

SUNLIGHT INSPECTION SERVICE

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Office@sunlightinspections.com www.sunlightinspections.com 590 Sandra Lane, Phoenixville, PA 19460



100 Nice Street Phoenixville, PA 19460 MOLD & MOISTURE Report

Thursday, August 31, 2023

Report Prepared For John Smith

Clients Representative N/A

Inspector
Daniel Keogh





Thursday, August 31, 2023 John Smith 100 Nice Street Phoenixville, PA 19460

Dear John Smith,

I have enclosed the report for the property inspection I conducted for you on Thursday, August 31, 2023 at:

100 Nice Street Phoenixville, PA 19460

My report is designed to be clear, easy to understand, and helpful. Please take the time to review it carefully. If there is anything you would like me to explain, or if there is other information you would like, please feel free to call me 484-995-9444. I would be happy to answer any questions you may have.

Thank you for the opportunity to be of service to you.

Sincerely,

Daniel Keogh

SunLight Inspection Services Scheduling Office: 610-450-6056 Office@SunLightInspections.com www.SunLightInspections.com

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Introduction

Mold Inspection

A Mold inspection is primarily a visual non-intrusive examination of a building to identify areas of moisture that may lead to mold or fungal growth. The Mold Inspection Report will contain recommendations regarding conditions reported and may contain recommendations for further evaluation by appropriate industry professionals.

Also included in the report are suggestions for preventative measures that could potentially reduce the possibility of moisture issues and future mold conditions.

Mold needs two things to grow a food source and moisture. Many of the building materials a home is made of and many of the items in a home provide a good food source for mold growth. Therefore, the limiting factor for mold growth in a home is moisture control.

Threshold Limit Values (TLVs) and Guildines

The Threshold Limit Values (TLVs) refer to air concentrations of substances and represent conditions under which, it is believed, people may be repeatedly exposed, day after day, without adverse health effects. But sufficient information is not currently available to formulate conclusive standards. There are no mandatory limits against which inspectors can compare measurements of air or surface-sampling concentrations to correlate or connect negative health effects to mold exposure. Data on the range of inhalation exposures to mold are limited, and the methods that inspectors use to collect and analyze microbial growth (mold) vary widely.

Even if limits were set, they would be arbitrary standards because the data for any cause-and-effect relationships on which to base limits for mold exposure are few and inconsistent. The problem lies in the fact that biological exposures are often very complex mixtures of variable composition. Qualitative and quantitative information about mold (biological) exposure and any negative health effects is often imprecise because it is difficult to isolate biological materials, and the presence of materials other than those intended to be sampled could contribute to some of the health symptoms manifested by the exposed person.

Although the issue of whether exposure to indoor fungi causes adverse health effects is controversial, there is no doubt that a severely mold-contaminated building can suffer structural damage and that a foul-smelling, fungus-filled building is aesthetically unpleasing. Controversies about health effects aside, the latter two concerns are sufficient to merit a Complete Mold Inspection and remediation when an environment is found to have fungal contamination.

Scope of the Inspection

The Mold Inspection and Sampling consist of a visual assessment of the readily accessible areas of the home. The inspector will inspect the home (exterior and interior) for apparent mold and conditions conducive to mold growth, i.e. moisture, water intrusion, and conditions that can lead to water intrusion. The Mold Inspection includes 1 exterior air sample (control sample), 1 interior air sample, and 1 air or physical sample with the location designated by you, the client.

After the visual inspection, mold sampling locations will be recommended to you the client. The opportunity will be provided to you, the client, to have samples taken in areas of the Subject Property You Designate, to establish the presence and type(s) of possible microbial contamination.

Samples will be sent to an accredited lab for analysis. The Lab report with a summary will be provided along with this report, which explains the various types of mold, along with any recommended action(s). A mold inspection is valid for the date of the inspection and cannot predict future mold growth. Because conditions conducive to mold growth in a building can vary greatly over time, the results of a mold inspection (examination and sampling) can be relied upon only for the time the inspection was conducted.

