

# Technical Memorandum

Date: March 31, 2022

RE: Marcia P. Coggs Human Services Center, Asset #5600  
1220 W Vliet St.  
Milwaukee, WI, 53205-2117.

Indoor Air Quality Sampling:  
Mold  
Carbon Monoxide (CO)  
Carbon Dioxide (CO<sup>2</sup>)  
Lateral Water Line Inspection for Presence of Lead Piping

Client: Mr. Kevin O'Brien  
Env. Compliance Manager  
Milwaukee County DAS-AE & ES  
633 W. Wisconsin Ave. Suite 1003  
Milwaukee, WI 53203

Prepared By: Linda Fellenz, LF Green Development, LLC

LF Green Development (LF Green) has been contracted by Mr. Kevin O'Brien, Env. Compliance Manager, Milwaukee County DAS-AE & ES to complete Carbon Dioxide, Carbon Monoxide (CO) sampling, Mold air testing, and a visual inspection of the water lines entering the building for lead piping within Marcia P. Coggs Human Services Center, Asset #5600, 1220 W Vliet St. Milwaukee, WI, 53205-2117. The air testing was done on March 7, 2022.

Linda Fellenz completed the testing. Linda is a Certified Professional Industrial Hygienist as certified by the US Veterans Administration with more than 10 year's experience doing indoor air and dust sampling within commercial, industrial, and VA buildings in Wisconsin, Illinois, Minnesota, and Michigan. She is also a certified Radon Specialist, Mold Sampling Technician, and a State of Wisconsin Department of Health and Family Services licensed Asbestos Supervisor, Certification # ACS-15354, Asbestos Management Planner, Certification # AMP-15354 and Lead Hazard Investigator # LHI, and Lead Risk Assessor # LRA 15354

## **MOLD DISCUSSION:**

Molds are very common in buildings and homes and will grow anywhere indoors where there is moisture. According to the Centers for Disease Control (CDC), the most common indoor molds are Cladosporium, Penicillium, and Aspergillus <https://www.cdc.gov/mold/faqs.htm>.

The CDC has provided guidance for mold sampling, however does not recommend routine sampling for molds. Current evidence indicates that allergies are the type of diseases most often associated with molds and since the reaction of individuals can vary greatly either because of the person's susceptibility or type and amount of mold present, sampling and culturing are not reliable in determining your health risk. They do recommend that no matter what type of mold is present, you should arrange for its removal. Furthermore, *standards for judging what is and what is not an acceptable or tolerable quantity of mold have not been established.*

The CDC also recommends that the indoor and outdoor air samples be collected to compare the naturally occurring molds in the outdoor air with molds found within the building.

## **MOLD TESTING ACTIVITIES:**

For this mold sampling project, Linda Fellenz, Principle of LF Green collected five indoor air samples and one outdoor air on March 9, 2022 and submitted the air cassettes to an accredited laboratory to analyze for mold. The air samples were collected:

SAMPLE #	LOCATION	FLOOR	TIME ON	TIME OFF
M-01	NE Corner of room	Basement	0910	0920
M-02	Boiler room	Basement	0914	0924
M-03	Department of aging	3 <sup>rd</sup> floor	0927	0937
M-04	Family Services	1 <sup>st</sup> floor intake	0931	0941
M-05	Outside	Loading dock are	0948	0958

## **SAMPLING METHODS:**

LF Green completed air sampling to collect mold spores present in the interior and exterior of the building. These samples are taken by using a pump that forces air through an air cassette which catches mold spores on a disposable filter. The sample cassette is then sent to a laboratory to be

analyzed. This air sampling method is considered the best management practice for mold sampling by industrial hygiene professionals.

LF Green set the pump up in the room, with the collection device positioned 3 to 6 feet off the ground. Ten minutes is an adequate amount of time for the air pump to run while taking samples, but this can be reduced to around five minutes if there is a concern that air movement from a lot of indoor activity could alter the results.

Weather conditions can be an important factor in gathering accurate data. Severe thunderstorms or unusually high winds can affect the sampling and analysis results. High winds or rapid changes in barometric pressure increase the difference in air pressure between the interior and exterior, which can increase the variability of airborne mold-spore concentration. Large differences in air pressure between the interior and exterior can cause more airborne spores to be sucked inside, skewing the results of the sample. The weather conditions at the time of this sampling was 38 degrees Fahrenheit and did not impact the sampling performed.

### **EVALUATING THE SAMPLE RESULTS:**

When evaluating mold test results, we evaluate patterns among the indoor mold found, as different molds grow on different organic material and at different moisture levels such as the following:

- Aspergillus/Penicillium are early colonizers of damp building materials.
- Chaetomium or Stachybotrys later colonizers of chronic moisture/wet areas.
- Ascospores and basidiospores are common outdoor mold, when found inside their presence may be the time of year or poorly filtered outdoor air

**There is no official EPA standard for acceptable mold spore levels.** To create such a guide would require standards for each of the thousands of genera/species and conditions.

The following are acceptable industry standards for spore counts in certain mold colonies found within commercial buildings:

- Aspergillus/Penicillium in a "clean" building study was at a mean of 230-700,
- Aspergillus/Penicillium in buildings known to have a moisture or flooding problem it was at 2235
- Aspergillus/Penicillium in mold contaminated buildings the figure was 36,037

Results from this sampling project indicate that the Total Fungi spores counts from the air samples within the building air are equal to or less than the outdoor sample results.

We also collected a sample from outside the building near the entrance as a comparison – showing what the concentrations of naturally occurring mold in the area look like. The results showed that the mold levels in the indoor air are lower than the mold levels found in the outside air.

The Mold table and complete mold lab report is included in APPENDIX A.

**RECOMMENDATIONS – MOLD SAMPLING:**

All of the spore counts are within the ACCEPTABLE RANGE of industry standards.

**CO<sup>2</sup> and CO TESTING**

LF Green used an Indoor Air Quality 9999ppm Digital Carbon Dioxide Temperature Humidity NDIR Sensor IAQ CO2 Monitor WB DP Tester to evaluate the indoor air the Coggs Center. L Green utilized 2 meters one with the CO sensor and one with the CO<sup>2</sup> sensor. This allowed us to do the sampling for both compounds at the same time. The meter was calibrated by the laboratory on March 7, 2022 prior to be used for this inspection.

**CO<sup>2</sup> TESTING**

The details of the meter are:

- Triple displays of CO2 level, Temperature (°F/ °C) and Humidity (Air, Wet Bulb, or Dew Point Info are all available)
- Stable NDIR Sensor for CO2 Detection
- Sound Warning Alarm notifies operator when CO2 levels reach or exceed a preset threshold
- Power Supplied by Battery (Included) or 9V Adaptor .
- Measuring Range: CO2: 0~9999ppm,(2001~9999 out of scale),

OSHA has established a Permissible Exposure Limit (PEL) **for CO2 of 5,000 parts per million (ppm) (0.5% CO2 in air)** averaged over an 8-hour work day (time-weighted average or TWA.).

ROOM	LOCATION	READING	TIME
Basement	NW area	700	0908
Basement	Center of boiler room	400	0911
Basement	Boiler room SW	300	0915
Basement	Near elevator	400	0922

Basement	South part of cafeteria	300	0926
1 <sup>st</sup> Floor	Near escalator	300	0944
1 <sup>st</sup> Floor	East of elevator	400	0948
1 <sup>st</sup> Floor	In main lobby area	300	0951
2 <sup>nd</sup> Floor	Near elevator	400	1011
2 <sup>nd</sup> Floor	Center of room	400	1014
2 <sup>nd</sup> floor	West area of floor	400	1019
3 <sup>rd</sup> floor	Center of floor	400	1025
3 <sup>rd</sup> floor	Near elevator	400	1033
3 <sup>rd</sup> floor	Far west office area	400	1055

Normal range of CO<sup>2</sup> readings in the indoor air are between 300-400 ppm.

### **CO TESTING**

LF Green used an Indoor ToxiRAE Pro CO Monitor to evaluate the indoor air within the building.

For this project the ToxiRAE meter will be set up to collect carbon monoxide readings. The standard to meet for this project are 9 parts per million (ppm) and no greater than 2 ppm above outdoor air levels. The meter was calibrated by the lab on March 7, 2022, prior to being used for this inspection.

This meter will allow us to take numerous readings throughout the building without waiting for laboratory results. The outdoor air sample done near the entrance to the building prior to the indoor testing was 3.0

The following table shows the readings and location of sampling:

ROOM	LOCATION	READING	TIME
Basement	NW area	1.0	0908
Basement	Center of boiler room	2.0	0911
Basement	Boiler room SW	2.0	0915
Basement	Near elevator	0.0	0922
Basement	South part of cafeteria	1.0	0926
1 <sup>st</sup> Floor	Near escalator	0.0	0944
1 <sup>st</sup> Floor	East of elevator	0.0	0948

1 <sup>st</sup> Floor	In main lobby area	0.0	0951
2 <sup>nd</sup> Floor	Near elevator	0.0	1011
2 <sup>nd</sup> Floor	Center of room	0.0	1014
2 <sup>nd</sup> floor	West area of floor	0.0	1019
3 <sup>rd</sup> floor	Center of floor	0.0	1025
3 <sup>rd</sup> floor	Near elevator	0.0	1033
3 <sup>rd</sup> floor	Far west office area	0.0	1055

### LATERAL INSPECTION

LF Green did a visual inspection of the incoming water lines at the southeast part of the basement. according to Milwaukee County personnel, Mr Calvin Wiley, the site maintenance supervisor, the areas we inspected were the main lines coming into the building. The water lines are galvanized metal and looked newer. No lead pipes were observed in any of the accessible areas where water lines entered the building

### CONCLUSIONS:

For this air monitoring event, results from the Carbon Monoxide (CO), Carbon Dioxide (CO<sup>2</sup>), and Mold, sampling, are all either below the industry standard or within the normal range. The Lateral Inspection for lead piping did NOT reveal lead pipes.

If you have any questions or comments regarding the summary report, please feel free to call me at (414) 254-4813 or email me at [LFellenz@LFGreendevlopment.com](mailto:LFellenz@LFGreendevlopment.com).

