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Laboratory Report

Prepared Exclusively For:

Custom Interiors
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AIHA LAP, LLC
ACCREDITED LABORATORY
ENVIRONMENTAL MICROBIOLOGY
ISO/IEC 17025:2005
WWW.AIHAACCREDITEDLABS.ORG
LAB # 172958

Project: City of Traverse City - 511 Wellington **Lab # E68158**

Report Date: 10/27/2014 **Sampled: 10/23/2014** **Received: 10/24/2014** **Analyzed: 10/27/2014**

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1 - IMS Laboratory, LLC

IMS Laboratory, LLC ("IMS") operates a state-of-the-art microbiological analysis laboratory, specializing in full service environmental microbial analyses. IMS maintains the highest levels of quality and personalized service in the industry. IMS's analytical staff includes only Certified Indoor Air Quality Professionals, Ph.D. Microbiologists, Mycologists, Microbiologists, and Biochemists. The IMS LABORATORY team's extensive experience in indoor air quality sampling techniques, microbial identification, and analytical interpretation allows us to offer our clients expert personalized service and has made IMS an industry leader.

IMS is accredited through the American Industrial Hygiene Association (AIHA) and participates in Environmental Microbiology Proficiency Testing (EMPAT). Our EMPAT number is 172958. To maintain quality control and quality assurance, IMS uses standardized procedures approved under strict AIHA guidelines. Client data information is compiled and stored in a specially designed computer management system for secure, redundant data and the ability to comply with AIHA quality system requirements. A portion of this quality system includes inter-analyst comparisons and statistical quality control using blind duplicate analyses and process blanks. Laboratory data is provided in compliance with AIHA policy modules and ISO 17025 guidelines. This data is intended for use by professionals having the necessary knowledge of the testing methods to interpret them accurately.

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2 - Laboratory Results

Location: Main Office Area

Sample # E68158 - 1

Medium Type: Micro5
Serial # 1970752
Exposure: 5.00 l/min. for 5.00 min.
Reporting Limit: 40 Spores/cu. m

Sample Identification	Raw Count	Spores/cu. m	Percent(%)
- Fungi -			
Cladosporium	112	4,480	70.44%
Pen/Asp group	36	1,440	22.64%
Basidiospores	10	400	6.29%
Ascospores	1	40	0.63%
TOTALS:	159	6,360	100.00%

Background Item	Level
Dust / Debris	Low
Hyphal Fragments	Very Low
Opaque Particles	Low

Location: Gym Area

Sample # E68158 - 2

Medium Type: Micro5
Serial # 1970753
Exposure: 5.00 l/min. for 5.00 min.
Reporting Limit: 40 Spores/cu. m

Sample Identification	Raw Count	Spores/cu. m	Percent(%)
- Fungi -			
Pen/Asp group	13	520	54.17%
Basidiospores	6	240	25.00%
Cladosporium	5	200	20.83%
TOTALS:	24	960	100.00%

Background Item	Level
Dust / Debris	Low
Hyphal Fragments	Very Low
Opaque Particles	Low

Location: Outside

Sample # E68158 - 3

Medium Type: Micro5
Serial # 1970742
Exposure: 5.00 l/min. for 5.00 min.
Reporting Limit: 40 Spores/cu. m

Sample Identification	Raw Count	Spores/cu. m	Percent(%)
- Fungi -			
Basidiospores	37	1,480	72.55%
Ascospores	6	240	11.76%
Cladosporium	5	200	9.80%
Pen/Asp group	2	80	3.92%
Ganoderma	1	40	1.96%
TOTALS:	51	2,040	100.00%

Background Item	Level
Dust / Debris	Low
Hyphal Fragments	Very Low
Opaque Particles	Very Low

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Report Prepared For: Custom Interiors
Project Name: City of Traverse City - 511 Wellington
Report Date: 10/27/2014
Lab Number: E68158

Location: Wall Area Old Kitchen #1

Sample # E68158 - 4

Medium Type: Tape Lift

Sample Identification	Prevalence
- Fungi -	
Stachybotrys	Present on 76 - 100% of sample area.
Alternaria	Present on 5 - 25% of sample area.
Pen/Asp group	Present on less than 5% of sample area.

