

10/21/2022



# Browning, James Interpretation Report

400 Gozer Place, Unit 4422, Summerville, South Carolina, 29486

# Abstract

The experience of health symptoms and concern for the indoor air quality of the home prompted the request for Pure Maintenance of South Carolina to perform environmental sampling.

Per your request, a Board-Certified Indoor Environmentalist (CIE #1910006) of Pure Maintenance of South Carolina, LLC (PMSC), Certified Microbial Remediation Supervisor (CMRS #0703063), Certified Mold Remediation Contractor (CMRC #83417), Residential Specialty Contractor (RBS #59652) and lab-certified Mycotoxin Investigator has performed a Limited Indoor Environmental Inspection (LIEI).

**When assessing the health of a property, it is imperative to take a holistic approach, whereby the following are considered:**

1. The history of the property and notable health concerns
2. Occupant behavior patterns
3. A thorough visual inspection
4. Air and surface testing where appropriate
5. Building performance (HVAC and Envelope) and building materials

## **Background:**

The client contacted Pure Maintenance of South Carolina for mold testing in his apartment. Mr. Browning stated that he waited several months for the apartment to finish being built so he could move into a new build in Summerville. He moved in during the early part of 2022 and was one of the 1st people to rent on his floor. Over the summer months, he started to have health symptoms and has seen a multitude of varying doctors in the Charleston area to try to find a diagnosis. Over the last several months, his symptoms increased, and he noticed mold growing around all of the HVAC supplies in his unit. His pulmonary specialist was so concerned enough to advise him not to stay there until the mold can be remediated.

# Environmental Sampling

## Surface Sample

Three (3) surface samples were taken at the specified location below at the time of this inspection. The surface sample was obtained in a bio-swab container. The sample was sealed and overnighted to an independent lab (AEML Laboratory) in Pompano Beach, Florida, for analysis. The sample was evaluated under light microscopy by quantitative analysis for the concentration of spores and density of hyphae. Any sources of moisture should be addressed, and appropriate remedial measures are taken to remove spores and return the indoor environment to normal fungal ecology. The full surface sample laboratory report is provided as an addendum to this report.

Please note: IF no comment is made, it is implied that "normal fungal ecology" is present for that genus type value.

### *Locations:*

#### 1. Closet Supply

- *Cladosporium* (508,680cts/cm<sup>2</sup>) was found to have elevated concentrations. These levels would indicate a chronic condensation source. **(Concern)**
- Additionally, *hyphae* (68,280cts/cm<sup>2</sup>) were recorded. The hyphal fragments (small finger-like structures) are an indication of the presence of spores that may be in an active growth state, and these levels would indicate ***elevated*** characteristics of active growth.

#### 2. Bedroom Supply

- *Cladosporium* (1,507,200cts/cm<sup>2</sup>) was found to have elevated concentrations. These levels would indicate a chronic condensation source. **(Concern)**
- Additionally, *hyphae* (240,200cts/cm<sup>2</sup>) were recorded. The hyphal fragments (small finger-like structures) are an indication of the presence of spores that may be in an active growth state, and these levels would indicate ***elevated*** characteristics of active growth.

#### 3. HVAC Unit

- No spores were detected in this sample location.

**Summary:**

Ideally, surface swab results yield spore counts enter a causation range between 600-1000cts/cm<sup>2</sup>.

According to these laboratory results and the visual inspection, there are areas of elevated spores above normal indoor fungal ecology inside the home. Additionally, these results would be indicative of an ongoing history of elevated humidity/ condensation, in particular, surfaces inside and adjacent to HVAC supply ducting. Remediation measures are recommended per IICRC S520 Guidelines.

# Remediation Recommendations

Based on the visual inspection and laboratory results, remediation is recommended for the entire apartment, including HVAC hygiene measures.

Environmental cleaning measures and demolition, including any containment and controls, should be employed by a certified remediation company with demonstrated industry proficiency, insurance, and trained staff in accordance with IICRC guidelines.

- Controls should be in place to maintain humidity levels to 45%-55%.
- Environmental remediation should be sequenced along with any other corrections being made to the home and/or mechanical systems.
- Any areas of visual fungal growth should be removed or cleaned per industry standard.
- Keep the fan in the “auto” position. Leaving the fan in the “on” position has the potential to create condensation and mold around the supply.

## Areas of concern include:

1. Circumference around all 3 supplies.
2. All contents in the apartment.
3. HVAC System.
4. Condition 2 spaces and contents.