See MOLD Inspection & Sampling Agreement for full details and limitations.

MOLD SAMPLING

Air Sampling

It can be typical to have mold spores in the air outside and inside. Mold spores can travel from outside into the home through windows and doors. The level or concentration of the mold inside compared to the outside determines its significance. One air sample test accurately describes the amount of spores in the air at the time of the test and can and does vary from moment to moment or day by day. A commonly asked question is why a test is needed outdoors. The answer is that an outdoor test is a baseline, or the reference to compare to the spore count indoors. The air test outside provides a way to gauge if the air in the house has less or more mold than the air outside. If the mold count is higher inside than the mold count outside, then we know that there is more mold in the air inside the home than there is in the air outside. In the case where the indoor mold count is higher than the outdoor mold count, we need to consider why and determine if corrective action is needed.

Surface Sampling

A surface sample is taken when there is Visible Evidence Present of mold or possible mold growth. The sample is taken to identify the type of mold on that surface. It does not identify the species but the type. There are more than 1 million different species of mold. The swab samples taken during this inspection will identify the family of species but not the actual species. This sample would require the laboratory to grow the sample which can be done but usually is not necessary as long as the mold can be identified to a specific family or category.

Why do surface samples? Why not just do an air sample? Because the mold in the air may be different from the mold on the surface sample. Comparing the two samples can reveal if the mold is in the same family or category.

If I see mold on a surface, why can't I just sample that surface? Why do I need an air sample? The answer is maybe you can, but without an air sample, you don't know if the mold spores are everywhere or just on that surface.

Throughout the report, you'll find special symbols at the front of certain comments. Below are the symbols and their meanings:

MR

= Mold remediation is needed by a qualified professional.



= Correction is needed to stop or reduce water intrusion.



= Improvement recommended to reduce the possibility of water intrusion.

General Information

INSPECTION TYPE

Mold & Moisture Inspection

DATE OF INSPECTION:

Thursday, August 31, 2023

REPORT ID:

23119900

REPORT PREPARED FOR:

John Smith (484) 000-0000, notreal@gmail.com

PRESENT AT INSPECTION:

Contractor Owner

PROPERTY ADDRESS:

100 Nice Street Phoenixville, PA 19460

APPROXIMATE AGE:

21 Years

STRUCTURE STYLE:

Colonial

OCCUPANCY STATUS:

Occupied, Furnished

WEATHER AT TIME OF INSPECTION:

Sunny 62 Degrees Humidity 78%

TEST SAMPLES

Air Samples Collected Outside: Yes 1 Sample Air Samples Collected Inside: Yes 2 Samples

Dan Keogh Owner/Inspector

I represent that I am a full member in good standing of the International Association of Certified Indoor Air Consultants (IAC2), the International Association of Certified Home Inspectors (InterNACHI), and the American Society of Home Inspectors (ASHI).

LICENSE & CERTIFICATION











INTERNATIONAL ASSOCIATION OF CERTIFIED INDOOR AIR CONSULTANTS IAC2 #23631

INTERNATIONAL ASSOCIATION OF CERTIFIED HOME INSPECTORS

InterNACHI #13121612
Certified Mold Inspector
Certified Indoor Air Quality Inspector
Certified Moisture Intrusion Inspector
Certified Infrared Thermographer

EXTERIOR DESIGN INSTITUTE #PA109

Moisture Analyst Building Envelope Inspector

INFRARED TRAINING CENTER LEVEL 1 THERMOGRAPHER ITC #215058

Roof

The key to mold control is moisture control.