Background Item	Level
Dust / Debris	Low
Hyphal Fragments	High
Opaque Particles	Low

Location: Office Wall #2

Sample # E68158 - 5

Medium Type: Tape Lift

Sample Identification	Prevalence
- Fungi -	
Ulocladium	Present on 76 - 100% of sample area.
Cladosporium	Present on 5 - 25% of sample area.

Background Item	Level
Dust / Debris	Low
Hyphal Fragments	High
Opaque Particles	Very Low

Analytic Methods and Formulas:

IMS Analytical Method: 2.6 (method for analyzing abundant organisms tape lift)
IMS Laboratory Analytical Method: 2.3 (method for analyzing spore trap)
Results are rounded to 3 significant figures per AIHA policy module 2A.5.10.5
Spores per cubic meter is determined by: Total Spore Count x (1000/(sampling rate)x(sampling time))

Note that this report may use mold-specific units, such as Spores/cu. m and CFU/cu. m for Sample Identifications such as pollen, fiberglass fibers, and bacteria, which are not molds.

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Analyst

Kathryn C. Langley 10/27/2014

Kathryn C. Langley, Lab Analyst

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Reviewer

Brittney Holtz 10/27/2014

Brittney Holtz, Lab Analyst

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3 - Spore Trap Comparison Chart

SAMPLING LOCATIONS

1: Main Office Area
2: Gym Area
3: Outside

Spores per Cubic Meter

Mold Name \ Location #	1	2	3
Alternaria			
Arthrinium			
Ascospores	40		240
Basidiospores	400	240	1,480
Bipolaris / Drechslera group			
Chaetomium			
Cladosporium	4,480	200	200
Curvularia			
Erysiphe/Oidium			
Fusarium			
Ganoderma			40
Mitospores			
Pen/Asp group	1,440	520	80
Pithomyces			
Polythrincium			
Rust			
Smuts/Periconia/Myxomycetes			
Stachybotrys			
Stemphylium			
Torula			
Unknown Fungi			
FUNGAL TOTAL	**6,360**	**960**	**2,040**
Pollen			

Please refer to the Laboratory Results section for additional details.

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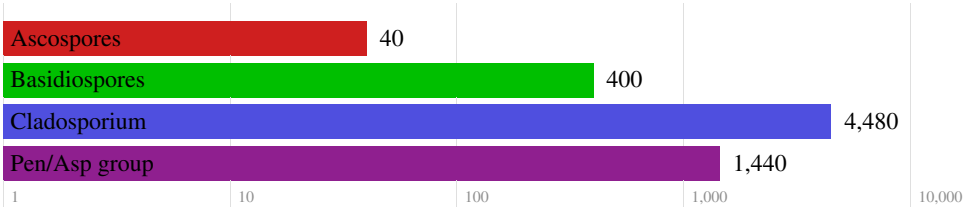
4 - Sample Comparison Graph

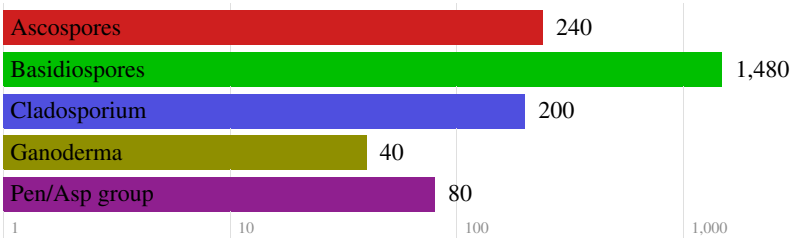
Spore Trap Samples - Spores per Cubic Meter

Main Office Area



Gym Area

Outside



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5 - 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).

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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.