Sincerely,

LF GREEN DEVELOPMENT, LLC



Linda J. Fellenz, President

## **APPENDIX A**

# **MOLD ANALYSIS TABLE OF RESULTS AND FULL LAB REPORT**



# EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077  
Tel/Fax: (800) 220-3675 / (856) 786-0262  
<http://www.EMSL.com / cinmicrolab@emsl.com>

**EMSL Order:** 372203802  
**Customer ID:** LFGR78  
**Customer PO:**  
**Project ID:**

**Attention:** Linda Fellenz  
LF Green Development, LLC  
5600 West Brown Deer Road  
Milwaukee, WI 53223

**Phone:** (414) 254-4813  
**Fax:** (414) 375-4098  
**Collected Date:** 03/09/2022  
**Received Date:** 03/14/2022 09:15 AM  
**Analyzed Date:** 03/15/2022

**Project:** 1220 W. Vliet

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

Lab Sample Number:	372203802-0001			372203802-0002			372203802-0003		
Client Sample ID:	M-01			M-02			M-03		
Volume (L):	150			150			150		
Sample Location:	Basement North			Basement South			1st Floor Hallway		
Spore Types	Raw Count	Count/M³	% of Total	Raw Count	Count/M³	% of Total	Raw Count	Count/M³	% of Total
Alternaria (Ulocladium)	1*	7*	1.7	-	-	-	-	-	-
Ascospores	2	40	9.6	-	-	-	-	-	-
Aspergillus/Penicillium	3	70	16.8	-	-	-	3	70	47.6
Basidiospores	3	70	16.8	2	40	65.6	1	20	13.6
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium++	3	70	16.8	-	-	-	-	-	-
Cladosporium	6	100	24	-	-	-	2	40	27.2
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium++	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	1*	7*	11.5	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	2	40	9.6	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	1*	7*	11.5	2*	10*	6.8
Unidentifiable Spores	1	20	4.8	1*	7*	11.5	1*	7*	4.8
Zygomycetes	-	-	-	-	-	-	-	-	-
Acremonium++	-	-	-	-	-	-	-	-	-
Triadelphia	-	-	-	-	-	-	-	-	-
<b>Total Fungi</b>	<b>21</b>	<b>417</b>	<b>100</b>	<b>5</b>	<b>61</b>	<b>100</b>	<b>9</b>	<b>147</b>	<b>100</b>
Hyphal Fragment	2	40	-	1	20	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	1*	7*	-
Analyt. Sensitivity 600x	-	22	-	-	22	-	-	22	-
Analyt. Sensitivity 300x	-	7*	-	-	7*	-	-	7*	-
Skin Fragments (1-4)	-	1	-	-	2	-	-	2	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	2	-	-	1	-	-	2	-

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

Vincent Iuzzolino, M.S., Laboratory Manager  
or other Approved Signatory

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

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. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted. High levels of background particulate can obscure spores and other particulates, leading to underestimation. Background levels of 5 indicate an overloading of background particulates, prohibiting accurate detection and quantification. 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. Skin & Fibrous ratings: 1 (1-25%), 2 (26-50%), 3 (51-75%), 4 (76-100%) of the background particles.  
Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ AIHA-LAP, LLC-EMLAP Accredited #100194

Initial report from: 03/15/2022 03:24 PM

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.

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### 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:	372203802-0004 M-04 150 3rd Floor Hallway			372203802-0005 M-05 150 Outside					
	Spore Types	Raw Count	Count/M³	% of Total	Raw Count	Count/M³	% of Total		
Alternaria (Ulocladium)	-	-	-	1	20	2.7	-	-	-
Ascospores	-	-	-	-	-	-	-	-	-
Aspergillus/Penicillium	9	200	55.6	3	70	9.3	-	-	-
Basidiospores	1	20	5.6	3	70	9.3	-	-	-
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium++	-	-	-	-	-	-	-	-	-
Cladosporium	5	100	27.8	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium++	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	2	40	11.1	1	20	2.7	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Acremonium++	-	-	-	25	550	73.3	-	-	-
Triadelphia	-	-	-	1	20	2.7	-	-	-
<b>Total Fungi</b>	<b>17</b>	<b>360</b>	<b>100</b>	<b>34</b>	<b>750</b>	<b>100</b>	-	-	-
Hyphal Fragment	-	-	-	1*	7*	-	-	-	-
Insect Fragment	-	-	-	1*	7*	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	22	-	-	22	-	-	-	-
Analyt. Sensitivity 300x	-	7*	-	-	7*	-	-	-	-
Skin Fragments (1-4)	-	2	-	-	2	-	-	-	-
Fibrous Particulate (1-4)	-	2	-	-	2	-	-	-	-
Background (1-5)	-	2	-	-	2	-	-	-	-

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

Vincent Iuzzolino, M.S., Laboratory Manager  
or other Approved Signatory

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

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Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ AIHA-LAP, LLC-EMLAP Accredited #100194

Initial report from: 03/15/2022 03:24 PM

For information on the fungi listed in this report, please visit the Resources section at [www.emsl.com](http://www.emsl.com)



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### Microbiology Chain of Custody Form

EMSL Order Number / Lab Use Only

EMSL Analytical, Inc.  
200 Route 130 North  
Cinnaminson, NJ 08077

RECEIVED  
EMSL  
CINNAMINSON, NJ  
PHONE: (800) 220-3675  
EMAIL: CinnMicroLab@emsl.com

372203802

If Bill-To is the same as Report-To leave this section blank. Third-party billing requires written authorization.

Customer Information	Customer ID: LFGR78	Billing Information	Billing ID: SAME
	Company Name: LF Green Development, LLC		Company Name:
	Contact Name: Linda Fellenz		Billing Contact:
	Street Address: 5600 W. Brown Deer Rd, Suite 104		Street Address:
	City, State, Zip: Milwaukee, WI 53223 Country:		City, State, Zip: Country:
	Phone: 414-254-4813		Phone:
Email(s) for Report: lfellenz@lfgreendevlopment.com	Email(s) for Invoice:	DATE: MAR 14 A 9:15	

Project Name/No: 1220 W. Vliet		Purchase Order:
EMSL LIMS Project ID: (If applicable, EMSL will provide)	State Samples Collected: WI	Zip Code Samples Collected: 53203
State of Connecticut (CT) must select project location: <input type="checkbox"/> Commercial (Taxable) <input type="checkbox"/> Residential (Non-taxable)	Sampled By Name: Linda Fellenz	Sampled By Signature:
Sterile, Sodium Thiosulfate Preserved Bottle Used: <input type="checkbox"/> Biocide Used in Source (specify)		No. of Samples in Shipment

Public Water Supply Samples:  Note: All results may automatically be reported to DOH if required by State.

Turn-Around-Time (TAT) Please call ahead for large projects and/or turnaround times 6 Hours or Less. \*32 Hour TAT available for select tests only; samples must be submitted by 11:30am.

3 Hour  8 Hour  24 Hour  32\* Hour  48 Hour  72 Hour  96 Hour  1 Week  2 Week

MICROBIOLOGY TEST CODES			
M001 Air-O-Cell	M174 MoldSnap	M012 Pseudomonas aeruginosa (PIA***)	M115 Sewage Screen - Water (PIA***)
M030 Micro 5	M032 Allergenco-D	M024 Pseudomonas aeruginosa (MFT*)	M116 Sewage Screen - Water (MPN**)
M041 Fungal Direct Examination		M015 Heterotrophic Plate Count	M117 Sewage Screen - Swab (PIA***)
M169 Pollen ID & Enumeration		M017 Total Coliform & E. Coli (Colilert P/A***)	M013 Sewage Screen - Swab (MFT*)
M280 Dust Characterization Level-1		M018 Total Coliform & E. Coli (MFT*)	M730 Methicillin-resistant Staph. aureus (MRSA)
M281 Dust Characterization Level-2		M114 Total Coliform & E. Coli Enumeration (Colilert MPN**)	M031 Rapid-growing non-TB Mycobacteria Detection & Enumeration
M005 Viable Fungi-Air Samples (Genus ID & Count)		M019 Fecal Coliform (MFT*)	M014 Endotoxin Analysis
M006 Viable Fungi-Air Samples (Includes Penicillium, Aspergillus, Cladosporium, Stachybotrys Species ID & Count)		M020 Fecal Streptococcus (MFT*)	M044 Group Allergen (Cat, Dog, Cockroach, Dust Mite)
M007 Culturable Fungi-Surface Samples (Genus ID & Count)		M029 Enterococci (MFT*)	M095 Bacteroides
M008 Culturable Fungi-Surface Samples (Includes Penicillium, Aspergillus, Cladosporium, Stachybotrys Species ID & Count)		M129 Enterococci (Enterolert P/A***)	Other - See Analytical Price Guide for Test Code
M009 Bacteria Culture Gram Stain & Count		M180 Real Time qPCR-ERMI 36 Panel	Legionella Analysis Please use EMSL Legionella COC
M010 Bacteria Count & ID - 3 Most Prominent		M025 Sewage Screen - Water (MFT*)	
M011 Bacteria Count & ID - 5 Most Prominent		*MFT = Membrane Filtration Technique	
		**MPN = Most Probable Number	
		***PIA = Presence/Absence	

Sample #	Sample Location/Description	Sample Type (Matrix)	Potable / Non-Potable (Only for Water)	Test Code	Volume/Area	Date / Time Collected	Temperature (Lab Use Only)
Example: Sample 1	Kitchen	Water	Potable	M017	1,000 ml	1/1/2021 3:30pm	
M-01	Basement NORTH	Air		M001	150	3/9/22 9:05 AM	
M-02	Basement SOUTH	↓		M001	150	3/9/22 9:45	
M-03	1st Floor Hallway		M001	150	3/9/22 10:20		
M-04	3rd Floor Hallway		M001	150	3/9/22 10:55		
M-05	Outside		M001	150	3/9/22 11:30		

Special Instructions and/or Regulatory Requirements (Sample Specifications, Processing Methods, Limits of Detection, etc.)

Method of Shipment:	Sample Condition Upon Receipt:
Relinquished by: <i>[Signature]</i>	Date/Time: 3/10/2022
Relinquished by:	Date/Time:
Received by: <i>[Signature]</i>	Date/Time: 3-14-22
Received by:	Date/Time:

Controlled Document - COC-34 Micro R13 03/02/2021  AGREE TO ELECTRONIC SIGNATURE (By checking, I consent to signing this Chain of Custody document by electronic signature.)

EMSL Analytical, Inc.'s Laboratory Terms and Conditions are incorporated into this Chain of Custody by reference in their entirety. Submission of samples to EMSL Analytical, Inc. constitutes acceptance and acknowledgment of all terms and conditions by Customer.



# EXPANDED FUNGAL REPORT <sup>TM</sup>

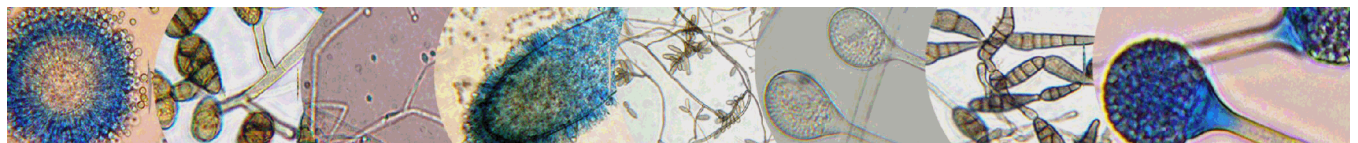
## Prepared Exclusively For

LF Green Development, LLC  
5600 West Brown Deer Road  
Milwaukee, WI 53223  
Phone:414-254-4813

**Report Date:** 3/30/2022  
**Project:** 1220 W. Vliet  
**EMSL Order:** 372203802

**AIHA LAP, LLC.**

EMLAP #100194



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## EMSL Analytical, Inc.