## Summary of Recommendations:

- The circumference around the supplies is considered a condition 3 environment where the ecology has shifted to favor the proliferation of fungal growth. Therefore, a specific treatment of all building materials and contents should be performed prior to and in addition to an environmental cleaning.
- Most surfaces around the supply appear to be able to be taken through a surface treatment process; there may be some acute locations where heavy and 3-dimensional growth has occurred and where removal of drywall may be necessary. This will be at the discretion of the remediator. Redundant treatments may be necessary. Progress testing is recommended.

## **Surface Treatments**

- If contaminated surfaces are not structurally compromised and can be cleaned, they should be HEPA vacuumed and disinfected to remove fungal growth. After remediation, if needed, heavier impacted surfaces should be considered to be encapsulated with No VOC anti-fungal sealant per IICRC standards.

Note: Physical access is required to remove fungal contamination effectively, and finishes and built-in structures are often required to be removed.

## **HVAC and Ductwork**

- The interior components of the air handler (the coil, blower, pan, drain, and housing) should be cleaned and disinfected as needed per NADCA standards (recommended to be performed by a licensed HVAC contractor).
- Pending further evaluation, ductwork may be deemed unfit, leaky, and possess contamination requiring replacement. If the duct system is fit and a candidate for cleaning, those measures should be performed by trained technicians using duct-specified equipment and aerosolization controls per NADCA standards (recommended to be performed by a licensed remediation contractor).
- Any areas of visual fungal growth should be removed per industry standards.
- Fibrous-lined duct plenums should either be replaced with rubber polymer sheeting or be sealed with encapsulant coating.

## **Environmental Cleaning**

If fungal growth or an elevated particle load has been prevalent in different areas of the home or HVAC, there is a latent presence (spores, particles, dust, and other allergens) found on home surfaces (walls, ceilings, floors,) and contents (furniture). Typical remediation protocols, particularly for occupants with any health conditions or symptoms, include a protocol to clear the air and surfaces following original source removal. The following environmental cleaning measures are intended to address as such:

- Environmental cleaning of the home to include a dry fog system to denature biologicals and depose particulates to surfaces. This step is to be performed in tandem with fine particle cleaning throughout the rest of the home for the highest efficacy.
- Fine particle cleaning on all surfaces of the affected floors (walls, ceiling, cabinets, shelves) to

physically remove harbored particles, spores, and fragments.

## **Contents**

The effectiveness and appropriateness of contents cleaning are contingent upon the concentration and duration of the exposure hazard in the context of the porous nature of those contents and the occupant health profile. As any of those variables increase in severity, the likelihood of effective restoration decreases. Each porous and semi-porous piece should be evaluated accordingly.

- If contents are appropriate to be cleaned (non-porous and some semi-porous), they should go through a contents cleaning protocol, removing spores.
- Personal items such as clothing, bedding, etc., may be attempted to be washed at home (3 cycles) with non-toxic laundry detergent. “EC3” laundry additive can be added but is not required.
- Porous contents that may have become an allergen reservoir should be suspicious and, if not discarded, should be monitored for any correlation to health symptoms. Pending (see Health Consideration section below), some porous contents (i.e., upholstery, fabric, mattress, sofa, etc.) will likely need to be discarded.

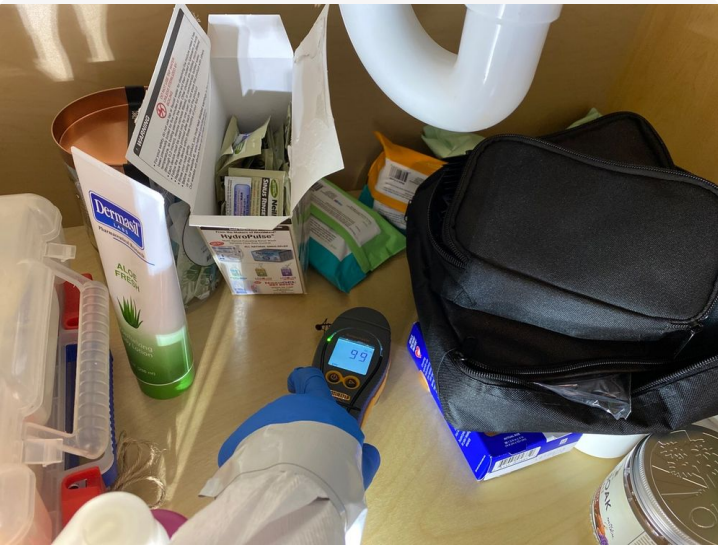
**Following remediation, it is suggested that a credentialed indoor environmental professional provide verification and testing of the work as necessary.**