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6 - Sample Identification Definitions

Alternaria

A genus of fungi that is extremely widespread and ubiquitous. It is commonly found in outdoor samples and may be isolated from samples of soil, seeds, and plants. Alternaria is also often found in carpets, textiles, window frames, and on horizontal surfaces in building interiors. It is both a plant pathogen and human pathogen. Alternaria produces large spores, suggesting that the spores from this fungus are deposited in the nose, mouth, and upper respiratory tract. It may be related to baker's asthma. Alternaria has been associated with hypersensitivity pneumonitis, sinusitis, deratomycosis, onychomycosis, subcutaneous phaeohyphomycosis, and invasive infection. It is a common cause of extrinsic asthma (immediate-type hypersensitivity: type I).

Found in these Sample Locations: (4) Wall Area Old Kitchen #1

Ascospores

A large group of spores that are very ubiquitous in nature. They are frequently found in the air after a rain. Most ascospores are plant pathogens; a small portion have been known to cause infection in humans but are identified separately.

Found in these Sample Locations: (1) Main Office Area (3) Outside

Basidiospores

A large group of spores that are very ubiquitous in nature. They are released from mushrooms, shelf fungi, puffballs, and a variety of other macro fungi. Basidiospores may be allergenic to those with seasonal allergies.

Found in these Sample Locations: (1) Main Office Area (2) Gym Area (3) Outside

Cladosporium

One of the most commonly identified outdoor fungi. It is often found indoors in numbers less than outdoors. Cladosporium is also found on decaying plants and food, straw, paint, and textiles. It is generally regarded to be allergenic and can be a cause of extrinsic asthma (immediate type hypersensitivity: Type I). Cladosporium has been reported in cases of skin lesions, keratitis, onychomycosis, sinusitis, and pulmonary infections.

Found in these Sample Locations: (1) Main Office Area (2) Gym Area (3) Outside (5) Office Wall #2

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Ganoderma

A type of basidiospore from a genus of mushrooms known as shelf mushrooms or bracket fungi, which grow on wood. These spores may be allergenic to those with seasonal allergies.

Found in these Sample Locations: (3) Outside

Pen/Asp group

The spores of the genera Penicillium, Aspergillus, Gliocladium, and Trichoderma are quite similar when viewed under a microscope and are grouped together under the heading Pen/Asp. Penicillium species are among the most common fungi found in indoor environments, particularly basements. Certain species may cause infections of the eye, external ear, respiratory system, and urinary tract. Some species of Aspergillus are parasitic on insects, plants, and animals including humans. All Aspergillus species are allergenic. Various species can cause extrinsic asthma, pulmonary emphysema, opportunistic infections of the ears and eyes, and severe pulmonary infections. Many species of Penicillium and Aspergillus produce mycotoxins which may be associated with diseases in humans and animals. Several toxins are considered potential human carcinogens. The genus Gliocladium has not been reported to cause disease in man or animals. The genus Trichoderma has been reported to cause infections in immunocompromised individuals, patients undergoing dialysis, and individuals with chronic kidney failure or chronic lung disease.

Found in these Sample Locations: (1) Main Office Area (2) Gym Area (3) Outside (4) Wall Area Old Kitchen #1

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.

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Found in these Sample Locations: (4) Wall Area Old Kitchen #1

Ulocladium

A cosmopolitan fungus found on soil, grasses, paper, textiles, and paint. It is considered to be a potential allergen. Very rarely does Ulocladium cause human disease.

Found in these Sample Locations: (5) Office Wall #2

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7 - Glossary of Terms

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

Ascospore ~
A sexually produced fungal spore formed within an ascus (sac). Most types are associated with plant fungi, and generally have little relevance to human health problems.

Basidiospore ~
A sexually produced fungal spore produced within the group of fungi known as Basidiomyces. These spores are produced externally on a structure called a basidium, which is common among mushrooms. Some types can be allergenic to humans.

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.

Detection Limit ~
Detection Limit is the smallest amount or concentration of a particular substance / particle that can be reliably detected in a given type of sample or medium by a specific measurement process.

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.

