporting Limit	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.
Blanks	Results have not been corrected for field or laboratory blanks.
Background	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: **NBD:** No background detected due to possible pump or cassette malfunction. Recollect sample. (Field Blanks will display NBD) **1 :** <5% of field occluded. No spores will be uncountable. **2 :** 5-25% of field occluded. **3 :** 25-75% of field occluded. **4 :** 75-90% of field occluded. **5 :** >90% of field occluded. Suggested recollection of sample.
Fragments	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.
Control Comparisons	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.
Water Damage Indicator Common Allergen Slightly Higher than Baseline Significantly Higher than Baseline Ratio Abnormality	**Blue:** These molds are commonly seen in conditions of prolonged water intrusion and usually indicate a problem. **Green:** Although all molds are potential allergens, these are the most common allergens that may be found indoors. **Orange:** The spore count is slightly higher than the outside count and may or may not indicate a source of contamination. **Red:** The spore count is significantly higher than the baseline count and probably indicates a source of contamination. **Violet:** 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.
Color Coding	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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Organism Descriptions

Ascospores

Habitat: 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.

Effects: Health affects are poorly studied, but many are likely to be allergenic.

Aspergillus|Penicillium

Habitat: 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.

Effects: 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.

Basidiospores

Habitat: 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.

Effects: Common allergens and are also associated with hypersensitivity pneumonitis.

Chaetomium

Habitat: Ascomycete fungus, commonly isolated from soil and decaying plant materials. It is cellulolytic and grows well indoors on damp sheetrock and other paper substrates. It is often found growing with Stachybotrys.

Effects: It is reported to be allergenic and may produce toxins.

Cladosporium

Habitat: 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.

Effects: A common allergen, producing more than 10 allergenic antigens and a common cause of hypersensitivity pneumonitis.