# Images

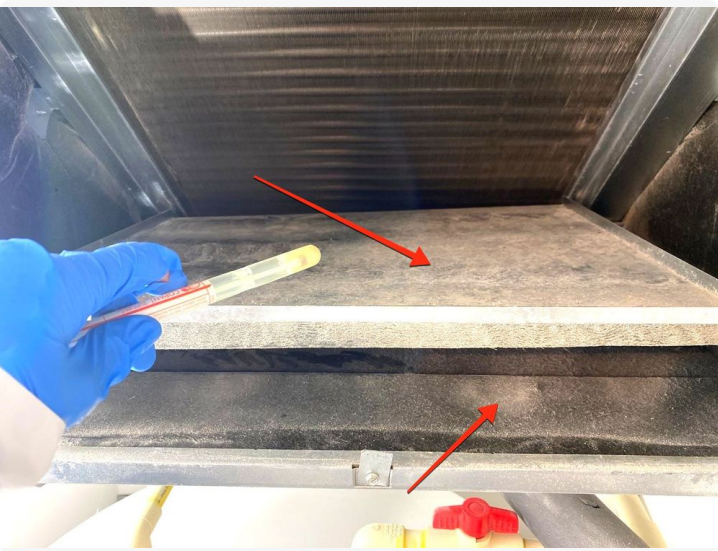
The purpose of the testing is to better understand the fungal presence in the air and contents within the home. This testing did not necessarily characterize inaccessible or hidden conditions behind finished materials, nor did it include a mold and moisture investigation.



Kitchen, elevated humidity levels



Right bathroom sink, acceptable moisture readings



HVAC

\*Surface sample location



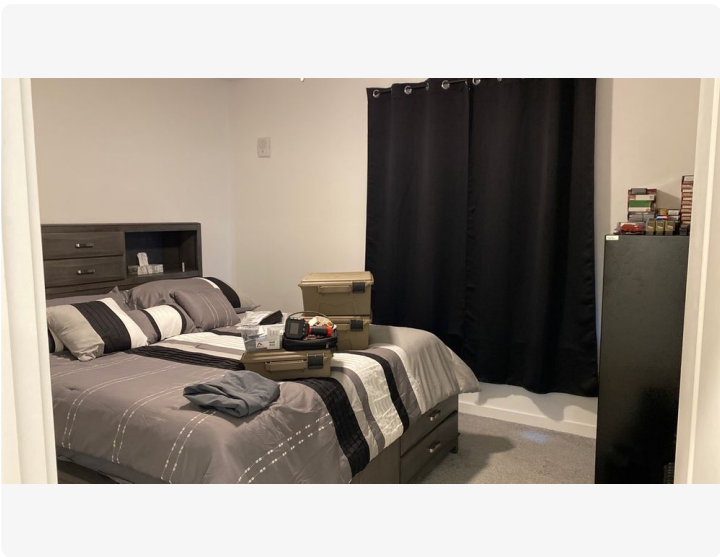
Closet supply vent

\*Surface sample location



Bedroom supply vent

\*Surface sample location



Bedroom orientation

Closet orientation



Mold around the supply in the closet



Mold around the supply in the bedroom





Mold around the supply in the living room



Living room orientation

# Health Considerations

Fungal spores and VOC's are found everywhere. Whether or not symptoms develop in people exposed depends on:

- The nature of the material (e.g., allergenic, toxic, or infectious)
- The exposure level concentration and duration
- The susceptibility of exposed persons
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Given the concentrations levels found in this home, there is a concern for health risks.

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 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.)

Generally speaking, atopic (genetically predisposed) or immuno-compromised individuals will symptomize when exposed to even low levels of microbials. Individuals with: allergies, asthma, sinusitis, or other respiratory conditions; a weakened immune system; the elderly; pregnant women, and children are at increased risk of mold health effects.

The nonatopic (not genetically predisposed) individuals often develop health symptoms when exposed to slightly elevated spore concentrations over longer periods of time.