Minimum Reporting Limit (MRL) ~
MRL is the smallest measured concentration of an analyte that can be reliably reported by using a given analytical method. MRL is the "less-than" value reported when an analyte is not detected or is detected at a concentration less than the MRL. MRL is dependent on the time and volume of sampling.

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Mitospore ~
Spore types falling within either the deuteromyces or Fungi Imperfecti.

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.

Mycology ~
Mycology is a general term for the study of fungi.

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

Mycelium ~
A mass of hyphae.

Negative for Stachybotrys ~
When IMS Laboratory is requested to only look for Stachybotrys in a sample and no Stachybotrys is detected during analysis of that sample, IMS Laboratory reports the results as "Negative for Stachybortys."

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).

Potato Dextrose Agar (PDA) ~
PDA is a solid growth medium consisting of extract of potato and dextrose (sugar). PDA is used to culture commonly occurring fungi.

Pollen ~
Pollen are coarse to fine particles produced by plants (can be allergenic).

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

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

Sample Rate ~
The sample rate refers to the quantity of a sample collected for laboratory analysis. With reference to air tests, the sample rate is determined by multiplying the flow rate of the collection devise by the time the devise was operating. With reference to swab samples, the sample rate is the total area swabbed.

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.

Total Spore Count ~
The total spore count is the sum total of all spore types found in a laboratory sample.

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

Yeast ~
Yeast are a group of single celled fungi.

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8 - Texts and Electronic References

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IMS's scope of accreditation through the AIHA 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 items tested. 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. 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 inspection and collect appropriate samples for analysis and interpretation. Neither IMS, nor its

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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 E68158 -

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CONFIDENTIAL

DATE OF INSPECTION:	
RECIPIENT'S NAME:	Zack Cole
MAILING ADDRESS:	Traverse City, MI 49686
ADDRESS INSPECTED:	Traverse City, MI 49686
RECIPIENT'S PHONE 1:	
RECIPIENT'S PHONE 2:	
RECIPIENT'S FAX:	
RECIPIENT'S E-MAIL:	
INSPECTOR:	
INSPECTOR'S E-MAIL:	
ARRIVAL TIME:	**DEPARTURE TIME:**

WEATHER

WEATHER:
TEMP:
HUMIDITY:
WIND:

STRUCTURE

AGE OF STRUCTURE:
LENGTH OCCUPIED:
SIDING:
ENVIRONMENT:

INSPECTION REPORT

Complete Visual Inspection & Scope of Work

A visual inspection is the most important initial step in identifying a possible mold combination problem. The extent of any water damage and mold growth was visually assessed by certified mold inspector / remediator. This assessment is important to determine remedial strategies. Ventilation systems were also visually checked, particularly for damp filters but also for damp conditions elsewhere in the system and overall cleanliness. Ceiling tiles, gypsum wallboards (sheet rock), cardboard, paper and other cellulostic surfaces were given careful attention during a visual inspection. The inspector used a hygrometer, a boroscope (fiber optics) and a protimeter (moisture meter), where necessary to detect hidden mold behind walls, ceilings and floors to determine the areas of potential mold growth and continuing moisture penetration.

The presence of mold, water damage or musty odors should be addressed immediately. In all instances, any source of water must be stopped and the extent of water damage must be determined. Water damage materials should be dried and repaired. Mold damaged materials should be remediated.

Health Effects

Inhalation of fungal spores, fragments (parts), or metabolites (e.g. mycotoxins and volatile organic compounds) from a wide variety of fungi may lead to or exacerbate immunologic (allergic) reactions, causes toxic effects, or cause infections.

Illness can result from both high levels, short term exposures and lower level, long term exposures. The most common symptoms reported from exposures in indoor environments are runny nose, eye irritation, cough, congestion, aggravation of asthma, headache and fatigue.

In order for humans to be exposed outdoors, fungal spores, fragments or metabolites must be released into the air and inhaled, physically contacted (dirmal exposure) or ingested. Whether symptoms in people exposed to fungi depends on the nature of the fungal material (e.g. allergenic, toxic or infectious), the amount of exposure and the susceptibilty of exposed persons. Susceptibilty varies with the genetic predisposition (e.g. allergenic do not always occur in all individuals), age, state of health and concurrent exposures. For these reasons and because measurements of exposure are not standardized and biological makers of exposure to fungi are largely unknown, it is not possible to determine (safe) or (unsafe) levels of exposure for people in general.

