



November 10, 2016

Mr. Justin Domingos
Director of Athletics & Facilities
Pembroke Public Schools
80 Learning Way
Pembroke, MA 02359

RE: Baseline Indoor Air Quality Assessment Report for
Hobomock Elementary School
PMEC Project #16-192

Dear Mr. Domingos:

Per your request, **Paul Matuszko Environmental Consulting** (PMEC) was retained to conduct a limited indoor air quality assessment within designated areas at Hobomock Elementary School, 81 Learning Way, Pembroke, Massachusetts (subject Site). The assessment was conducted by PMEC Principal, Paul Matuszko, CIH, on November 2, 2016. PMEC conducted a limited assessment of existing conditions for evidence of mold (fungal) growth and collected measurements of general indoor air quality (IAQ) parameters. Additionally, PMEC collected five (5) spore trap air samples and one (1) tape lift sample for mold (fungal) analysis. A summary of the site inspection and sampling results are provided as follows:

1.0 General Scope of Work

- A. PMEC performed a walkthrough inspection of Kindergarten wing classrooms 130, 140, 150 & 160 for conditions that would impact indoor air quality (IAQ). The assessment was focused on classroom 140 which was recently disinfected and vacated. Additionally, PMEC performed a limited inspection in the 3rd grade classroom wing hallway. The inspection included assessing the areas for water damage, chemical and mold like odors and other issues that may impact indoor air quality (IAQ).
- B. During the assessment, PMEC collected measurements for the following IAQ related parameters:
 - 1. Microbial (fungal) sampling (spore trap and tape lift analysis)
 - 2. Carbon monoxide (CO)
 - 3. Carbon dioxide (CO₂)
 - 4. Temperature, and;
 - 5. Relative humidity (RH%)
- C. Air Sampling Measurement Methods:
 - 1. A Fluke 975 IAQ Meter® was used to collect direct reading measurements for carbon monoxide (CO), carbon dioxide (CO₂), temperature (Temp °F), and relative humidity (RH%).
 - 2. A calibrated, battery operated Zefon BioPump Plus sampling pump was used to collect airborne spore trap samples for mold spore analysis.

2.0 Observations

- A. Kindergarten/ 1st Grade Wing:
 - 1. No visible suspect surface mold growth was identified on exposed surfaces within classrooms 140, 130, 150, and 160.

2. PMEC did not identify any current or previous water infiltration or chemical related storage issues within the areas inspected.
3. Ceiling return vent grills throughout the kindergarten classroom wing (130, 140, 150, 160, etc.) were observed to have a buildup of dust on and inside the vent surfaces. Ceiling HVAC supply diffusers (vents) were observed to be generally clean and free of accumulated dust and debris.
4. The results of PMEC's odor detection and limited inspection by room is as follows:
 - Room 140 – No mold like odors were detected. The classroom was recently disinfected and still retains a chemical cleaning compound odor. No stored chemicals or other conditions were detected in Classroom 140 that would be a source of the reported odors.
 - Room 130 – A noticeable musty/moldy like odor was detected in the back of the room in the area of the ceiling supply diffusers. PMEC did not detect any odors in the ceiling plenum space above the suspended ceilings. The potential exists that the source of the musty odors originates from within the HVAC duct system in and around the roof top air handling unit.
 - Rooms 150 & 160 – No musty/mold like odors were detected. However, the teacher reported that musty odors do exist in the classroom.
 - Kindergarten Hallway – No musty/mold like odors were detected. Representative areas above the ceiling also contained no musty odors. Dried water spots were observed on steel beams and ceiling deck above un-insulated fire sprinkler piping. PMEC believes that condensation (water) develops in humid summer months causing the moisture/water spotting.

B. 3rd Grade Hallway

1. No visible suspect surface mold growth was identified on exposed surfaces within the 3rd grade hallway. No noticeable musty odors were detected. Surfaces were generally clean and dry with no water damage.
2. Dried water spots were observed on steel beams and ceiling deck above un-insulated fire sprinkler piping. PMEC believes that condensation (water) develops in humid summer months resulting in moisture/water spotting.

