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Laboratory Report

Prepared Exclusively For:

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MICROBIOLOGY LABS · ISO/IEC 17025:2017 · Accredited Laboratory · AIHA LAP, LLC · AIHAACCREDITEDLABS.ORG · Lab ID # 172958

Project: 327 Lennox Ave NW, Massillon, OH **Project # 12302023 Lab # E199954**

Report Date: 01/04/2024 **Sampled: 12/30/2023** **Received: 01/03/2024** **Analyzed: 01/03/2024**

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Project Name:	327 Lennox Ave NW, Massillon, OH
Project Number:	12302023
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Lab Number:	E199954

1 - Laboratory Results

Location: 327 Lennox Basement

Sample # E199954 - 1

Medium Type: Tape Lift
Serial # 206076

Sample Identification	Prevalence
- Fungi -	
Stachybotrys	Present on 5 - 25% of sample area.

Background Item	Level
Dust / Debris	Low
Opaque Particles	Very Low

Analytic Methods and Formulas:

IMS Analytical Method: 2.6.1 (method for analyzing abundant organisms tape lift).

Note that this report may use mold-specific units of measure, such as Spores/cu. m and CFU/cu. m, for Sample Identifications which are not mold. Examples include pollen, fabric and fiberglass fibers, insect particles, and ash. In this context, "CFU" and "Spore" refer to individual pieces of the identified material. For Background Items, the Levels are defined thus: "Very Low" is present on less than 5% of sample area; "Low" is present on 6%-25% of sample area; "Medium" is present on 26%-50% of sample area; "High" is present on 51%-75% of sample area; "Very High" is present on 76%-100% of sample area.

IMS Laboratory, LLC is accredited through the AIHA-LAP, LLC and participates in Environmental Microbiology Proficiency Testing, EMPAT #172958. Data is provided in compliance with AIHA-LAP, LLC policy modules and ISO/IEC 17025:2017 guidelines.

Kathryn C. Langley 01/04/2024

Kathryn C. Langley, Laboratory Manager

2 - Understanding Laboratory Results

Laboratory findings must only be considered as part of an overall mold investigation. The interpretation of the findings must only be made by a qualified individual after reviewing all relevant data. Visual information and environmental conditions measured during the site assessment are crucial to any final interpretation of the results. A very good reference book which covers sampling and data interpretation has been published by The American Conference of Governmental and Industrial Hygienists and is entitled *Bioaerosols: Assessment and Control*, 1999.

Numerical guidelines cannot be used as the primary determinant as to whether a mold problem may exist. Concentrations of mold in the air will vary depending on weather conditions, building air flow, time of day and time of year. Comparisons between indoor and outdoor mold levels, types of mold found, visual information and environmental conditions are more important in interpreting results than reliance on specific numeric thresholds.

In *Indoor Air Quality in Office Buildings: A Technical Guide*, Health Canada, Revised 1995 (Pages 49-50), Health Canada set forth guidelines which can be used to better understand air testing results. The guidelines included these general principles. Significant numbers of certain pathogenic fungi should not be present in indoor air (e.g. *Aspergillus fumigatus*, *Histoplasma*, and *Cryptcoccus*). Bird or bat droppings in air intakes, ducts or rooms should be assumed to contain these pathogens. The persistent presence of significant numbers of toxigenic fungi (e.g. *Stachybotrys atra*, toxigenic *Aspergillus*, *Penicillium* and *Fusarium* species) indicate that further investigation and action should be taken. The confirmed presence of one or more fungal species occurring as a significant percentage of a sample in indoor air samples and not similarly present in concurrent outdoor samples is evidence of a fungal amplifier. The "normal" air mycoflora is qualitatively similar and quantitatively lower than that of outdoor air. The significant presence of fungi in humidifiers and diffuser ducts and on moldy ceiling tiles and other surfaces requires investigation and remedial action regardless of the airborne mold concentrations.