The following items are important to reducing water intrusion and conditions conducive to mold growth:

- 1. Maintaining a functional roof covering on the home
- 2. Proper fleshing and sealing at roof penetrations
- 3. Proper flashing at roof and wall intersections
- 4. Maintaining the chimney structure
- 5. Proper Flashing and sealing at chimneys
- 6. Keeping gutters clean and in functional condition

Note: This is not an exhaustive inspection of the roofing system

BASIC INFORMATION

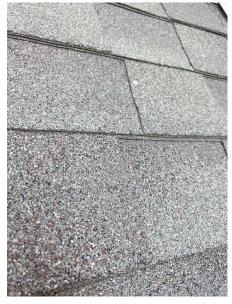
Condition of roofing material: Appears Satisfactory but improvement needed

Flashing at Penetrations: Good Wall Flashing: Improvement needed

Chimney(s): Good Gutters: Good

ASPHAT SHINGLES

The asphalt fiberglass shingles on the roof appear to be in functional condition.







A small hole was noted at the ridge cap at the front of the house. A qualified roof should repair the damaged ridge cap to prevent the possibility of water intrusion.







ROOF FAN

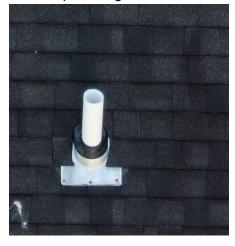
The cover on the roof fan feels secure. The fan appears to be well sealed to the roof.



PLUMBING VENTS

There is visible flashing installed around the plumbing stacks. No damage. Good.







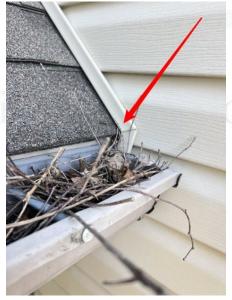
FLASHINGS

Missing kick-out or diverter flashings were noted at the front of the house in two locations. The flashing detail called a kick-out is needed at locations where a roof ends on an exterior wall. The kick-out prevents water from running behind the siding and from streaking down the front of the siding by diverting it from the roof surface into the gutter.

Proper flashings reduce the chances of water intrusion.

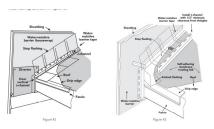
A qualified siding contractor should install the kick-out flashings.











Option 1 & 2 for kick out or diverter flashing



Option 3 for diverter flashing

MANUFACTURED CHIMNEY

The chimney chase appears vertical and straight. The galvanized steel cap and termination cap appear to be in good shape. The storm collar and flue pipe appear to be well sealed. This joint should be checked annually and maintained to prevent water from entering the chimney chase and running down the flue pipe.

Note: This inspection does not include an inspection of the chimney flue.





GUTTERS

The gutters appear to be functional.

The gutters appear to be securely attached to the house.

The gutters appear sloped towards the downspouts.

Gutters require regular maintenance to function properly. The gutters should be kept clean and the gutter seam and joints re-sealed as needed.





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Exterior

The key to mold control is moisture control.

The following items are important to reducing water intrusion and conditions conducive to mold growth:

- 1. Maintaining the exterior siding/cladding
- 2. Keeping penetrations through the siding/cladding well sealed
- 3. Maintaining windows & trim
- 4. Maintaining doors & trim
- 5. Proper drainage away from the house

Note: Inspecting underground drainage systems and window well drainage is beyond the scope of this inspection

BASIC INFORMATION

Exterior Finish Materials: Functional condition but improvements needed

Windows: Good

Doors: Wood decay noted

Ground Sloped Away From House: Improvement needed in areas

Downspouts Directing Water Away From House: No, some downspouts need adjustment

Exterior Air Sample(s) collected: An exterior baseline air sample was collected and sent to the laboratory

for analysis. See lab report results





GRADING & DRAINAGE

Poor drainage (grading) was noted near the foundation on the left side. The ground slopes towards the house.

Poor drainage (grading) was noted near the foundation at the front of the house. There is a slump (low area).