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**Attn:** Linda Fellenz  
LF Green Development, LLC  
5600 West Brown Deer Road  
Milwaukee, WI 53223

EMSL Order: 372203802  
Customer ID: LFGR78  
Collected: 3/09/2022  
Received: 3/14/2022  
Analyzed: 3/15/2022

**Proj:** 1220 W. Vliet

### 1. Description of Analysis

#### Analytical Laboratory

EMSL Analytical, Inc. (EMSL) is a nationwide, full service, analytical testing laboratory network providing Asbestos, Mold, Indoor Air Quality, Microbiological, Environmental, Chemical, Forensic, Materials, Industrial Hygiene and Mechanical Testing services since 1981. Ranked as the premier independently owned environmental testing laboratory in the nation, EMSL puts analytical quality as its top priority. This quality is recognized by many well-respected federal, state and private accrediting agencies, and assured by our high quality personnel, including many Ph.D. microbiologists and mycologists.

EMSL is an independent laboratory that performed the analysis of these samples. EMSL did not conduct the sampling or site investigation for this report. The samples referenced herein were analyzed under strict quality control procedures using state-of-the-art microbiological methods. The analytical methods used and the data presented are scientifically and legally defensible.

The laboratory data is provided in compliance with ISO-IEC 17025 guidelines for the particular test(s) requested, including any associated limitations for the methods employed. These data are intended for use by professionals having knowledge of the testing methods necessary to interpret them accurately.

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## EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

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Email: [cinnmicrolab@emsl.com](mailto:cinnmicrolab@emsl.com)

**Attn:** Linda Fellenz  
LF Green Development, LLC  
5600 West Brown Deer Road  
Milwaukee, WI 53223

EMSL Order: 372203802  
Customer ID: LFGR78  
Collected: 3/09/2022  
Received: 3/14/2022  
Analyzed: 3/15/2022

**Proj:** 1220 W. Vliet

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### Air Samples - Spore traps:

Spore traps are commercially available sampling devices that capture airborne particles on an adhesive slide. Air is pulled through the device using a vacuum pump. Spores, as well as other airborne particles, are impacted on the collection adhesive. Using spore trap collection methods has inherent limitations. These collection methods are biased towards larger spore sizes.

The analysis for total spore counts is a direct microscopic examination and does not include culturing or growing the fungi. Therefore, the results include both viable and non-viable spores. Some fungal groups produce similar spore types that cannot be distinguished by direct microscopic examination alone (i.e., *Aspergillus/Penicillium*, and others). Other spore types may lack distinguishing features that aid in their identification. These types are grouped into larger categories such as Ascospores or Basidiospores.

Fungal spores are identified and grouped by morphological characteristics including color, shape, septation, ornamentation, and fruiting structures (if present) which are compared to published mycological identification keys and texts. EMSL reports provide spore counts per cubic meter of air to three significant figures. Please note that each spore category is reported to three significant figures. Due to rounding and the application of three significant figures the sum of the individual spore numbers may not equal the total spore count on the report. EMSL does not maintain responsibility for final volume concentrations (counts/m<sup>3</sup>) since this volume is provided by the field collector and can not be verified by EMSL.

EMSL analyzes spore traps using phase contrast microscopy. There is a wide choice of collection devices (Air-O-Cell, Micro-5, Burkhard, etc.) on the market. Differences in analytical method may exist between spore trap devices.

Spore trap results are reported in spores per cubic meter of air. Due to the other airborne particles collected with the spores, EMSL reports a background particle density. Background density is an indication of overall particulate matter present on the sample (i.e. dust in the air). High background concentrations may obscure spores such as the *Penicillium/Aspergillus* group. The rating system is from 1-5 with 1 = 1 - 25% of the background obscured by material, 2 = 26 - 50%, 3 = 51 - 75%, 4 = 76% - 99%, 5 = 100% or overloaded. A background rating of 4 or higher should be regarded as a minimum count since the actual concentrations may be higher than those reported. EMSL will not be held responsible for overloading of samples. Sample volumes are left to the discretion of the company or persons conducting the fieldwork.

Skin fragment density is the percentage of skin cells making up the total background material, 1 = 1 - 25%, 2 = 26 - 50%, 3 = 51 - 75%, 4 = 76-100%. Skin fragment density is considered an indication of the general cleanliness in the area sampled. It has been estimated that up to 90% of household dust consists of dead skin cells.

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### 2. Analytical Results

See attached data reports and charts.

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

	Particle Identification	Sample Concentration (counts/m <sup>3</sup> )	Background Concentration (counts/m <sup>3</sup> )	Background Corrected (counts/m <sup>3</sup> )
<b>Lab Sample Number</b> 372203802-0001	Alternaria (Ulocladium)	7*	20	Less than Background
	Ascospores	40	None Detected	40
	Aspergillus/Penicillium	70	70	Equal To Background
<b>Client Sample ID</b> M-01	Basidiospores	70	70	Equal To Background
	Bipolaris++	None Detected	None Detected	Equal To Background
	Chaetomium++	70	None Detected	70
	Cladosporium	100	None Detected	100
<b>Location</b> Basement North	Curvularia	None Detected	None Detected	Equal To Background
	Epicoccum	None Detected	None Detected	Equal To Background
	Fusarium++	None Detected	None Detected	Equal To Background
	Ganoderma	None Detected	None Detected	Equal To Background
	Myxomycetes++	None Detected	None Detected	Equal To Background
<b>Sample Volume (L)</b> 150	Pithomyces++	None Detected	None Detected	Equal To Background
	Rust	None Detected	None Detected	Equal To Background
	Scopulariopsis/Microascus	40	None Detected	40
	Stachybotrys/Memnoniella	None Detected	20	Less than Background
<b>Sample Type</b> Inside	Unidentifiable Spores	20	None Detected	20
	Zygomycetes	None Detected	None Detected	Equal To Background
	Acremonium++	None Detected	550	Less than Background
<b>Comments</b>	Triadelphia	None Detected	20	Less than Background
	<b>Total Fungi</b>	<b>417</b>	<b>750</b>	<b>Less than Background</b>
	Other			
	Hyphal Fragment	40	7*	33
	Insect Fragment	None Detected	7*	Less than Background
	Pollen	None Detected	None Detected	Equal To Background
	Analytical Sensitivity 600x:		22 counts/cubic meter	
	Analytical Sensitivity 300x *:		7* counts/cubic meter	
Skin Fragments:		1 1 to 4 (low to high)		
Fibrous Particulate:		1 1 to 4 (low to high)		
Background:		2 1 to 4 (low to high); 5 (overloaded)		

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

Vincent Iuzzolino, M.S., Laboratory Director  
or Other Approved Signatory

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

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Initial report from: 03/15/2022 15:24:54

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**Attn:** Linda Fellenz  
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5600 West Brown Deer Road  
Milwaukee, WI 53223

**EMSL Order:** 372203802  
**Customer ID:** LFGR78  
**Collected:** 3/09/2022  
**Received:** 3/14/2022  
**Analyzed:** 3/15/2022

**Proj:** 1220 W. Vliet

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

	Particle Identification	Sample Concentration (counts/m <sup>3</sup> )	Background Concentration (counts/m <sup>3</sup> )	Background Corrected (counts/m <sup>3</sup> )
<b>Lab Sample Number</b> 372203802-0002	Alternaria (Ulocladium)	None Detected	20	Less than Background
	Ascospores	None Detected	None Detected	Equal To Background
	Aspergillus/Penicillium	None Detected	70	Less than Background
<b>Client Sample ID</b> M-02	Basidiospores	40	70	Less than Background
	Bipolaris++	None Detected	None Detected	Equal To Background
	Chaetomium++	None Detected	None Detected	Equal To Background
	Cladosporium	None Detected	None Detected	Equal To Background
<b>Location</b> Basement South	Curvularia	None Detected	None Detected	Equal To Background
	Epicoccum	None Detected	None Detected	Equal To Background
	Fusarium++	None Detected	None Detected	Equal To Background
	Ganoderma	None Detected	None Detected	Equal To Background
<b>Sample Volume (L)</b> 150	Myxomycetes++	None Detected	None Detected	Equal To Background
	Pithomyces++	7*	None Detected	7
	Rust	None Detected	None Detected	Equal To Background
	Scopulariopsis/Microascus	None Detected	None Detected	Equal To Background
<b>Sample Type</b> Inside	Stachybotrys/Memnoniella	7*	20	Less than Background
	Unidentifiable Spores	7*	None Detected	7
	Zygomycetes	None Detected	None Detected	Equal To Background
<b>Comments</b>	Acremonium++	None Detected	550	Less than Background
	Triadelphia	None Detected	20	Less than Background
	<b>Total Fungi</b>	<b>61</b>	<b>750</b>	<b>Less than Background</b>
	<b>Other</b>			
	Hyphal Fragment	20	7*	13
	Insect Fragment	None Detected	7*	Less than Background
	Pollen	None Detected	None Detected	Equal To Background
	Analytical Sensitivity 600x:	22	counts/cubic meter	
	Analytical Sensitivity 300x *:	7*	counts/cubic meter	
	Skin Fragments:	2	1 to 4 (low to high)	
	Fibrous Particulate:	1	1 to 4 (low to high)	
	Background:	1	1 to 4 (low to high); 5 (overloaded)	

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

Vincent Iuzzolino, M.S., Laboratory Director  
or Other Approved Signatory

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

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**Analyzed:** 3/15/2022

**Proj:** 1220 W. Vliet

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

	Particle Identification	Sample Concentration (counts/m³)	Background Concentration (counts/m³)	Background Corrected (counts/m³)
<b>Lab Sample Number</b> 372203802-0003	Alternaria (Ulocladium)	None Detected	20	Less than Background
	Ascospores	None Detected	None Detected	Equal To Background
	Aspergillus/Penicillium	70	70	Equal To Background
<b>Client Sample ID</b> M-03	Basidiospores	20	70	Less than Background
	Bipolaris++	None Detected	None Detected	Equal To Background
	Chaetomium++	None Detected	None Detected	Equal To Background
	Cladosporium	40	None Detected	40
<b>Location</b> 1st Floor Hallway	Curvularia	None Detected	None Detected	Equal To Background
	Epicoccum	None Detected	None Detected	Equal To Background
	Fusarium++	None Detected	None Detected	Equal To Background
	Ganoderma	None Detected	None Detected	Equal To Background
	Myxomycetes++	None Detected	None Detected	Equal To Background
<b>Sample Volume (L)</b> 150	Pithomyces++	None Detected	None Detected	Equal To Background
	Rust	None Detected	None Detected	Equal To Background
	Scopulariopsis/Microascus	None Detected	None Detected	Equal To Background
	Stachybotrys/Memnoniella	10*	20	Less than Background
<b>Sample Type</b> Inside	Unidentifiable Spores	7*	None Detected	7
	Zygomycetes	None Detected	None Detected	Equal To Background
	Acremonium++	None Detected	550	Less than Background
<b>Comments</b>	Triadelphia	None Detected	20	Less than Background
	<b>Total Fungi</b>	<b>147</b>	<b>750</b>	<b>Less than Background</b>
	Other			
	Hypchal Fragment	None Detected	7*	Less than Background
	Insect Fragment	None Detected	7*	Less than Background
	Pollen	7*	None Detected	7
	Analytical Sensitivity 600x:		22 counts/cubic meter	
	Analytical Sensitivity 300x *:		7* counts/cubic meter	
	Skin Fragments:		2 1 to 4 (low to high)	
	Fibrous Particulate:		1 1 to 4 (low to high)	
Background:		2 1 to 4 (low to high); 5 (overloaded)		