3.0 Microbial Sampling and Analysis Methodology:

- A. As part of the assessment, PMEC collected five (5) "spore trap" air samples for microbial (mold/fungal) analysis using air-o-cell® brand air sampling cassettes. A calibrated, battery operated Zefon BioPump Plus sampling pump was used to draw air onto the sample cassette's adhesive slide. The airborne aerosols (mold, particulates, pollen, etc.) are trapped on the filter media slide for direct microscopic examination. PMEC collected the samples at 15 liters of air per minute (LPM) using a five (5) minute sample duration for a total sample collection volume of 75 liters of air. The spore trap sample analysis results are only representative of the conditions present on the date and time of sample collection.
- B. Additionally, PMEC collected one "Biotape lift" surface sample (physical sample) of suspect mold growth on dried water droplets within 3rd Grade hallway ceiling plenum on the steel support beams. A clear adhesive microscope slide/tape is lightly pressed over a surface to adhere suspect particulate material onto the sticky tape surface. A glass slide/cover slip is placed over the slide sample area for direct visible microscopic examination. Samples are analyzed for fungal spore species types and levels, and potential active growth (mycelium). A summary of analysis criteria of direct identification analysis is provided in the lab analysis sheets.

- C. The samples were sent via chain of custody by FedEx to Hayes Microbial Laboratory (Hayes), located in Midlothian, Virginia. Hayes is accredited by the American Industrial Hygiene Association (AIHA) for mold and bacteria identification analysis (AIHA EMPAT Laboratory Accreditation ID # 188863). The samples were analyzed for both non-viable and viable fungi by direct analysis optical microscopy. **Results are reported as Total Fungi Counts in spores per cubic meter of air (S/m^3).**

4.0 Sample Analysis Results

- A. A summary of the spore trap sample analysis results are provided in Table 1 below:

Table 1 Spore Trap Microbial Analysis Results Hobomock Elementary School			
Sample #	Sample Location	Total Fungi	Specific Species & levels
22633440 (01)	Classroom 140 at back left side desk	26 S/m^3	Ascospores – 13 S/m^3 Basidiospores - 13 S/m^3
22633411 (02)	Classroom 130 at back side desk	13 S/m^3	Basidiospores - 13 S/m^3
22633418 (03)	Classroom 150 at back side table	40 S/m^3	Aspergillus/Penicillium – 13 S/m^3 Basidiospores - 13 S/m^3
22633423 (04)	3 rd Grade Hallway	13 S/m^3	Ascospores – 13 S/m^3
22626885 (05) (Comparison sample)	Outside ambient air (at street)	453 S/m^3	Alternaria – 13 S/m^3 Ascospores – 67 S/m^3 Basidiospores – 267 S/m^3 Bipolaris – 13 S/m^3 Cladosporium – 40 S/m^3 Myxomycetes – 40 S/m^3 Epicoccum – 13 S/m^3

- Notes:**
- Aspergillus/penicillium spores are two different species but cannot be differentiated at the level of magnification used during analysis.
 - Detailed description of the microbial fungal species is provided with Laboratory analysis results.

- B. The results of the bio-tape lift sample analysis are presented in Table 2.

Table 2 Bio-Tape Lift Analysis Result Hobomock Elementary School			
Sample #	Sample Location	Mold Spore Estimate	Mycelial Estimate (current active growth)
193-01T	3 rd Grade Hallway – Above ceiling tile on steel beam with suspect dried water spotting	No Fungi Detected	Nofungi/ mycelial detected

5.0 Discussion of Results

A. Spore Trap Sample Analysis:

1. The sample analysis results indicate normal levels of typically found indoor mold spores in each of the samples collected. The airborne mold spore levels for the four inside samples are considered low and acceptable on the assessment date. The mold species identified are typically found in the indoor environment at low levels. The airborne spore levels were low and typical for indoor conditions during the fall season. The current airborne spore levels on the sampling date are not representative of an amplified spore or mold growth condition.

B. BioTape Lift Sample Analysis:

1. The biotape lift analysis result indicates no fungi (mold) spore or mycelium growth present. The dried, brownish water stains/droplets present in the hallway ceiling plenum do not contain mold growth.

Note: Please refer to the attached lab results for additional background information.