The soil around the home should be graded to take water away from the foundation. In order for drainage to be effective, the landscaping must be configured so that the yard is sloped away from the foundation at a pitch of no less than 6 inches in the first ten feet. Failure to maintain sufficient drainage will cause rain and surface runoff to drain toward the foundation where it can seep into basements and crawlspaces.



Left side of house



Hard to see with trailer here but the ground slopes towards the house



Front of house

Low/slumped area



DOWNSPOUTS

Downspouts were noted draining too close to the house at the front of the house to the left of the front entrance, at the back left corner, and at the right front corner where there is a broken drain pipe.

The downspout should be extended to take water further away from the house.

Water should not be allowed to drain right next to the foundations. Ideally, the downspout should extend 4 to 6 feet away from the house.

A qualified person should extend the spout.







Front of house

Back left corner

Right front corner

EXTERIOR FINISH MATERIALS

Damaged siding was noted to the right of the basement exterior door. Damaged siding can allow water intrusion into the exterior walls. A qualified siding contractor should repair as needed.



Unsealed exterior wall penetrations were noted.

All pipes, vents, cables, and other wall penetrations should be sealed with exterior-grade caulking to prevent water intrusion and energy loss.



Gas line left side of house



Exterior spigot left side of house



Sump Pump discharge pipe left side of the house



Rear of house under the deck

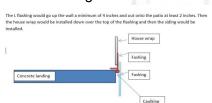
The front exterior wall near the front entrance rests flush with the concrete landing. No provisions have been installed to prevent water from running under the exterior wall. No provisions have been installed to direct water that gets behind the siding out to the exterior.

Water that hits the hard surface of the concrete landing can run under the wall and become trapped between the wall framing and the concrete landing. This will damage the wall over time.

Note: The floor frame on the interior of the home is not visible. The finish ceiling prevents inspecting the floor framing in this area for water intrusion.

The bottom edge of the vinyl siding must be clear to allow water that gets behind the siding to drain out to the exterior. When the bottom of an exterior wall is up against a hard surface flashing needs to be installed. L flashing should be installed up behind the siding and behind any building paper or house wrap. The flashing should extend out onto the hard surface. Also the wall patio intersection must be sealed to prevent water from running under the flashings.

The exterior of the home is made up of two components, the watershed (siding, stucco, simulated stone or brick etc.) and the water barrier or drainage plane (building paper or house wrap). Obviously, the water shed takes most of the weather and deflects most of the rainwater away from the house. However, some water will still get past the watershed. This happens mostly at wall joints, inside and outside corners, window and door penetrations, deck attachments, etcetera, and can be accelerated by wind-driven rain, snow, or ice. For this reason, the water barrier (house wrap or building paper) must form a drainage plane to direct water down the wall and out to the exterior. The seams and overlaps of the water barrier must be installed in shingle-like fashion. The windows and doors as well as any other penetrations in the exterior must be flashed and the flashings must be integrated in shingle-like fashion with the drainage plane. The lack of proper flashings, incorrect overlaps at flashing details, holes or damage in the water barrier, and incorrect overlaps in the water barrier can all allow water to penetrate the drainage plane and lead to damage to the exterior wall.







Shrubs and trees were noted growing on the side of the house. Shrubs and tree limbs should not be leaning on or touching the house.

Plants on the side of a house can hold moisture against the house for extended periods of time. This can contribute to decay and water intrusion.

Pruning of the shrubs and trees around the house is recommended.





DOORS

Wood decay was noted at the bottom of the main entry door where the side jams meet the threshold. Some deterioration was also noted on the door itself.

To prevent the possibility of water intrusion a qualified contractor should repair as needed.









DECKS, PORCHES, PATIOS

Flashing was noted where the deck ledger board is attached to the house, good. Flashing is visible above and behind the ledger board.





Basement/Crawl Space

The key to mold control is moisture control.

The following items are important to reducing conditions conducive to mold growth in the basement/crawl space:

- 1. Proper exterior drainage away from the house to prevent water intrusion
- 2. Maintain interior foundation drainage systems
- 3. Keeping the humidity levels below 60%.