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

Vincent Iuzzolino, M.S., Laboratory Director  
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**Analyzed:** 3/15/2022

**Proj:** 1220 W. Vliet

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

	Particle Identification	Sample Concentration (counts/m³)	Background Concentration (counts/m³)	Background Corrected (counts/m³)
<b>Lab Sample Number</b> 372203802-0004	Alternaria (Ulocladium)	None Detected	20	Less than Background
	Ascospores	None Detected	None Detected	Equal To Background
	Aspergillus/Penicillium	200	70	130
<b>Client Sample ID</b> M-04	Basidiospores	20	70	Less than Background
	Bipolaris++	None Detected	None Detected	Equal To Background
	Chaetomium++	None Detected	None Detected	Equal To Background
	Cladosporium	100	None Detected	100
<b>Location</b> 3rd Floor Hallway	Curvularia	None Detected	None Detected	Equal To Background
	Epicoccum	None Detected	None Detected	Equal To Background
	Fusarium++	None Detected	None Detected	Equal To Background
	Ganoderma	None Detected	None Detected	Equal To Background
<b>Sample Volume (L)</b> 150	Myxomycetes++	None Detected	None Detected	Equal To Background
	Pithomyces++	None Detected	None Detected	Equal To Background
	Rust	None Detected	None Detected	Equal To Background
	Scopulariopsis/Microascus	None Detected	None Detected	Equal To Background
<b>Sample Type</b> Inside	Stachybotrys/Memnoniella	40	20	20
	Unidentifiable Spores	None Detected	None Detected	Equal To Background
	Zygomycetes	None Detected	None Detected	Equal To Background
	Acremonium++	None Detected	550	Less than Background
<b>Comments</b>	Triadelphia	None Detected	20	Less than Background
	<b>Total Fungi</b>	<b>360</b>	<b>750</b>	<b>Less than Background</b>
	Other			
	Hypchal Fragment	None Detected	7*	Less than Background
	Insect Fragment	None Detected	7*	Less than Background
	Pollen	None Detected	None Detected	Equal To Background
	Analytical Sensitivity 600x:		22 counts/cubic meter	
	Analytical Sensitivity 300x *:		7* counts/cubic meter	
	Skin Fragments:		2 1 to 4 (low to high)	
	Fibrous Particulate:		2 1 to 4 (low to high)	
Background:		2 1 to 4 (low to high); 5 (overloaded)		

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

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	Particle Identification	Sample Concentration (counts/m <sup>3</sup> )	Background Concentration (counts/m <sup>3</sup> )	Background Corrected (counts/m <sup>3</sup> )
<b>Lab Sample Number</b> 372203802-0005	Alternaria (Ulocladium)	20	N/A	N/A
	Ascospores	None Detected	N/A	N/A
	Aspergillus/Penicillium	70	N/A	N/A
<b>Client Sample ID</b> M-05	Basidiospores	70	N/A	N/A
	Bipolaris++	None Detected	N/A	N/A
	Chaetomium++	None Detected	N/A	N/A
	Cladosporium	None Detected	N/A	N/A
<b>Location</b> Outside	Curvularia	None Detected	N/A	N/A
	Epicoccum	None Detected	N/A	N/A
	Fusarium++	None Detected	N/A	N/A
	Ganoderma	None Detected	N/A	N/A
	Myxomycetes++	None Detected	N/A	N/A
<b>Sample Volume (L)</b> 150	Pithomyces++	None Detected	N/A	N/A
	Rust	None Detected	N/A	N/A
	Scopulariopsis/Microascus	None Detected	N/A	N/A
	Stachybotrys/Memnoniella	20	N/A	N/A
<b>Sample Type</b> Background	Unidentifiable Spores	None Detected	N/A	N/A
	Zygomycetes	None Detected	N/A	N/A
	Acremonium++	550	N/A	N/A
<b>Comments</b>	Triadelphia	20	N/A	N/A
	<b>Total Fungi</b>	<b>750</b>	<b>N/A</b>	<b>N/A</b>
	Other			
	Hyphal Fragment	7*	N/A	N/A
	Insect Fragment	7*	N/A	N/A
	Pollen	None Detected	N/A	N/A
	Analytical Sensitivity 600x:		22	counts/cubic meter
Analytical Sensitivity 300x *:		7*	counts/cubic meter	
Skin Fragments:		2	1 to 4 (low to high)	
Fibrous Particulate:		2	1 to 4 (low to high)	
Background:		2	1 to 4 (low to high); 5 (overloaded)	

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or Other Approved Signatory

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

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. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted. High levels of background particulate can obscure spores and other particulates, leading to underestimation. Background levels of 5 indicate an overloading of background particulates, prohibiting accurate detection and quantification. 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. Skin & Fibrous ratings: 1 (1-25%), 2 (26-50%), 3 (51-75%), 4 (76-100%) of the background particles. Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ AIHA-LAP, LLC-EMLAP Accredited #100194

Initial report from: 03/15/2022 15:24:54

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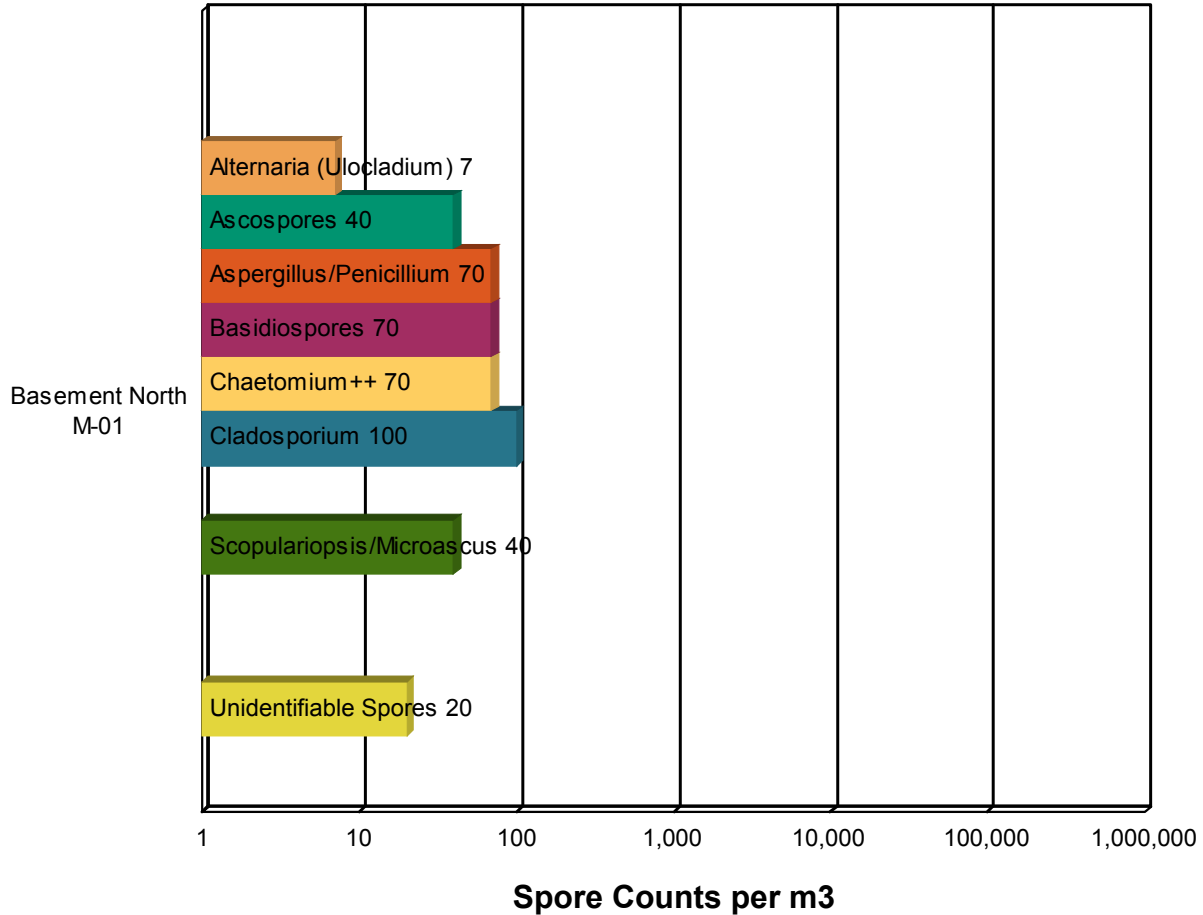
Phone: (800) 220-3675 Fax: (856) 786-0262 Web: <http://www.EMSL.com> Email: [cinnmicrolab@emsl.com](mailto:cinnmicrolab@emsl.com)

**Attn:** Linda Fellenz  
LF Green Development, LLC  
5600 West Brown Deer Road  
Milwaukee, WI 53223

**EMSL Order:** 372203802  
**Customer ID:** LFGR78  
**Collected:** 3/09/2022  
**Received:** 3/14/2022  
**Analyzed:** 3/15/2022

**Proj:** 1220 W. Vliet

## Spore Trap Report: Total Counts



■ Acremonium++	■ Alternaria (Ulocladium)	■ Ascospores
■ Aspergillus/Penicillium	■ Basidiospores	■ Chaetomium++
■ Cladosporium	■ Pithomyces++	■ Scopulariopsis/Microascus
■ Stachybotrys/Memnoniella	■ Triadelphia	■ Unidentifiable Spores

\* The chart is displayed using a logarithmic scale. Bar size is not directly proportional to the number of spores.