Conclusions

It is in my opinion that a proper mold remediation is only as good as fixing the issues that caused it.

Lab results opinion: (Please see lab results)
Gym area:
It is in my opnion that the indoor air quality samples taken in the gym area were at typical levels to normal levels as compared to the outside sample. It is also in my opinion that there was minimal surface mold growth in this area.

Main lobby area:
This area sampled showed some elevated levels of a possible toxic mold. It is in my opnion that this was due to the visible surface mold growing on the ceiling tile, and drywall in the offices.

Office wall surface samples:
It is in my opinion that the surface samples taken in several offices detected the Mold, Stachybotrys, which is a mold that can produce toxins. See lab results and definitions.

After reviewing lab results and inspection, it is in my opinion that the following be completed to fix water issues along with a mold remediation plan.

The worst mold infected areas are in the north offices in the front main area. From what I can tell there was a pipe break in this area in years past that helped the mold grow and colonize. It appears the pipes were repaired but no mold remediation was completed at the time, and it continued to colonize.
After inspecting roof area above drop ceiling, we noticed the metal ceiling was condesating and dripping on insulation. This is something that should be addressed to help with high humidity levels and possible future mold issues.

Job scope:
Front area lobby, and offices:
1. Remove contents from offices to main lobby area.
2. Remove all mold infected drywall, ceiling tile, and any insulation, up 4 ft. from floor, and dispose of properly There is the potential that we might need to remove more. This will be determined during remediation.
3. Clean all structure, (bottom wall plates, 2 by 4 wall studs) with a microbial cleaner.
4. Seal all areas cleaned with a microbial sealant after cleaning and drying.
5. Hepa vac each area, remainng surfaces.
6. After mold removal and clean up, we will remove and dispose of any mold contaminated contents. This will be determined at the time of cleaning. If in our judgement an item cannot be cleaned we will dispose of. Most Items will be able to be damp wiped or hepa vacumed. Items with any type of fabric with visible mold growth will be disposed of.

Gym Area:
1. Remove any ceiling tile with water stains and or possible mold growth.
2. Due to the lack of visible mold, and good air quality samples in this area, we recommened a horizontal damp wipe and or hepa vacume of contents in this area.
3. This area will also be contained while the front of building is being remediated.

Bathrooms:
1. Clean all surface mold on block and hepa vac areas.

Follow all attached protocals pertaining to work described in proposal.

After work is complete as per proposal we will retake surface samples along with identical indoor and outdoor air quality samples.

Total cost for labor, materials, and dump fees. $27,500.00

Payments of 60% on start and final upon completion.

Custom Interiors/The Mold Man _____ Date _____

Client _____ Date _____

Decontamination Recommendation

Building materials supporting fungal growth should be remediated as rapidly as possible in order to ensure a healthy environment. Repair of the defects that led to water accumulation (or elevated humidity) should be conducted in conjunction with or prior to fungal remediation. Prompt remediation of contaminated material and infrastructure repair is the primary response to fungal contamination in buildings. Emphasis should be placed on preventing contamination through proper building and HVAC system maintenance and prompt repair of water damage. Currently, there are no United States federal regulations for evaluation potential health effects of fungal contamination and remediation.

Limitations and Exclusions

All the professional opinions presented in this report are based solely on the scope of work conducted and sources referred to in our report. The data presented by Custom Interiors in this report was collected and analyzed using generally accepted industry methods and practices at the time the report was generated. This report represents the conditions, locations and material the were observed at the time the fieldwork was conducted. The scope of work for this project did not include an assessment of other environmental conditions which might exist on the property. No interferences regarding other conditions, locations or materials at a later or earlier time may be made based on the contact of this report. Custom Interiors liability and that of its contractors and subcontractors, arising from any services rendered hereunder, shall not exceed the total fee paid by the client to Custom Interiors. This report was prepared for the sole use of our client. The use of this report by anyone other than our client or Custom Interiors is strictly prohibited without the expressed written consent of Custom Interiors. Portions of this report may not be used independently of the entire report.