Generally, mold spores are present everywhere. As a general rule, "normal" air mycoflora is qualitatively similar and quantitatively lower than that of outdoor air. When the converse is true, it is likely that an indoor source of mold may exist. However, even this most basic rule may produce misleading results. Airborne mold spore levels vary widely due to factors such as weather conditions and activity levels. For example, in a "normal" home, indoor mold spore levels may be elevated above outdoor spore levels after vacuuming (when airborne indoor levels could be unusually high) or after a heavy snow (when outdoor levels could be unusually low).

Surface Sampling primarily identifies the types and relative proportions of mold on a surface. Viable surface sampling will identify living mold, while nonviable surface sampling will identify all mold (but cannot distinguish between living or dead mold). Surface sampling may confirm that a substance is mold or identify the types of mold present on the surface. Because mold is everywhere, there is a high probability that a surface sample from a "clean" surface will still identify mold on that surface.

There are currently no state or federal standards or guidelines regarding results of fungal samples. There are no levels, which are typical or permissible. There are no recommended exposure limits, no permissible exposure limits, no threshold limit values and no short term exposure limits.

These guidelines are not intended, nor should they be used, for health evaluation purposes or to evaluate the safety of an occupied space. A physician should be consulted regarding health and/or safety questions.

3 - Sample Identification Definitions

Stachybotrys

A fungus naturally found on decaying plant and tree material. In the indoor environment, it grows on building material with a high cellulose and water content and a low nitrogen content (e.g. wet drywall). There are over 20 documented species of Stachybotrys, and at least two are reported to be toxigenic; if not speciated, the genus Stachybotrys should be assumed to be toxigenic. Specifically, it can produce the mycotoxin trichothecene (Satratoxin H), which is poisonous upon inhalation. Individuals with chronic exposure to the toxin produced by this fungus reported cold and flu symptoms, sore throats, diarrhea, headaches, fatigue, dermatitis, intermittent local hair loss, and general malaise. The toxin may suppress the immune system, affecting the lymphoid tissue and the bone marrow. It is also reported to be a liver and kidney carcinogen. Effects by absorption of the toxin in the human lung are known as pneumomycosis. Areas with relative humidity above 55% are subject to temperature fluctuations and are ideal for toxin production. Stachybotrys is rarely found in outdoor samples. It is usually difficult to find in indoor air samples unless it is physically disturbed.

Found in these Sample Locations: (1) 327 Lennox Basement

4 - Glossary of Terms

Agar ~
A gelatinous medium used for growing microorganisms (e.g. mold, yeast, and bacteria).

Colony ~
A group of hyphae (filaments) of the same type of microorganism growing together. A colony can be seen with the naked eye.

Colony Forming Unit (CFU) ~
A unit of measure describing the number of colonies present in or on a surface of a sample.

Exposure ~
The exposure refers to the quantity of a sample collected for laboratory analysis. With reference to air tests, the exposure is determined by multiplying the flow rate of the collection device by the length of time the device was operating.

Fungus (fungi, pl) ~
Fungi are a form of life (eukaryotic) which can range from unicellular to filamentous. Fungi lack chlorophyll and absorb nutrients. Fungi can reproduce by sexual, asexual, or both means. Mold is a type of fungi.

Hypha (hyphae, pl) / hyphal fragment ~
Hypha is the tubular filament which is the vegetative, nutrient absorbing portion of the fungus.

Isolate (verb, Microbiology) ~
To obtain or extract a microorganism from an environment or mixed culture.

Mold ~
A very large group of microscopic fungi. Most are filamentous organisms and produce spores that can be air-, water-, or insect-borne. Mold can be a common trigger for allergies. For people who are sensitive to mold, exposure can cause symptoms such as nasal stuffiness, eye irritation, or wheezing. People with serious allergies to mold may have more severe reactions. Severe reactions may occur among workers exposed to large amounts of molds in occupational settings. People with chronic illnesses, such as obstructive lung disease, may develop mold infections in their lungs. Mold growth in the home can be slowed by keeping humidity levels below 50% and ventilating showers and cooking areas.

Mycotoxin ~
A substance produced by fungi which can be toxic to man and/or animals.