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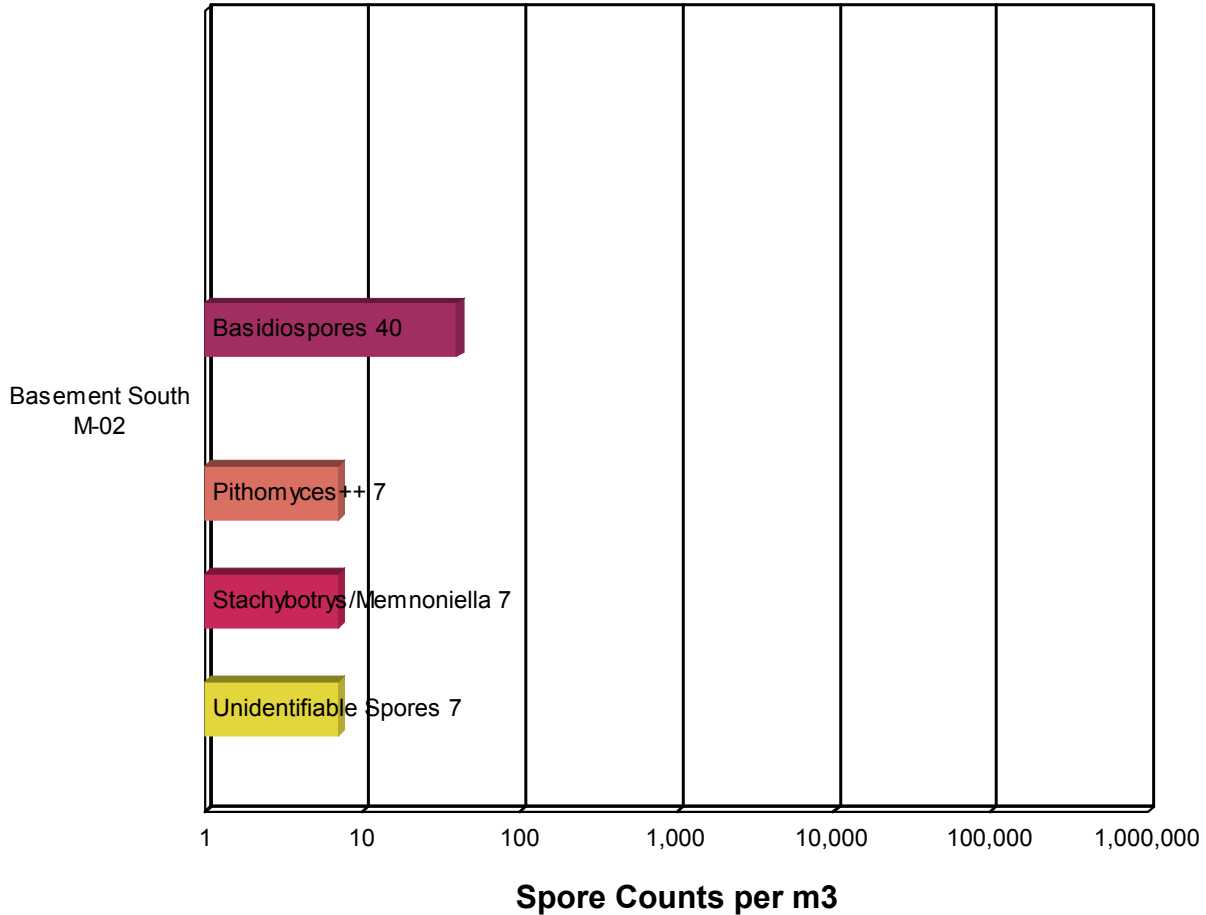
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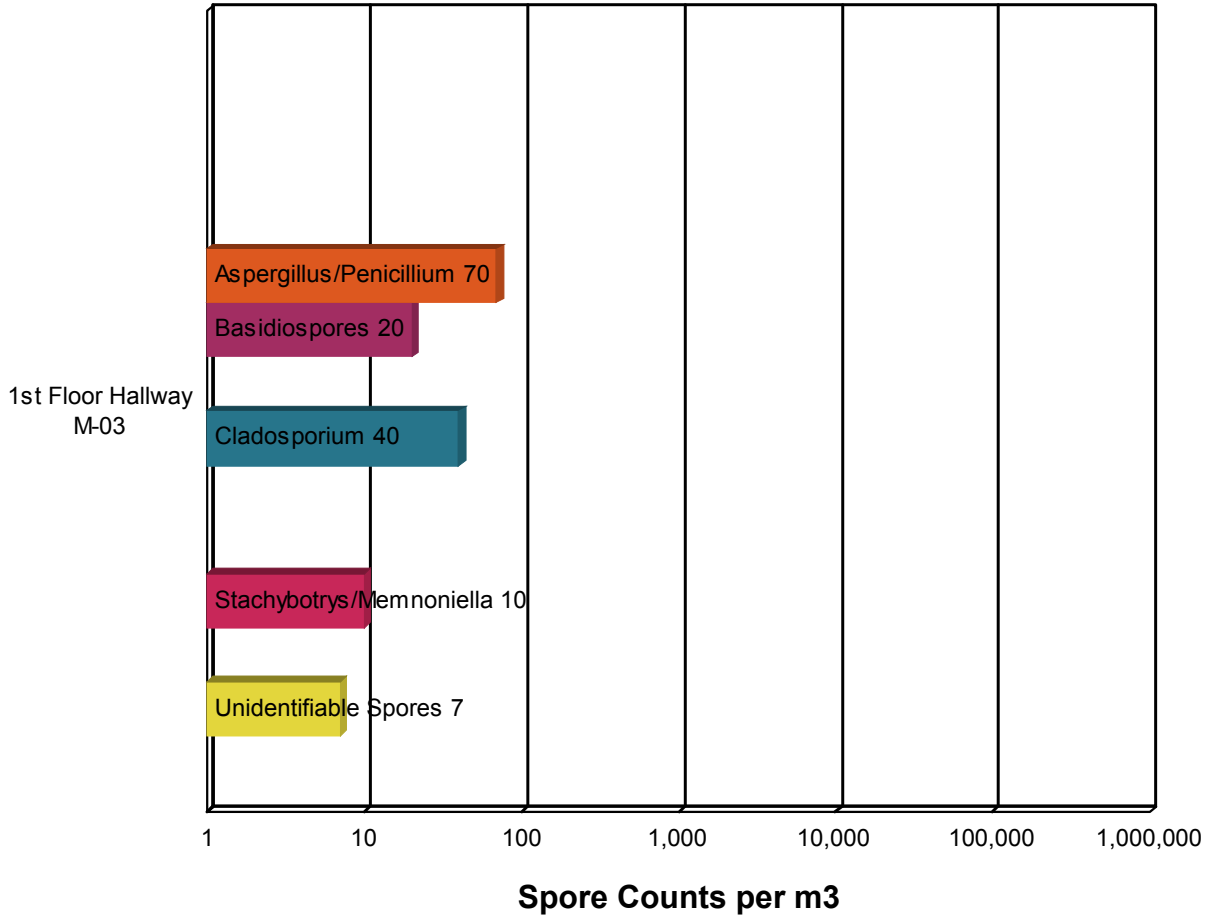
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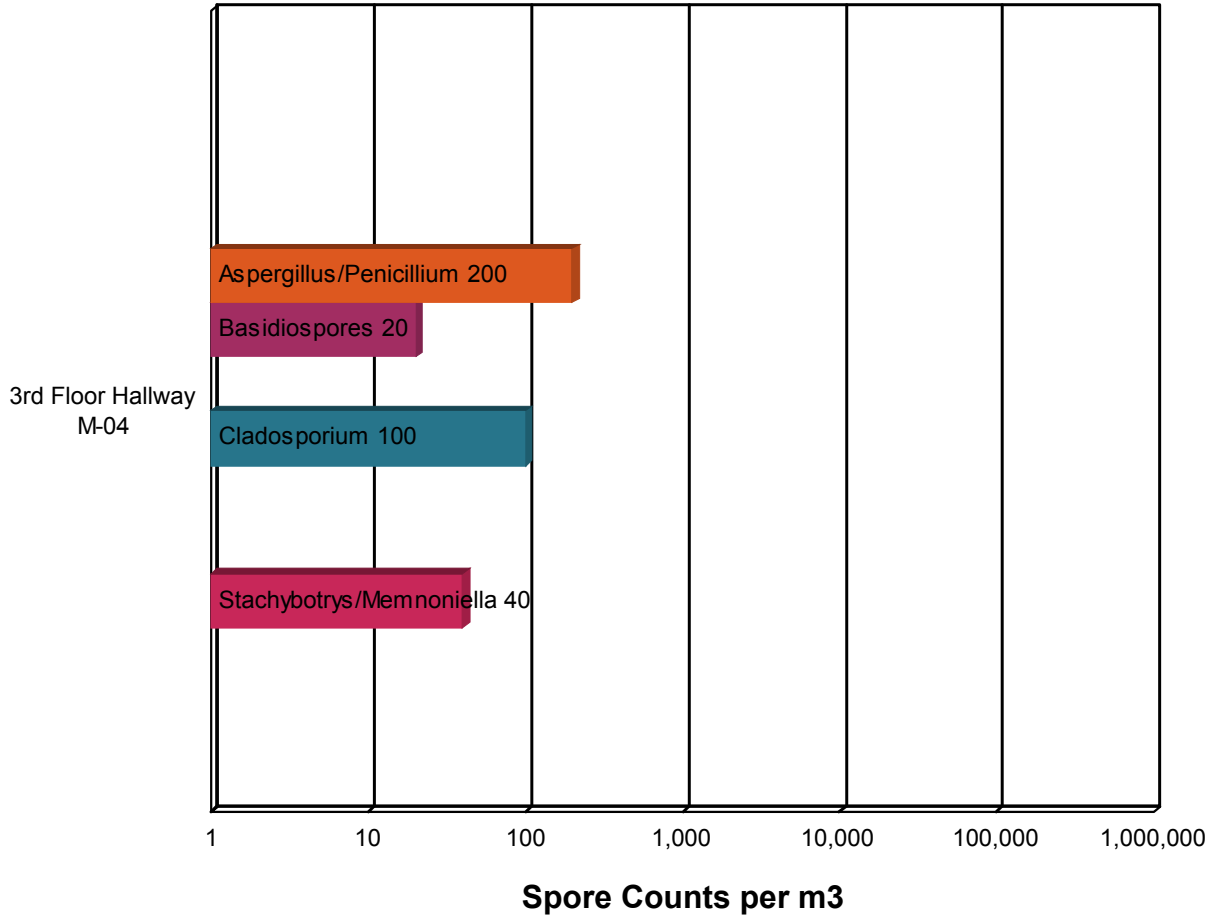
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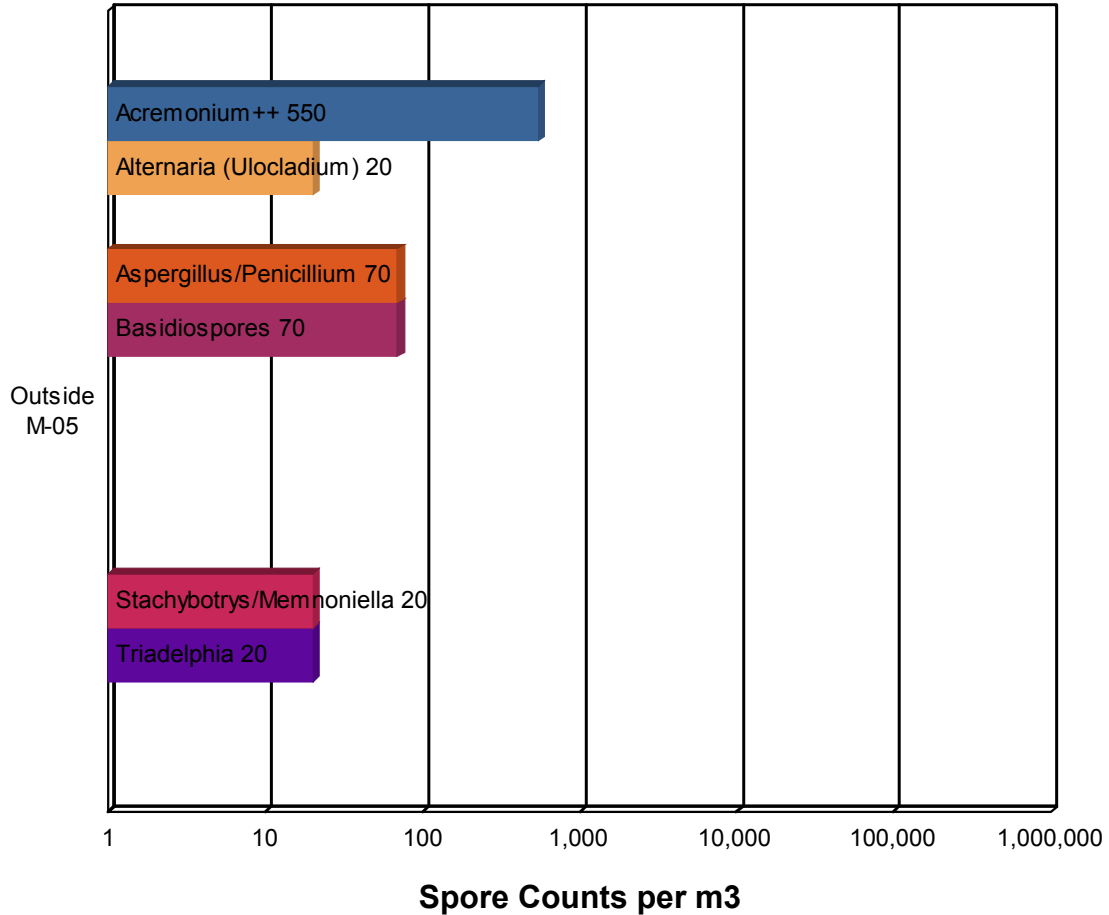
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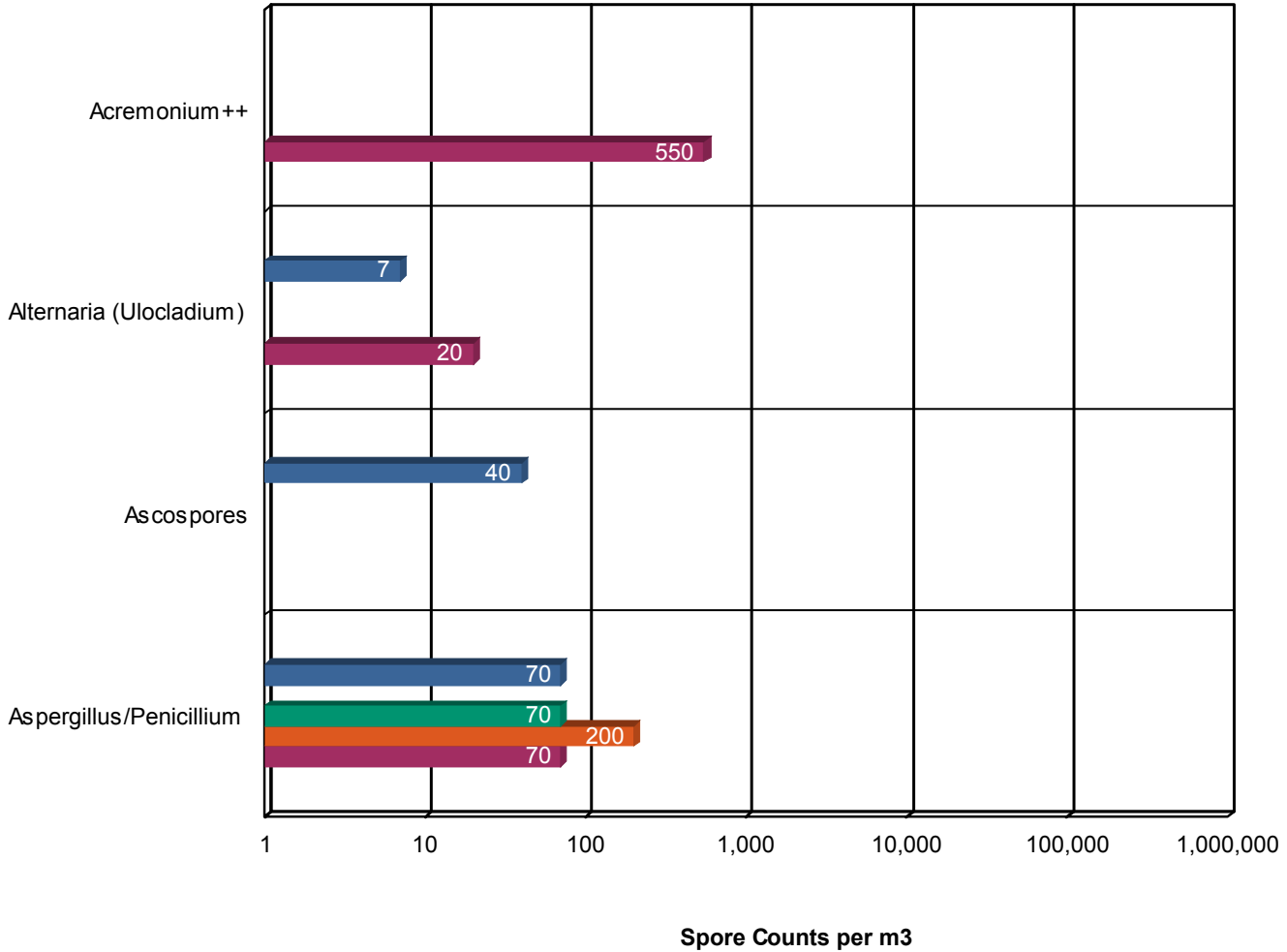
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## Background Comparison Chart