C. Background Mold Information:

1. Currently, there are no standards or regulations to indicate acceptable levels of airborne fungal spores derived from indoor environments, a comparison of the indoor/outdoor (I/O) ratio of total spores as well as complaint vs. noncompliant areas is conducted. Results are also assessed for specific target species that may induce allergic reactions. Additionally, results are reviewed for the rank order of species between samples (i.e. is a higher percentage of a species found on one sample compared to others). In general, indoor mold levels should be equivalent to or lower than outdoor levels or non-complaint areas with similar types and percentages of mold species. Please note that airborne mold spores are present in most indoor environments at low levels.
2. There are no regulations for acceptable levels of mold in the indoor environment; therefore, exact numerical limits are not supported at this time. Specific fungal species of concern are recommended to have much lower over levels in the indoor environment. The levels mentioned are not hard numbers to rely on as conditions and symptoms are unique to each season, building and occupant. Airborne mold spore levels may vary greatly by location, time of day and weather conditions. However, health impacts cannot be predicted based on this information; individuals experience varying levels of allergic and non-allergic response to mold. **Controlling moisture is critical to the prevention of indoor mold growth issues.**

6.0 General Indoor Air Quality Measurements:

- A. As part of the assessment, PMEC collected direct reading measurements for carbon dioxide (CO₂), carbon monoxide (CO), relative humidity (RH%), and temperature (Temp. °F) using a Fluke 975 Airmeter®. Measurements were collected in representative areas to determine baseline levels of basic indoor air quality (IAQ) parameter levels. The following background information and results are provided in accordance with IAQ industry guidelines and the American Society of Heating, Refrigerating & Air Conditioning Engineers (ASHRAE) recommended standards as follows:

1. Carbon Dioxide (CO₂)

- Carbon dioxide gas is produced by all humans and will accumulate in an indoor environment if proper amounts of fresh outside air are not introduced into enclosed areas. High levels of carbon dioxide generally cause discomfort (tiredness, headaches and drowsiness), and possibly worsen adverse effects caused by other pollutants. Guidelines for maximum indoor

carbon dioxide concentrations vary but a general consensus suggests maintaining CO₂ levels below 1,000 parts per million in air (ppm). ASHRAE recommends a maximum concentration that is no more than 700 ppm above ambient levels (~350 -375 ppm).

- **Results:** On the inspection date, the CO₂ levels in the locations sampled were within recommended guidelines, ranging from approximately 516 - 648 ppm.

2. Carbon Monoxide (CO)

- Carbon monoxide (CO), a colorless, odorless, tasteless gas, is a by-product of incomplete combustion commonly emitted by carbon-based fuel burning engines or furnaces. The OSHA Permissible Exposure Limit (PEL) is 50 ppm and the National Institute for Occupational Safety & Health (NIOSH) Recommended Exposure Limit (REL) for CO is 35 ppm for an 8-hour Time Weighted Average (TWA) exposure. Any measurable indoor CO level above ambient levels suggests a source that should be investigated.
- **Results:** No CO was detected (0 ppm) during the sampling period. The results indicate CO at background outdoor/ambient levels during the sampling period.

3. Temperature and Relative Humidity

- ASHRAE recommends that occupied indoor temperatures be maintained between 67°F-75°F in winter months and 73°F-79°F during the summer months. Relative humidity (RH%) is a measurement of water vapor in the air. RH% levels should be kept between 30-60 percent year-round for optimal thermal comfort. High levels of indoor relative humidity (>60%) promote the growth of microorganisms (mold). Low levels of RH% below 20% can cause drying of the eyes, skin, and sinus tissue.
- **Results:** The temperature levels were generally within acceptable levels during the sampling period, ranging from 70.7 – 73.4°F. The relative humidity levels were also within recommended levels at 43.0%-45.9%.