Opaque particle ~
Opaque particles are dark, non-biological, debris through which light will not pass.

Petri Dish ~
A dish containing agar for the culturing of microorganisms (e.g. fungi or bacteria).

Raw Count ~
The number of particles counted by an analyst during the examination of specimen.

Reporting Limit (RL) ~
The reporting limit (RL) is the limit of detection for an analyte that can be reliably reported by using a given analytical method. The RL is dependent on the time and volume of sampling.

Sample Medium ~
The sample medium refers to the type of test conducted (e.g. swab, spore trap air test, tape lift, etc.).

Serial Number ~
A manufacturer's specific identification code on a test medium (e.g. spore trap or tape lift).

Spore ~
A propagule/structure produced by fungi as a means of reproduction, survival, and dissemination. Spores can be single cellular or multicellular.

Spore Trap ~
A Spore trap is a collection device (or media) used to capture airborne spores and other airborne particulates. Spore traps are analyzed by microscopic means and do not distinguish between viable and non-viable cells.

Too Numerous To Count (TNTC) ~
TNTC is used to denote specimens in which a type of organism is present at an extremely high level or has grown together so that individual colonies cannot be distinguished.

Toxigenic fungi ~
Toxigenic fungi are fungi capable of producing toxic substances.

5 - Warranties, Legal Disclaimers, and Limitations

IMS's scope of accreditation through the AIHA-LAP, LLC is for the following FoT(s) / Method(s): Fungal Air - Culturable (SOP 2.4 Cultured Air Sample Reporting); Fungal Bulk - Culturable (SOP 2.5); Fungal Surface - Culturable (SOP 2.5); Fungal Air - Direct Examination (SOP 2.2 and 2.3); Fungal Bulk - Direct Examination (SOP 2.6); and Fungal Surface - Direct Examination (SOP 2.1).

The study and understanding of molds is a progressing science. Because different methods of sampling, collection and analysis exist within the indoor air quality industry, different inspectors or analysts may not always agree on the mold concentrations present in a given environment. Additionally, the airborne levels of mold change frequently and by large amounts due to many factors including activity levels, weather, air exchange rates (indoors), and disturbance of growth sites. It is possible for report interpretations and ranges of accuracy to vary since comprehensive, generally accepted industry standards do not currently exist for indoor air quality inspections of mold in residential indoor environments. This report is intended to provide an analysis based upon samples taken at the site at the time of the inspection. Mold levels can and do change rapidly, especially if home building materials or contents remain wet for more than 24 hours, or if they are wet frequently. This report is not intended to provide medical or healthcare advice. All allergy or medical-related questions and concerns, including health concerns relating to possible mold exposure, should be directed to a qualified physician. If this report indicates indoor mold levels that are higher than in typical indoor living spaces relative to the outdoor environment, or indicates any findings that are of concern to you, further evaluation by a trained mold professional or a Certified Industrial Hygienist (CIH) may be advisable.

Results pertain only to the samples tested as received by IMS. Unless otherwise noted in the body of this report the condition of samples upon receipt was acceptable. Blank samples are reported in the same manner as all other samples. The results are not corrected for contamination.

This report is generated by IMS at the request of, and for the exclusive use of, the IMS client named on this report. Project Name, Project Number, Sampling Date, Sampling Locations and Exposure times and rates have been provided to IMS by the client, and may affect the validity of the results. The analysis of the test samples is performed by IMS. This report applies only to the samples taken at the time, place and location referenced in the report and received by IMS, and to the property and weather conditions existing at that time only. Please be aware, however, that property conditions, inspection findings and laboratory results can and do change over time relative to the original sampling due to changing conditions, the normal fluctuation of airborne mold, and many other factors. IMS does not furnish, and has no responsibility for, the inspector or inspection service that performs the inspection or collects the test samples. It is the responsibility of the end-user of this report to select a properly trained professional to conduct the

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Samples analyzed by IMS are disposed the day that they are analyzed. Storage may be available for a fee with written request at the time the samples are submitted for analysis.

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- End of Lab Report Number E199954 -