Credentials

JOHN C. KESSEL

CMI / CMR / IEP / ADVANCED AIR QUALITY SPECIALIST

Co-founder and Executive Director - Leviticus Corporation - Established 2003 Phone: 231.392.4085

Founder and Director of The Mold Man (division of Custom Interiors) - Established 2002

Founder and Director of Custom Interiors - Established 1979

BIO

Mr. Kessel has over 35 years experience in building restoration, remodeling and home building. Mr. Kessel grew up learning the trade from his father's company. Mr. Kessel is a licensed builder in the state of Michigan. His successful years as a builder gives him the expertise on how buildings are structured, vented and how possible moisture intrusions can affect mold growth and other indoor air quality issues.

Mr. Kessel, Founder and director of Leviticus Corporation, (National mold Inspection and Remediation Software) draws superior customer satisfaction ratings among his clients. The success of his business is reflected in his track record of delivering cost effective solutions on time and within budget, together with his excellent management skills, building experience, and analytical and business qualifications. In January of 2003, Mr. Kessel teamed up with business man and software systems designer Jeffrey S. Wade, to develop what is now the latest standard of mold investigation and remediation software, titled LEVITICUS - PRO2004, which is used across the United States and in Canada by mold inspectors and remediators. Mr. Kessel heads the sales of Leviticus products and services and provides education and training to new and experienced mold inspectors and remediators for our national and international markets.

CREDENTIALS

In Feburary of 2014 John was guest speaker for The Critter Control Franchise 30th annual convention in New Orleans. Founder and CEO Kevin Clark chose, The Mold Man Crawl space system of all systems on the market. John is now training all franchises on his methods and technique's in crawl space encapsulation across the country.

In August 2004, John C. Kessel was appointed to the Environmental Education Foundation's Advisory Group on Indoor Air Quality, convened under a sole source contract by the US Environmental Protection Agency (EPA).

Certified in mold inspection, sampling and remediation through the National Association of Mold Professionals.

Founder and director of Leviticus Corporation.

Over 34 years of home building, general contracting and restoration.

Assisted with the deployment and training of Leviticus Software to NAMP Headquarters and throughout associated businesses and franchises.

Helped to design and facilitate custom laboratory analytical test-result software for Integrated Microbial Services Laboratory in Detroit Michigan.

In charge of sales of Leviticus products at national and international levels.

Attended IQAir North America course covering air pollution, air cleaning and air cleaning comparison workshop in Los Angeles on October 24th & 25th of 2003.

Exhibitor of Leviticus software at the Indoor Air Quality Association (IAQA) Expo, demonstrating Leviticus software, and attending all educational meetings between October 1 and October 4, 2003 in Chicago, Illinois.

Exhibitor of Leviticus software at the American Conference of Industrial Hygienists (ACGIH) Expo, demonstrating Leviticus software and attending all educational meetings during November 2003 in Orlando Florida.

Invited to review, give input and instruct on the California State University's 40-hour Mold Inspection and Remediation course in San Marcos, California.

Mr. Kessel has met with and spoken to dozens of microbiologists throughout the country on sampling methods from Aerobiology Laboratory, IMS Laboratory, AeroTech Laboratory, North Eastern Laboratory, EmLabs Laboratory just to name a few.
Mr. Kessel has reviewed and is well versed in the following mold inspection and remediation guidelines:

1. New York City Guidelines
2. IICRC - S520 (Attending National Meeting on the IICRC - S520)
3. Texas State Legislation
4. EPA I-BEAM Software
5. California State San Marcos Mold Inspection and Remediation Curriculum
6. National Association of Mold Professionals

Inspector's Signature:_____

IEN

LOCATION

Main lobby area.