4. The results of the sampling measurements by location are provided in Table 3 below:

Sample Location	Time Sampled	Temp (°F)	RH (%)	CO ₂ (ppm)	CO (ppm)	Comments
Classroom 140 (middle of room)	11:29 am	70.7	45.9	648	0.0	Vacant room – HVAC on
Classroom 130 (at back desk)	11:34 am	72.5	45.1	546	0.0	HVAC on
Hallway at room 130	11:40 am	73.4	44.4	610	0.0	-
Classroom 150 (at back table)	11:50 am	73.4	43.0	516	0.0	HVAC on
3 rd Grade Hallway	12:15 pm	73.4	43.9	541	0.0	-
Outside ambient air (street level)	12:38 pm	68.9	52.9	400	0.0	Warm, sunny fall day

Notes: ppm = parts per million in air

7.0 Summary and Recommendations

- A. The results of the spore trap sample analysis indicate low levels of airborne mold spores within locations sampled at the time of the assessment. Additionally, no current visible mold or excessive water damaged materials was observed. Therefore, no additional mold sampling is recommended at this time.
- B. The results of the baseline IAQ sampling indicate the parameters measured are within recommended ASHRAE guidelines. No additional indoor air quality related sampling or testing is recommended at this time. Should occupant concerns persist, additional IAQ sampling and investigation may be conducted during peak heating and cooling seasons.
- C. PMEC recommends that the supply and return vents (including interior metal surfaces) within the kindergarten wing classrooms be cleaned of accumulated dust and debris.
- D. The roof top air handling unit and associated ducting supplying the Kindergarten classrooms and 3rd floor hallway should be accessed for inspection to determine if reported "musty" odors originate within the HVAC system. The HVAC equipment should be inspected for visible water infiltration, wet/damaged insulation, visible suspect mold, and musty/moldy odors. If required, access panels should be installed to gain access for inspection to duct interiors along the entire distribution zone.

8.0 Limitations

- A. The assessment focused on the areas of concern in and around classroom 140 and the 3rd grade hallway. PMEC's assessment did not include a complete inspection of the entire building or the HVAC systems. Representative areas in the target areas were assessed for potential impact to indoor air quality. The discussion and recommendations provided herein are based on the investigator's careful consideration of field observations and interpretation of analytical results in accordance with industry standards, including, but not limited to, ASHRAE Standards and IICRC S520 guidelines for Condition 1 – normal fungal ecology and the ACGIH 1999 book "Bioaerosols – Assessment and Control". The recommendations for remediation provided herein are a general guideline and should not be used as a specific scope of work or work plan.

Should you have any additional questions regarding this assessment report or the results, please do not hesitate to contact me at 617-893-4476 or email at pmatuszko@pmecsolutions.com. PMEC appreciates the opportunity to provide our services to Pembroke Public Schools for this project.

Sincerely,



Paul Matuszko, CIH, CIEC
Principal

CIH - Certified Industrial Hygienist (American Board of Industrial Hygiene)

CIEC - Certified Indoor Environmental Consultant (American Council for Accredited Certification)

