



#23044977

Analysis Report prepared for

Paul Matuszko Environmental Consulting

79 Cedar Street
Walpole, MA 02081

Phone: (617) 893-4476

23-184
Pembroke Public Schools
Hobomock Elementary School
81 Learning Lanes
Pembroke, MA

Collected: **October 16, 2023**
Received: **October 18, 2023**
Reported: **October 18, 2023**



EPA Laboratory ID: VA01419



Lab ID: #188863



DPH License: #PH-0198

We would like to thank you for trusting Hayes Microbial for your analytical needs!
We received 11 samples by FedEx in good condition for this project on October 18th, 2023.

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. Information supplied by the customer can affect the validity of results. These results apply only to the samples as received. This report may not be duplicated, except in full, without the written consent of Hayes Microbial Consulting, LLC.

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A handwritten signature in black ink that reads 'Stephen N. Hayes'.

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

Sample Number*	1 3590-2825			2 3590-2828			3 3590-2797			4 3590-2820		
Sample Name*	Classroom 225 - Backside			Classroom 225 - Front Side (225)			Classroom 230 - Front Desk			Classroom 235 - Back Desk		
Sample Volume*	75 L			75 L			75 L			75 L		
Reporting Limit	13 spores/m ³			13 spores/m ³			13 spores/m ³			13 spores/m ³		
Background	2			2			2			2		
Fragments	13/m ³			ND			13/m ³			ND		
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												
Aspergillus Penicillium	252	3400	67.7%	84	1100	79.2%	8	110	44.4%	42	560	100.0%
Basidiospores	119	1600	32.0%	21	280	19.8%						
Bipolaris Drechslera												
Chaetomium												
Cladosporium							9	120	50.0%			
Curvularia							1	13	5.6%			
Epicoccum												
Fusarium												
Memnoniella												
Myxomycetes	1	13	<1%	1	13	<1%						
Pithomyces												
Stachybotrys												
Stemphylium												
Torula												
Ulocladium												
Total	372	5013	100%	106	1393	100%	18	243	100%	42	560	100%

Water Damage Indicator	Common Allergen	Slightly Higher than Baseline	Significantly Higher than Baseline	Ratio Abnormality
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 Andrew Shields, *[Signature]*

Date:
10 - 18 - 2023

Reviewed By:
 Steve Hayes, BSMT *[Signature]*

Date:
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Sample Number*	5 3590-2789			6 3590-2808			7 3590-2778			8 3590-2775		
Sample Name*	Classroom 240 - Back Corner			Classroom 245 - Back Left			Classroom 250 - Back Desk			Outside Ambient Air		
Sample Volume*	75 L			75 L			75 L			75 L		
Reporting Limit	13 spores/m ³			13 spores/m ³			13 spores/m ³			13 spores/m ³		
Background	2			2			2			1		
Fragments	ND			ND			ND			ND		
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												
Aspergillus Penicillium	133	1800	93.7%	11	150	91.7%						
Basidiospores										287	3800	99.3%
Bipolaris Drechslera												
Chaetomium												
Cladosporium	9	120	6.3%									
Curvularia												
Epicoccum												
Fusarium												
Memnoniella												
Myxomycetes				1	13	8.3%				2	27	<1%
Pithomyces							1	13	100.0%			
Stachybotrys												
Stemphylium												
Torula												
Ulocladium												
Total	142	1920	100%	12	163	100%	1	13	100%	289	3827	100%

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#9	Bio-Tape (1.00 cm2*)	Organism	Spore Estimate	Mycelial Estimate
01T - Classroom 225 - Back Ceiling Vent		No Fungi Detected		
#10	Bio-Tape (1.00 cm2*)	Organism	Spore Estimate	Mycelial Estimate
02T - Classroom 225 - Front Ceiling Vent		No Fungi Detected		
#11	Bio-Tape (1.00 cm2*)	Organism	Spore Estimate	Mycelial Estimate
03T - Classroom 240 - Front Ceiling Vent		No Fungi Detected		

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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	<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>NBD: No background detected due to possible pump or cassette malfunction. Recollect sample. (Field Blanks will display NBD)</p> <p>1 : <5% of field occluded. No spores will be uncountable.</p> <p>2 : 5-25% of field occluded.</p> <p>3 : 25-75% of field occluded.</p> <p>4 : 75-90% of field occluded.</p> <p>5 : >90% of field occluded. Suggested recollection of sample.</p>										
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.										
<table border="1"> <tr> <td style="background-color: #ADD8E6;">Water Damage Indicator</td> <td>Blue: These molds are commonly seen in conditions of prolonged water intrusion and usually indicate a problem.</td> </tr> <tr> <td style="background-color: #90EE90;">Common Allergen</td> <td>Green: Although all molds are potential allergens, these are the most common allergens that may be found indoors.</td> </tr> <tr> <td style="background-color: #FFDAB9;">Slightly Higher than Baseline</td> <td>Orange: The spore count is slightly higher than the outside count and may or may not indicate a source of contamination.</td> </tr> <tr> <td style="background-color: #FFB6C1;">Significantly Higher than Baseline</td> <td>Red: The spore count is significantly higher than the baseline count and probably indicates a source of contamination.</td> </tr> <tr> <td style="background-color: #DDA0DD;">Ratio Abnormality</td> <td>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.</td> </tr> </table>	Water Damage Indicator	Blue: These molds are commonly seen in conditions of prolonged water intrusion and usually indicate a problem.	Common Allergen	Green: Although all molds are potential allergens, these are the most common allergens that may be found indoors.	Slightly Higher than Baseline	Orange: The spore count is slightly higher than the outside count and may or may not indicate a source of contamination.	Significantly Higher than Baseline	Red: The spore count is significantly higher than the baseline count and probably indicates a source of contamination.	Ratio Abnormality	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.	
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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.										
Significant Figures	Raw counts and column totals may reflect more than 2 significant figures, but results should only be considered significant to 2 figures.										

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.

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.

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.

Curvularia

Habitat: They exist in soil and plant debris, and are plant pathogens.

Effects: They are allergenic and a common cause of allergic fungal sinusitis. An occasional cause of human infection, including keratitis, sinusitis, onychomycosis, mycetoma, pneumonia, endocarditis and disseminated infection, primarily in the immunocompromised.

Myxomycetes

Habitat: Found on decaying plant material and as a plant pathogen.

Effects: Some allergenic properties reported, but generally pose no health concerns to humans.

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.