ISSUE

Mold growth on ceiling tile. The mold growth is either from roof leak or possible condensation from metal roof.

IEN

LOCATION

Offices on north side.

ISSUE

Mold growth on drywall.

IEN

LOCATION

Offices on north side.

ISSUE

Mold growth on drywall.

IEN

LOCATION

South side offices.

ISSUE

Surface mold on drywall.

IEN

LOCATION

Ceiling above gym area.

ISSUE

Metal ceiling condensating.

IEN

LOCATION

Ceiling above gym area.

ISSUE

Condensation from metal roof running down metal perlins. It appears this has been going on for some time.

IEN

LOCATION

ISSUE

The insulation is damp from condensation.

IEN

LOCATION

Bath room.

ISSUE

Surface mold growth on block and tile.

IEN

LOCATION

ISSUE

IEN

LOCATION

Upper level utility room.

ISSUE

Minor surface mold. Along with minor surface mold there is animal feces and urine in this area.

IEN

LOCATION

ISSUE

Remediation Protocol

STEP #1: INSPECTION

* To determine whether the property has a mold problem requiring remediation, (Inspector Homes), uses a wide variety of mold testing techniques and technologies. The air is sampled via a Bioaerosol Sampler and topical samples are taken through the use of swabs. This process enables (Inspector Homes) to define the areas of removal and provide oversight for the project.

* Consult with the construction and remodeling group prior to removal to facilitate efficient reconstruction of the space.

* Develop a project time line and communicate this with building representatives prior to the remediation and construction project. Provide contact numbers if occupants have questions about the project.

STEP #2: PERSONNEL

* Individuals trained in the handling of hazardous materials.

* Provide right-to-know training on exposure to the chemicals used and the health effects of exposure to the fungal organisms.

STEP #3: PPE

* Full faced negative pressure respirators (North 7600 series) with CD/CL/HC/HF/OV/SD/P100 cartridges. The cartridge protects against chlorine dioxide, chlorine, hydrogen chloride, hydrogen fluoride, organic vapor, sulfur dioxide and provides a HEPA filter to protect against particles.

* Disposable tyvek coveralls covering both the head and the shoes.

* Gloves: Neoprene, Rubber, Leather or cotton depending on the material to be removed. Leather is recommended when sharp material is expected to be encountered during the demolition.

* Tools: Pliers or cutters to break up metal mesh in plaster walls. These and other tools are used to reduce skin contact with sharp objects.

STEP #4: HYGIENE

* Wash hands after exiting the enclosure and prior to using the hands to place anything in the mouth. Fungal organisms can cause dermatitis. Ingestion of the bacteria or fungi can cause severe diarrhea.

* During the exit from the enclosure, remove the coveralls leaving them inside either the enclosure or the first stage (dirty room) of the two stage decontamination room. In some cases, space will not allow for construction of the decontamination room.

* In the change area, take off the respirator. Remove the cartridges. Clean the surfaces of the cartridges with a disinfectant wipe and keep the cartridges for reuse. Soak and clean the respirator in a gallon of disinfectant (1/2 oz. A-33 quaternary ammonia disinfectant per gallon of water). Rinse the respirator in water, clean with a disinfectant wipe and dry with a clean towel.

* After an exhaust fan with a HEPA filter is used on a job site, the prefilter is covered with 4-6 mil poly and sealed with duct tape.

STEP #5: CONTAINMENT OF AFFECTED AREA

* Complete isolation of work area from occupied spaces using plastic (4-6 mil poly) sheeting sealed with duct tape (including ventilation ducts/grills, fixtures and other openings).

* Use an exhaust fan with a HEPA filter to generate negative pressurization. Use the appropriate sized unit for the space. For example, an Ulti Vac may be used for a glove bag removal, a HEPA Jr. for an office sized room and larger units for bigger areas. Do not use the same units for asbestos and mold removal. If units are shared, a break in the HEPA filter could change a mold containment into an asbestos containment.

* The two sections of the Ulti Vacs are reinforced with duct tape wrapped around the taped junction in the middle of the vacuum unit.