Attachment A – Annotated floor plan with sample locations – page 1

Attachment B – Hayes Microbial Spore Trap Analysis Results – pages 1-9

Main Floor

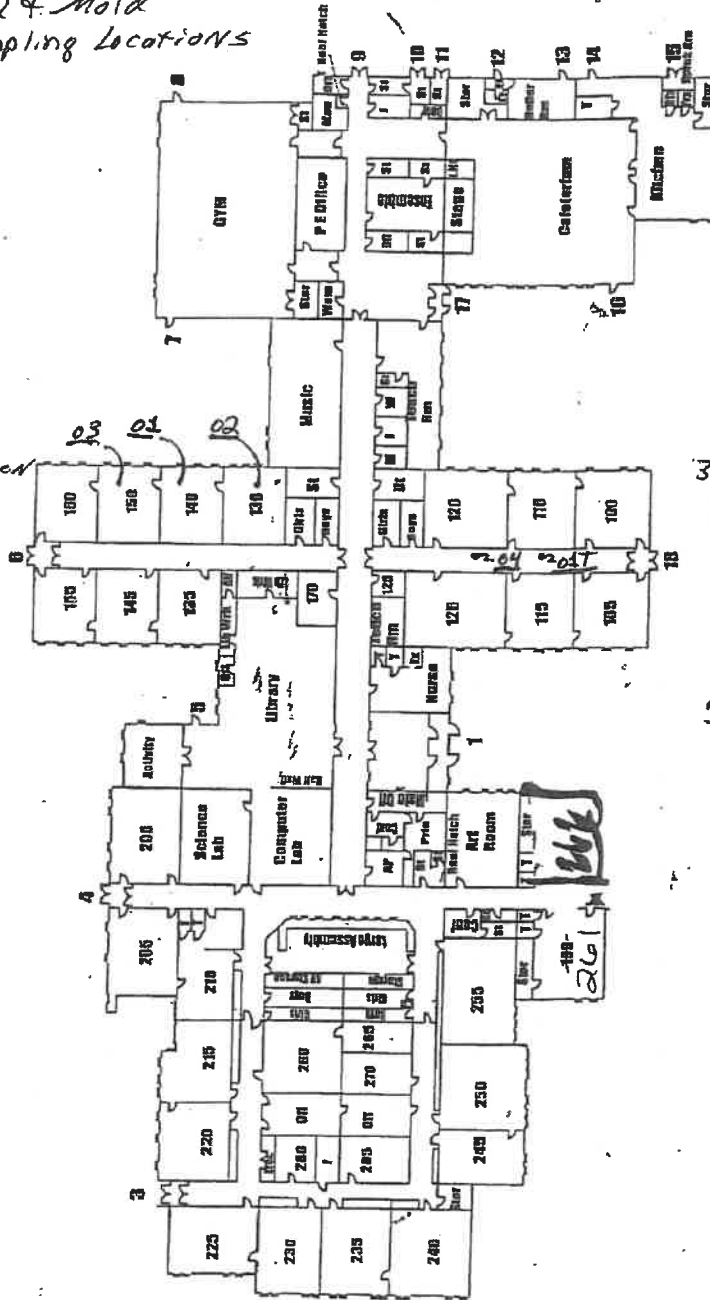
Hobomock Elementary

Fire Ex 2M

הַמִּשְׁכָּן הַזֶּה יִהְיֶה לְךָ מִשְׁכָּן וְלְבָבְךָ יִשְׁכֵּן בְּיָדֶיךָ:

Kindergarten
Wing

IAQ & Mold Sampling Locations



3rd
Grade
Wing

-05

РМЭС 11/9/16

HMC #16031565



contact@hayesmicrobial.com
<http://hayesmicrobial.com/>

Analysis Report prepared for

Paul Matuszko Environmental Consulting

79 Cedar Street
Walpole, MA 02081
Phone: 617-893-4476

Job Number: 16-192
Job Name: Hobomock Elem School
Pembroke, MA
Date Sampled: 11-02-2016
Date Analyzed: 11-03-2016
Report Date: 11-03-2016

EPA Laboratory ID# VA01410



AIHA EMPAT Lab ID# 186863



Mold License: LAB1021



License: #PH-0198



HMC #16031565

Paul Matuszko Environmental Consulting
79 Cedar Street
Walpole, MA 02081

November 3, 2016

Client Job Number: 16-192
Client Job Name: Hobomock Elem School
Pembroke, MA

Dear Paul Matuszko Environmental Consulting.

We would like to thank you for trusting Hayes Microbial for your analytical needs. On November 3, 2016 we received 6 samples by FedEx for the job referenced above. 6 samples were received in good condition.

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 Consulting. In no event, shall Hayes Microbial Consulting or any of its employees be liable for lost profits or any special, incidental or consequential damages arising out of your use of the test results.

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

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

Spore Trap Analysis
SOP #HMC101

2015年 8月

Paul Matuszko Environmental Consulting

**79 Cedar Street
Walpole, MA 02081
Phone: 617-893-4476**

HMC #16031565

[illegible]

Water Canvase Indicator	Common Algae	Slightly Higher than Outside Air	Significantly Higher than Outside Air	Ratio Abnormally
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Signature: P. Ramesh Date: 11/03/2016 Reviewed by: Stephen J. Hayes Date: 11/03/2016 Page 3 of 9

Job Number: 16-192	Collected by: Paul Matuszko pmatuszko@pmecosolutions.com	Job Name: Hobomock Elem School Pembroke, MA	Date Collected: 11/02/2016 Date Received: 11/03/2016 Date Reported: 11/03/2016
FPMC ID Number	16031585 - 5		
Sample ID#	2262695		
Sample Name	Ambient Air		
Sample Volume	75 liters		
Reporting Limit	13 spores/M3		
Background \ Fragments	2 \ ND		
Organism	Raw Count	Count / M3	% of Total
Alternaria	1	13	2.8%
Ascomycetes	5	67	14.8%
Aspergillus/Penicillium	20	267	58.8%
Basidiomycetes	1	13	2.8%
Bipolaris/Drechislera			
Claeetium	3	40	8.8%
Oidiodosporium			
Curularia	1	13	2.8%
Epicoccum			
Fusarium			
Mormoniella	3	40	8.8%
Myxomycetes			
Pitheciomyces			
Sclerobotrys			
Stemphylium			
Toninia			
Uredinium			
Unspecified Spore	34	453	
Total			