<span style="color: blue;">■</span> M-01 Basement North	<span style="color: orange;">■</span> M-02 Basement South	<span style="color: green;">■</span> M-03 1st Floor Hallway	<span style="color: red;">■</span> M-04 3rd Floor Hallway
<span style="color: purple;">■</span> M-05 Outside			

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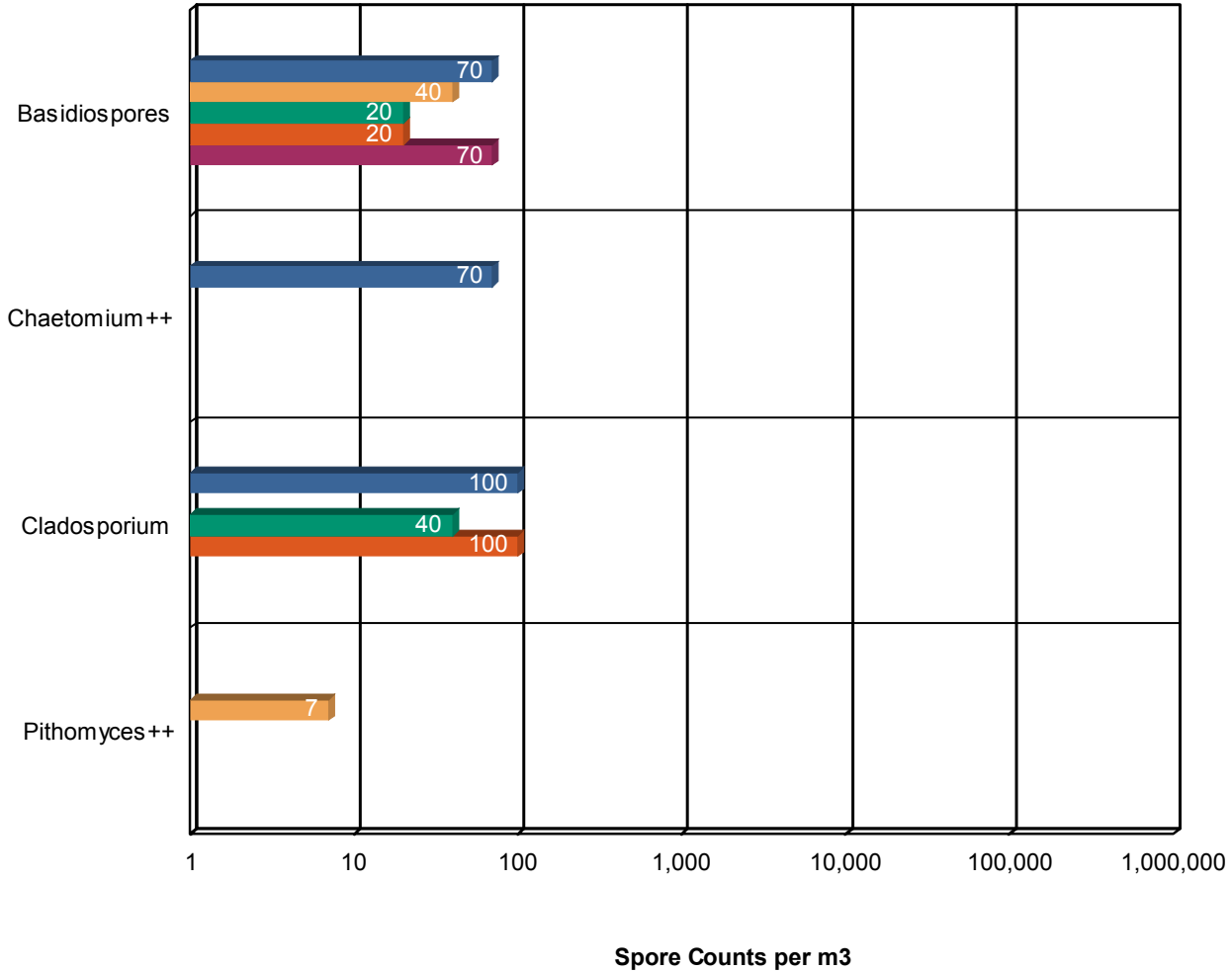
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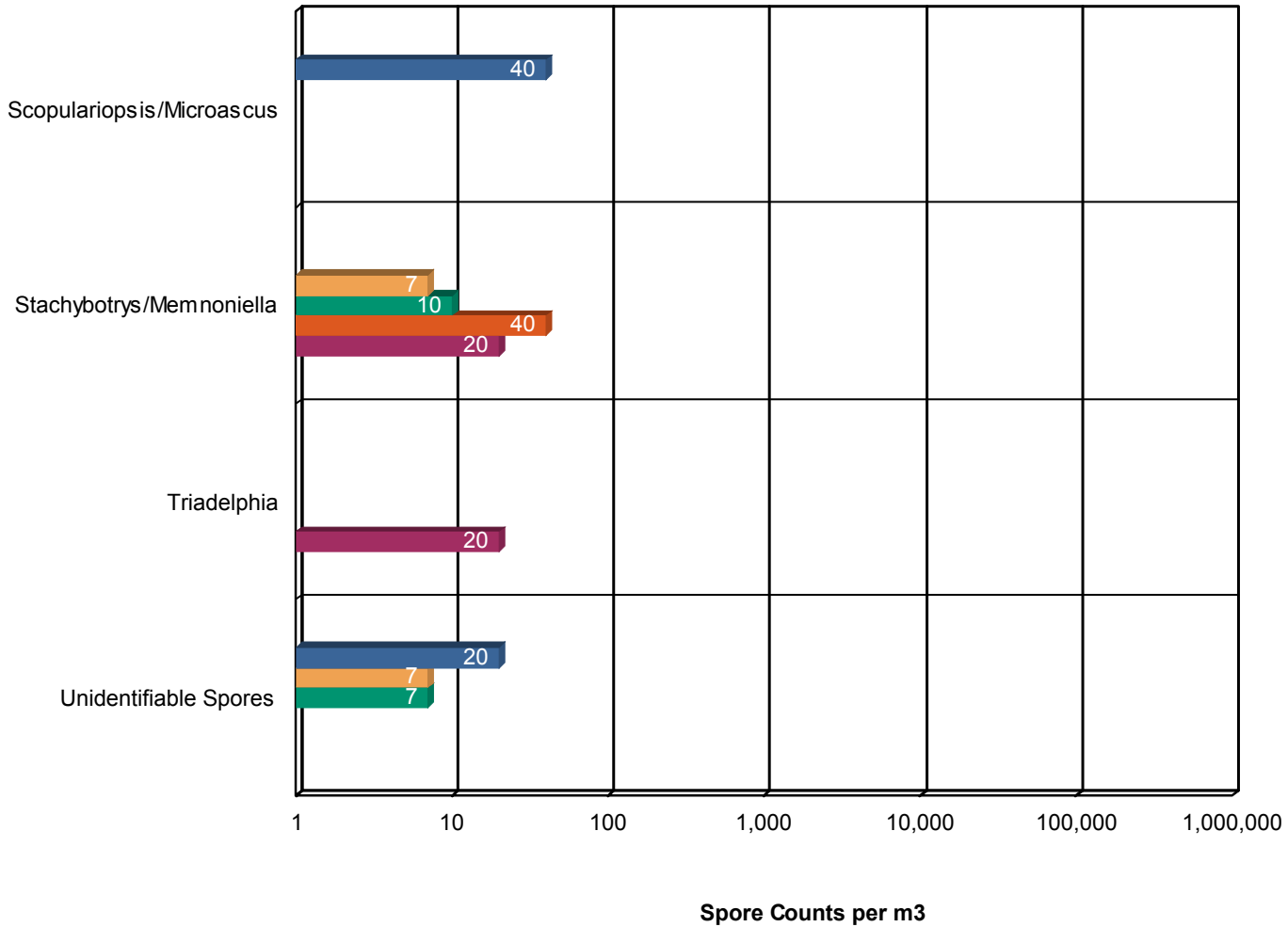
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### 3. Understanding the Results