* If space allows, construct a two stage decontamination room with a changing area and a dirty room attached to the entrance of the containment area.

STEP #6: CONTROL OF EXPOSURE TO ADJACENT AREAS

* Vacating people from spaces in not necessary but is recommended for individuals with reduced immune systems, infants, recent surgery patients, people with chronic inflammatory lung diseases or individuals with respiratory health concerns (asthma, hypersensitivity pneumonitis and severe allergies).

* In general, there are fewer occupant complaints about the remediation if the adjacent spaces are vacated. The complaints about construction related odors are reduced and there is more space to place cleanup material.

STEP #7: PAINTING AND APPLYING BENZAALKONIUM CHLORIDE
* Exhaust fan discharge is outside building - Keep HEPA exhaust fan on during the application of Benzallkonium Chloride and anti-microbial paint. Make sure adjacent outside windows are shut, the discharge is not close to an air intake, and window air conditions are shut off or set on re-circulation.

* Exhaust fan discharge is inside building - Shut off HEPA exhaust fan during the application of Benzallkonium Chloride and anti-microbial paint. Turn the fan back on when the odor is no longer noticeable.

* Applying Benzallkonium Chloride to visible fungal growth prior to removal of material. Apply the Benzallkonium Chloride solution to the surface and wait sixty minutes prior to removing the material. This provides sufficient time for the Benzallkonium Chloride to disinfect the material and reduces the dust generated because the material is wetted.

* In some cases, a surface is lightly misted with a Benzallkonium Chloride solution prior to painting. Painting of the surface may begin within 90 minutes of the Benzallkonium Chloride misting.

STEP #8: REMOVAL OF CONTAINMENT MATERIALS

* Containment materials that cannot be cleaned should be removed from the building in sealed plastic bags. The outside of the bags could be cleaned with a damp cloth and a detergent solution or HELP vacuumed in the decontamination chamber prior to their transport to uncontaminated areas of the building. There are no special requirements for the disposal of moldy materials. Moldy materials that are bagged can be disposed of with other general waste.

* Dirt, debris and broken plaster may be placed in 55 gallon drums inside the containment area. Before removal from the containment area, close the drum and clean the outside surface.

STEP #9: CLEANING OF THE CONTAINMENT AREA

* The contained area and decontamination room should be HEPA vacuumed and cleaned with a damp cloth and/or mop with a detergent solution and be visibly clean prior to the removal of isolation barriers.

STEP #10: CONTAINMENT OF AREA USED DURING RECONSTRUCTION

* After the containment area has been cleaned, the enclosure can be used to contain the dusts generated by the sheetrock sanding and taping activities. This is done to reduce the problems with cleanup when reconstruction is completed. The use of HEPA exhaust filter is not required. The two stage decontamination area is also not needed.

STEP #11: FINAL INSPECTION

* Prior to re-occupancy of the space, a visual inspection, digital photos, and or air sampling will be done by (Custom Interiors, John C Kessel and or client). Re-occupancy may occur when the space passes the inspection.

STEP #12" REFERENCES

Guidelines on Assessment and Remediation of Fungi in Indoor Environments, New York City Department of Health Bureau of Environment & Occupational Disease Epidemiology. April, 2000 16p.

Managing Water Infiltration in Buildings, U of MN DEHS and Institute for Environmental Assessment. N.G. Carlson and A. Quraishi - 1998.

Additional procedures developed in consultation with this inspector.

Biocide Application

1. All areas to be treated with a biocide must be clean.

2. Vacuum all debris in an appropriate hepa-vac.

3. Using a wire brush, aggressively scrub all areas to be treated with a solution containing one part water, one part sodium hypo chloride and 2 ounces of anionic surfactant. Let dry completely.

4. Using a sprayer, thoroughly saturate the entire area with the pre-mixed biocide (Benzallkonium Chloride or Lophene). Let dry completely.

5. Repeat step number four.

6. Spray or brush on an antimicrobial sealant (tim bor, fosters). Complete coverage is essential.

7. Perform clearance tests.