Water Damage Indicator	Common Allergen	Slightly Higher than Outside Air	Significantly Higher than Outside Air	Ratio Abnormality
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Signature: P. Ramez Date: 11/03/2016

Reviewed by: Stephen J. Hayes Date: 11/03/2016

Page 4 of 9



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Walpole, MA 02081
Phone: 617-893-4476

Direct ID Analysis
SOP #HMC-102

HMC #16031565

Job Number: 16-192	Job Name: Hobomock Elem School Pembroke, MA	Date Collected: 11/02/2016
Collected by: Paul Matuszko		Date Received: 11/03/2016
Email: pmatuszko@pmecsolutions.com		Date Reported: 11/03/2016

HMC ID Number: 16031565 - 6	Sample Media: Bio-Tape
Sample ID Number: 192-011	Sample Name: 3rd Grade Hallway Steel Decking
Organism	Spore Estimate
	Mycelial Estimate
Note	
No Fungi Detected	






Signature: P. Ramez Date: 11/03/2016 Reviewed by: Stephen A. Hayes Date: 11/03/2016 Page 5 of 9



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Phone: 617-893-4476

Spore Trap Information

HMC #16031565

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 <i>Aspergillus</i> and <i>Penicillium</i> may be obscured. The background is rated on a scale of 1 to 4 and each level is determined as follows.</p> <p>ND : No background detected. (Pump or cassette malfunction.) Recollect sample.</p> <p>1 : <5% of field occluded. No spores will be uncountable.</p> <p>2 : 6-25% of field occluded.</p> <p>3 : 26-75% of field occluded.</p> <p>4 : 76-90% of field occluded.</p> <p>5 : >90% of field occluded. Suggest 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.	
Indoor/Outdoor Comparisons	<p>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.</p>	
    	<p>Water Damage Indicators These molds are commonly seen in conditions of prolonged water intrusion and usually indicate a problem.</p> <p>Common Allergens Although all molds are potential allergens, these are the most common allergens that may be found indoors.</p> <p>Slightly Higher than Outside Air The spore count is slightly higher than the outside count and may or may not indicate a source of contamination.</p> <p>Significantly Higher than Outside Air The spore count is significantly higher than the outdoor count and probably indicates a source of contamination.</p> <p>Rare Abnormality The types of spores found indoors should be similar to the ones that were identified in the outdoor 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>	
	<p>Color Note 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.</p>	



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HMC #16031565

Additional Information for Direct Identification Analysis

Spore Estimate	Percentages
ND	0%
Rare	< 1%
Light	1-10%
Moderate	11-25%
Heavy	26-50%
Very Heavy	51-100%

Mycelial Estimate	
ND	No active growth at site
Trace	Probably no active growth at site
Few	Possible active growth at site
Many	Probable active growth at site



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Organism Descriptions

HMC #16031565

Alternaria

Habitat: Commonly found outdoors in soil and decaying plants. Indoors, it is commonly found on window sills and other horizontal surfaces.

Health Effects: 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.

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.

Health Effects: Health effects 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.

Health 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.

Basidiomycetes

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.

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

Bipolaris/Drechislera

Habitat: They are found in soil and as plant pathogens. Can grow indoors on a variety of substrates.

Health Effects: They may be allergenic and are very commonly involved in allergic fungal sinusitis. They are opportunistic pathogens but occasionally infect healthy individuals, causing keratitis, sinusitis and osteomyelitis.

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.

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



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Organism Descriptions

HMC #16031565

Epicoccum

Habitat: It is found in soil and plant litter and is a plant pathogen. It can grow indoors on a variety of substrates, including paper and textiles and is commonly found on wet drywall.

Health Effects: It is a common allergen. No cases of infection have been reported in humans.

Myxomycetes

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

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