# Limits of Assessment

Pure Maintenance of South Carolina, LLC (PM of SC) provides indoor air quality services using state-of-the-art technology. Our indoor air quality inspection services are provided to help the customer evaluate and find any adverse conditions and causes that may lead to poor indoor air quality. PM of SC does not claim to eliminate or keep mold, fungi, or bacteria from occurring with our services, we simply give the customer a way to try to monitor and evaluate these elements. The inspection program is designed to monitor and evaluate the locations where mold, fungi, and bacteria are known to grow. PM of SC does not claim to monitor the entire building, but only those areas where growth is probable. Mold, fungi, and bacteria can occur anywhere any time when the proper conditions exist and they have the ability to spread in a matter of hours. While conducting the inspection, the inspector does not remove floor and wall coverings or move furniture, open walls or perform any type of destructive inspection. Certain structural areas are considered inaccessible and impractical to inspect, including but not limited to: the interiors of walls and inaccessible areas below; areas beneath wood floors over concrete; areas concealed by floor coverings; and areas to which there is no access without defacing or tearing out lumber, masonry, roofing or finished workmanship; structures and portions of the attic or roof cavity concealed due to inadequate crawl space; areas of the attic or crawl space made inaccessible due to construction; interiors of enclosed boxed eaves; portions of the sub-area concealed or made inaccessible by ducting or insulation; enclosed bay windows; portions of the interior made inaccessible by furnishings; areas where locks prevent access; areas concealed by appliances; areas concealed by stored materials; areas concealed by heavy vegetation. PM of SC is not responsible for any detected or undetected mold, fungi or bacteria that perpetuates and becomes a problem for the customer. Further, PM of SC hereby disclaims any liability for any damages, including but not limited to direct, indirect, incidental, and consequential and loss of use, resulting from mold, fungi, bacteria, or any other adverse environmental condition. This inspection report has been generated at the request of and for the exclusive use of the person or entity ("client") named on the report. Neither the lab used nor PM of SC will release results, reports, or copies of the same to any third party without the prior express written consent from the client named in the report.

The inspection report prepared by PM of SC makes no express or implied warranty or guarantee as to the remediation techniques or processes used by PM of SC or the individual performing any remediation. PM of SC is also not responsible or to be held liable for remediation work performed by others. The client is solely responsible for the use and interpretation of the inspection report. Due to the conditions and limited nature of the services rendered, neither PM of SC nor the lab used offers, makes, expresses, or implies any warranties as to such use or interpretation of the report.

PM of SC is also not acting as a practicing design engineer. We offer our recommendations strictly as a third-party consultant. Where recommendations are suggested, a third-party professional engineer registered with the State of South Carolina should be consulted prior to any action subsequently

taken. PM of SC is also not acting as a practicing physician. No medical advice is given during this inspection nor included within this report. Any adverse conditions or ailments that are experienced which affect the homeowner's or tenant's personal health described should be addressed by your family doctor. When present, mold/fungi type substances and bacteria can affect each person differently based on the individual sensitivities of each person. Accordingly, any decision to stay in or leave the affected property prior to, during, or after the substances are removed should be made at the sole discretion of the homeowner or tenant after consulting with his or her family doctor.

#### **Release of nonspecific media**

Please note that nonspecific images (not tied to the occupant identity or property address) procured during inspections and remediation may be used on public sites to educate, build awareness, and advertise the causes and effects of moisture and mold. Any media that directly characterizes an individual's identity or property address would require additional customer consent.

#### **Investigations where protocol for remediation is not required**

Where indoor air quality inspections determine that the degree of mold infestation is mild, slight, or just beginning; recommendations will be made based upon industry practices, recognizing the difficulty in fully ascertaining the extent of the infestation. These recommendations will be given in such a manner so as to economically address the situation. For example, we may suggest that the ductwork be cleaned and sanitized versus replacing the entire ductwork when mold infestation is mild or barely existent. The homeowner will be made fully aware of the choices and the repercussions of those choices that are available so that he or she may make the proper decision for the situation. Should the situation re-occur, then the proper course of action would likely be the more expensive option.

#### **Arbitration**

PM of SC and the client hereby agree that all matters in dispute between them, including but not limited to any controversy or claim between them arising out of or relating to this agreement or any services provided by PM of SC, shall be settled exclusively by arbitration in accordance with the South Carolina Uniform Arbitration Act. Neither party shall sue the other party with respect to any matter in dispute between the parties other than for enforcement of this arbitration provision or of the arbitrator's decision, and a party violating this provision shall pay the other party's costs, including but not limited to, attorneys' fees, with respect to such suit and the arbitration award shall so provide.

#### **Release & Indemnity**

The client hereby agrees to release and hold harmless Pure Maintenance of South Carolina for any and all injury, loss, or damage to person or property, whether caused by the negligence of the releases or otherwise, including reasonable attorney fees, expert fees, and to indemnify Pure Maintenance of South Carolina, LLC for any other costs relating to the defense of any action filed against Pure Maintenance of South Carolina, or any reasonable attorney fees, expert fees, and other costs incurred by Pure Maintenance of South Carolina in enforcing this agreement. The client further agrees that the exclusive remedy of the client shall be limited to the total amount of any fees paid to Pure Maintenance of South Carolina for services rendered. Any claim arising from the performance of Pure Maintenance of South Carolina is to be governed by the laws of the State of South Carolina.

Pure Maintenance of South Carolina, LLC is a full-service indoor environmental company with certified mold remediators and a board-certified indoor environmentalist (CIE) on staff. We specialize in Indoor Air Quality, in residential and commercial markets. If you need to contact us for any reason please call us directly at 843-400-3020.