EMSL Analytical, Inc. is an independent laboratory, providing unbiased and scientifically valid results. These data represent only a portion of an overall IAQ investigation. Visual information and environmental conditions measured during the site assessment (humidity, moisture readings, etc.) are crucial to any final interpretation of the results. Many factors impact the final results; therefore, result interpretation should only be conducted by qualified individuals. The American Conference of Governmental Industrial Hygienists (ACGIH) has published a good reference book covering sampling and data interpretation. It is entitled, Bioaerosols: Assessment and Control, 1999.

Fungal spores are found everywhere. Whether or not symptoms develop in people exposed to fungi depends on the nature of the fungal material (e.g., allergenic, toxic, or infectious), the exposure level, and the susceptibility of exposed persons. Susceptibility varies with the genetic predisposition (e.g., allergic reactions do not always occur in all individuals), age, pre-existing medical conditions (e.g., diabetes, cancer, or chronic lung conditions), use of immunosuppressive drugs, and concurrent exposures. These reasons make it difficult to identify dose/response relationships that are required to establish “safe” or “unsafe” levels (i.e., permissible exposure limits).

It is generally accepted in the industry that indoor fungal growth is undesirable and inappropriate, necessitating removal or other appropriate remedial actions. The New York City guidelines and EPA guidelines for mold remediation in schools and commercial buildings define the conditions warranting mold remediation. Always remember that water is the key. Preventing water damage or water condensation will prevent mold growth.

This report is not intended to provide medical advice or advice concerning the relative safety of an occupied space. Always consult an occupational or environmental health physician who has experience addressing indoor air contaminants if you have any questions.

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## 4. Glossary of Fungi

<b>ACREMONIUM++</b>	
<b>Natural Habitat</b>	A worldwide saprophytic fungi, being isolated from dead plant material and soil.
<b>Suitable Substrates in the Indoor Environment</b>	Dry wall damaged by condensation or water intrusion, paper, natural textiles
<b>Water Activity</b>	Unknown
<b>Mode of Dissemination</b>	Insects, water droplets
<b>Allergic Potential</b>	Potential allergen
<b>Potential or Opportunistic Pathogens</b>	A number of species are recognized as opportunistic pathogens of man and animals, causing mycetoma, onychomycosis, and hyalohyphomycosis arthritis, osteomyelitis, peritonitis, endocarditis, pneumonia, cerebritis and subcutaneous infection. This fungus is known to cause opportunistic infections in immunocompromised patients, such as bone marrow transplant recipients. Infections of artificial implants due to <i>Acremonium</i> spp. are occasionally observed.
<b>Other Comments</b>	<i>Acremonium</i> -like includes <i>Acremonium</i> , <i>Gliomastix</i> , <i>Lecanicillium</i> , <i>Metapochonia</i> , <i>Parasarocladium</i> , <i>Sagenomella</i> , <i>Sarocladium</i> , <i>Verticillium</i> and others.

<b>ALTERNARIA(ULOCLADIUM)</b>	
<b>Natural Habitat</b>	Common saprobe and pathogen of plants. Typically found on plant tissue, decaying wood, and foods. Soil. Air outdoors.
<b>Suitable Substrates in the Indoor Environment</b>	Indoors near condensation (window frames, showers), House dust (in carpets, and air). Also colonizes building supplies, computer disks, cosmetics, leather, optical instruments, paper, sewage, stone monuments, textiles, wood pulp, and jet fuel
<b>Water Activity</b>	Aw =0.85-0.88 (water damage indicator)
<b>Mode of Dissemination</b>	Wind
<b>Allergic Potential</b>	Type I allergies (hay fever, asthma), Type III (hypersensitivity pneumonitis)
<b>Potential or Opportunistic Pathogens</b>	Phaeohyphomycosis {causing cystic granulomas in the skin and subcutaneous tissue}. In immunocompetent patients, <i>Alternaria</i> colonizes the paranasal sinuses, leading to chronic hypertrophic sinusitis
<b>Industrial Uses</b>	Biocontrol of weed plants ·Biocontrol fungal plant pathogens.
<b>Potential Toxins Produced</b>	Alternariol (AOH) . Alternariol monomethylether (AME). Tenuazonic acid (TeA). Altenuene (ALT). Altertoxins (ATX)
<b>Other Comments</b>	Many species of <i>Ulocladium</i> have been renamed as <i>Alternaria</i> . <i>Alternaria</i> spores are one of the most common and potent indoor and outdoor airborne allergens. Additionally, <i>Alternaria</i> sensitization has been determined to be one of the most important factors in the onset of childhood asthma. Synergy with <i>Cladosporium</i> or <i>Ulocladium</i> may increase the severity of symptoms
<b>References</b>	<i>Alternaria</i> redefined. J. Woudenberg et al., <i>Studies in Mycology</i> . Volume 75, June 2013, Pages 171-212

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## ASCOSPORES

<b>Natural Habitat</b>	Everywhere in nature.
<b>Suitable Substrates in the Indoor Environment</b>	Depends on genus and species.
<b>Water Activity</b>	Depends on genus and species.
<b>Mode of Dissemination</b>	Forcible ejection or passive release and dissemination by wind or insects.
<b>Allergic Potential</b>	Depends on genus and species.
<b>Potential or Opportunistic Pathogens</b>	Depends on genus and species.
<b>Industrial Uses</b>	Depends on genus and species.
<b>Potential Toxins Produced</b>	Depends on genus and species.
<b>Other Comments</b>	Ascospores are the result of sexual reproduction and produced in a saclike structure called an ascus. All ascospores belong to members of the Phylum Ascomycota, which encompasses a plethora of genera worldwide.

## ASPERGILLUS/PENICILLIUM

<b>Natural Habitat</b>	Plant debris ·Seed ·Cereal crops
<b>Suitable Substrates in the Indoor Environment</b>	Grows on a wide range of substrates indoors ·Prevalent in water damaged buildings ·Foods (blue mold on cereals, fruits, vegetables, dried foods) ·House dust ·Fabrics ·Leather ·Wallpaper ·Wallpaper glue
<b>Water Activity</b>	Aw=0.75-0.94
<b>Mode of Dissemination</b>	Wind ·Insects
<b>Allergic Potential</b>	Type I (hay fever, asthma) ·Type III (hypersensitivity)
<b>Potential or Opportunistic Pathogens</b>	Possible depending on the species.
<b>Industrial Uses</b>	Many depending on the species
<b>Potential Toxins Produced</b>	Possible depending on the species.
<b>Other Comments</b>	Spores of Aspergillus and Penicillium (including others such as Acremonium, Talaromyces, and Paecilomyces) are small and spherical with few distinguishing characteristics. They cannot be differentiated or speciated by non-viable impaction sampling methods. Some species with very small spores may be undercounted in samples with high background debris.

## BASIDIOSPORES

<b>Natural Habitat</b>	Forest floors. Lawns .Plants (saprobes or pathogens depending on genus)
<b>Suitable Substrates in the Indoor Environment</b>	Depends on genus. Wood products
<b>Water Activity</b>	Unknown.
<b>Mode of Dissemination</b>	Forcible ejection. Wind currents.
<b>Allergic Potential</b>	Type I allergies (hay fever, asthma) . Type III (hypersensitivity pneumonitis)
<b>Potential or Opportunistic Pathogens</b>	Depends on genus.
<b>Industrial Uses</b>	Edible mushrooms are used in the food industry.
<b>Potential Toxins Produced</b>	Amanitins. monomethyl-hydrazine. muscarine. ibotenic acid. psilocybin.
<b>Other Comments</b>	Basidiospores are the result of sexual reproduction and formed on a structure called the basidium. Basidiospores belong to the members of the Phylum Basidiomycota, which includes mushrooms, shelf fungi, rusts, and smuts.

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## CHAETOMIUM++

<b>Natural Habitat</b>	Dung. Seeds. Soil. Straw. Genera with like spores include Amesia, Arcopilus, Botryotrichum, Collariella, Dichotomopilus, Ovatospora, Subramaniula and others.
<b>Suitable Substrates in the Indoor Environment</b>	Paper. Sheetrock. Wallpaper.
<b>Water Activity</b>	Aw=0.84-0.89.
<b>Mode of Dissemination</b>	Wind. Insects. Water splash.
<b>Allergic Potential</b>	Type I (asthma and hay fever).
<b>Potential or Opportunistic Pathogens</b>	Onychomycosis. <i>C. perlucidum</i> recognized as a new agent of cerebral phaeohyphomycosis.
<b>Industrial Uses</b>	Cellulase production, Textile testing.
<b>Potential Toxins Produced</b>	Chaetomin. Chaetoglobosins A,B,D and F are produced by <i>Chaetomium globosum</i> . Sterigmatocystin is produced by rare species

## CLADOSPORIUM

<b>Natural Habitat</b>	Dead plant matter. Straw. Soil. Woody plants
<b>Suitable Substrates in the Indoor Environment</b>	Fiberglass duct liner. Paint. Textiles. Found in high concentration in water-damaged building materials.
<b>Water Activity</b>	Aw 0.84-0.88
<b>Mode of Dissemination</b>	Air
<b>Allergic Potential</b>	Type I (asthma and hay fever).
<b>Potential or Opportunistic Pathogens</b>	Edema. keratitis. onychomycosis. pulmonary infections. Sinusitis.
<b>Industrial Uses</b>	Produces 10 antigens.
<b>Potential Toxins Produced</b>	Cladospurin and Emodin.

## PITHOMYCES++

<b>Natural Habitat</b>	A worldwide saprophytic fungi, being isolated from dead plant material and soil.
<b>Suitable Substrates in the Indoor Environment</b>	Paper
<b>Water Activity</b>	Requires high moisture for spore germination
<b>Mode of Dissemination</b>	Wind
<b>Allergic Potential</b>	Unknown
<b>Potential or Opportunistic Pathogens</b>	Mycosis in immunocompromised patients
<b>Other Comments</b>	Pithomyces++ includes spores of <i>Pithomyces</i> and <i>Pseudopithomyces</i> .

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# EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Phone: (800) 220-3675 Fax: (856) 786-0262 Web: <http://www.EMSL.com> Email: [cinnmicrolab@emsl.com](mailto:cinnmicrolab@emsl.com)

**Attn:** Linda Fellenz  
LF Green Development, LLC  
5600 West Brown Deer Road  
Milwaukee, WI 53223

**EMSL Order:** 372203802  
**Customer ID:** LFGR78  
**Collected:** 3/09/2022  
**Received:** 3/14/2022  
**Analyzed:** 3/15/2022

**Proj:** 1220 W. Vliet

<b>SCOPULARIOPSIS/MICROASCUS</b>	
<b>Natural Habitat</b>	Worldwide saprophytic fungi, being isolated from dead plant material and soil.
<b>Suitable Substrates in the Indoor Environment</b>	Diary products, fruit, grain, paper, wood
<b>Water Activity</b>	Unknown
<b>Mode of Dissemination</b>	Wind
<b>Allergic Potential</b>	Hypersensitivity
<b>Potential or Opportunistic Pathogens</b>	While Scopulariopsis is commonly considered a contaminant, it may cause onychomycosis, skin lesions, keratitis, pulmonary infections, endocarditis, particularly in immunocompromised patients.
<b>Other Comments</b>	Scopulariopsis is the anamorphic name (asexual stage) and Microascus is the teleomorphic name (sexual stage).

<b>STACHYBOTRYS/MEMNONIELLA</b>	
<b>Natural Habitat</b>	Decaying plant materials and Soil.
<b>Suitable Substrates in the Indoor Environment</b>	Water damaged building materials such as: ceiling tiles, gypsum board, insulation backing, sheet rock, and wall paper. Paper. Textiles.
<b>Water Activity</b>	Aw=0.94
<b>Mode of Dissemination</b>	Insects, Water, and Wind
<b>Allergic Potential</b>	Type I (hay fever, asthma)
<b>Potential or Opportunistic Pathogens</b>	Unknown.
<b>Industrial Uses</b>	Unknown.
<b>Potential Toxins Produced</b>	Mycotoxins produced by Stachybotrys include Roridin A, Roridin E, Roridin H, Roridin L-2, Satratoxin G, Satratoxin H, Isosratoxin F, Verucarin A, Verucarin J, and Verrucariol.
<b>Other Comments</b>	Stachybotrys and Memnoniella are closely related and many Memnoniella species have been renamed under Stachybotrys. Mycologists are continuing to debate whether Stachybotrys and Memnoniella should be grouped or split apart (see references below). Stachybotrys may play a role in the development of sick building syndrome. The presence of this fungus can be significant due to its ability to produce mycotoxins. Exposure to the toxins can occur through inhalation, ingestion, or skin exposure.
<b>References</b>	Generic hyper-diversity in Stachybotriaceae. L. Lombard et al., Persoonia 36, 2016: 156–246. Overview of Stachybotrys (Memnoniella) and current species status. Y. Wang et al., Fungal Diversity, 2015: DOI: 10.1007/s13225-014-0319-0.

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### 5. References and Informational Links

#### Books

- Bioaerosols: Assessment and Control. Janet Macher, Ed., American Conference of Governmental Industrial Hygienists, Cincinnati, OH 1999.
- Exposure Guidelines for Residential Indoor Air Quality. Environmental Health Directorate, Health Protection Branch, Health Canada, Ottawa, Ontario, 1989.
- Fungal Contamination in Public Buildings: Health Effects and Investigation Methods. Health Canada, Ottawa, Ontario, 2004.
- IICRC: S500 Standard and Reference Guide for Professional Water Damage Restoration. 3rd Edition, Institute of Inspection, Cleaning, and Restoration Certification, Vancouver, WA, 2006
- IICRC: S520 Standard and Reference Guide for Professional Mold Remediation. 1st Edition, Institute of Inspection, Cleaning, and Restoration Certification, Vancouver, WA, 2004
- Field Guide for the Determination of Biological Contaminants in Environmental Samples. 2nd Edition, American Industrial Hygiene Association, 2005.

#### Consumer Links

Read the full text of AIHA's "The Facts About Mold" consumer brochure.

<http://www.aiha.org/get-involved/VolunteerGroups/Documents/Biosafety/VG-FactsAbout%20MoldDecember2011.pdf>

The Occupational Safety and Health Administration (OSHA)

<http://www.osha.gov/SLTC/molds/index.html>

CDC Mold Facts

<http://www.cdc.gov/mold/faqs.htm>

CDC Stachybotrys - Questions and answers on Stachybotrys chartarum and other molds

<http://www.cdc.gov/mold/stachy.htm>

IOM, NAS: Clearing the Air: Asthma and Indoor Air Exposures

<https://www.epa.gov/indoor-air-quality-iaq/should-you-have-air-ducts-your-home-cleaned>

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National Library of Medicine-Mold website

<http://www.nlm.nih.gov/medlineplus/molds.html>

California Department of Health Services (CADOHS)

<https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Pages/Mold.aspx>

Minnesota Department of Health

<http://www.health.state.mn.us/divs/eh/indoorair/mold/index.html>

New York City Department of Health and Mental Hygiene

<https://www1.nyc.gov/site/doh/health/health-topics/mold.page>

### EPA

"Should You Have the Air Ducts in Your Home Cleaned?"

<http://www.epa.gov/iaq/pubs/airduct.html>

General information about molds and actions that can be taken to clean up or prevent a mold problem.

<http://www.epa.gov/asthma/molds.html>

"A Brief Guide to Mold, Moisture, and Your Home" - Includes basic information on mold, cleanup guidelines, and moisture and mold prevention

<http://www.epa.gov/mold/moldguide.html>

"Mold Remediation in Schools and Commercial Buildings" - Information on remediation in schools and commercial property, references for potential mold and moisture remediators.

<https://www.epa.gov/mold/mold-remediation-schools-and-commercial-buildings-guide>

### FEMA

"Homes That Were Flooded May Harbor Mold Problems" - Information and tips for cleaning mold.

<http://www.fema.gov/news-release/homes-were-flooded-may-harbor-mold-problems>

"Dealing With Mold & Mildew in Your Flood Damaged Home.

[http://www.fema.gov/pdf/rebuild/recover/fema\\_mold\\_brochure\\_english.pdf](http://www.fema.gov/pdf/rebuild/recover/fema_mold_brochure_english.pdf)

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### 6. Important Terms, Conditions, and Limitations

#### A. Sample Retention

Samples analyzed by EMSL will be retained for 60 days after analysis date. Storage beyond this period is available for a fee with written request prior to the initial 30 day period. Samples containing hazardous/toxic substances which require special handling will be returned to the client immediately. EMSL reserves the right to charge a sample disposal fee or return samples to the client.

#### B. Change Orders and Cancellation

All changes in the scope of work or turnaround time requested by the client after sample acceptance must be made in writing and confirmed in writing by EMSL. If requested changes result in a change in cost the client must accept payment responsibility. In the event work is cancelled by a client, EMSL will complete work in progress and invoice for work completed to the point of cancellation notice. EMSL is not responsible for holding times that are exceeded due to such changes.

#### C. Warranty

EMSL warrants to its clients that all services provided hereunder shall be performed in accordance with established and recognized analytical testing procedures and with reasonable care in accordance with applicable federal, state and local laws. The foregoing express warranty is exclusive and is given in lieu of all other warranties, expressed or implied. EMSL disclaims any other warranties, express or implied, including a warranty of fitness for particular purpose and warranty of merchantability.

#### D. Limits of Liability

In no event shall EMSL be liable for indirect, special, consequential, or incidental damages, including, but not limited to, damages for loss of profit or goodwill regardless of the negligence (either sole or concurrent) of EMSL and whether EMSL has been informed of the possibility of such damages, arising out of or in connection with EMSL's services thereunder or the delivery, use, reliance upon or interpretation of test results by client or any third party. We accept no legal responsibility for the purposes for which the client uses the test results. EMSL will not be held responsible for the improper selection of sampling devices even if we supply the device to the user. The user of the sampling device has the sole responsibility to select the proper sampler and sampling conditions to insure that a valid sample is taken for analysis. Any resampling performed will be at the sole discretion of EMSL, the cost of which shall be limited to the reasonable value of the original sample delivery group (SDG) samples. In no event shall EMSL

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