Note: Inspecting underground drainage pipes is beyond the scope of this inspection.

BASIC INFORMATION

Inspection Restrictions: Insulation, Wall Coverings and Ceiling Covering

Mold or Mold-like Growth: None Visible

Evidence of Water Intrusion: No Foundation Drainage System: Yes

Basement Walls: Good Basement Ceilings: Good Basement Floors: Good

Basement Sample(s) Collected: Yes and an air sample was collected and sent to the laboratory for

analysis. See lab sample report..





LIMITATIONS

The moisture intrusion inspection of the basement is restricted by the finished walls and ceiling. Limited visual access. Much of the floor structure and foundation can not be seen. There may be conditions that need improving or correction that can not be seen.







FOUNDATION

At the time of the inspection, there were no signs of water intrusion in the basement. The basement appeared dry.

Note: In the short time of this inspection, it is impossible to determine prior or future water penetration problems. Conditions that affect the basement's dryness (weather, wind, and temperature) will vary greatly during the course of a year.





WATERPROOFING

There is a sump pump in the basement.

There was no water in the sump pump well at the time of the inspection.

The sump pump functioned when tested.





FLOOR FRAMING

There were no water stains visible on the floor framing in the accessible area.







WALLS

There were no visible signs of water stains or mold growth on the walls.

MR Mold or mold-like growth was noted on the backside of the finished wall in the basement office. Mold or mold-like growth was noted on the back side of the sheetrock.

The owner reported that the discolored area of sheetrock is going to be removed. A sample of the discolored sheetrock was not taken.



CEILINGS

There were no visible signs of water stains or mold growth on the ceilings.

FLOORS

There were no visible water stains on the floors.

The flooring near the exterior door was probed with a moisture meter. The meter did not detect elevated levels of moisture.





The readings near the door match the readings at the center of the floor.



Center of floor reading

HVAC

The key to mold control is moisture control.

The following items are important to reducing conditions conducive to mold growth in the HVAC system:

- 1. Annual service by an HVAC professional
- 2. Changing air flirters regularly
- 3. Maintaining condensation pumps
- 4. Maintaining humidifiers (clean and replace the water panel).

Note: Inspecting the interior ductwork is beyond the scope of this inspection.

BASIC INFORMATION

Mold or Mold-like Growth: None Visible Condensation or water leaks: No

HVAC Interior: Service recommended

Air Filter: Clean

Humidifier: Needs Service Hvac sample(s) collected: No

INTERIOR WALLS OF HVAC CABINET

Water stains were noted on the ductwork directly under the HVAC system. Condensation leaks or a leak from the humidifier could contribute to mold growth in the HVAC system.

I recommend cleaning the ductwork under the HVAC system to remove the water stains. The system should be monitored during use to confirm that there are no active leaks.







AIR FILTER

At the time of this inspection, the air filter for the forced air heating/air conditioner was clean.





HUMIDIFIER

The water panel in the humidifier is dirty. The discoloration on the water panel cold be mold growth. I recommend replacing the water panel and cleaning the inside of the humidifier.







DUCTS, REGISTERS AND RETURNS

A representative number of register covers were removed for inspection. Debris was just inside the ductwork. Dust, dirt, sawdust, and other debris can be a food source for mold. I recommend removing and cleaning under the HVAC registers.













Plumbing

The key to mold control is moisture control.

The following items are important to reducing conditions conducive to mold growth:

- 1. Prevent plumbing leaks
- 2. Repair leaks quickly should they accrue
- 3. Wet areas from leaks should be dried quickly.

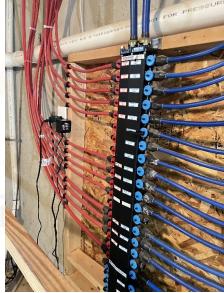
BASIC INFORMATION

Mold or Mold-like Growth: None Visible Water Lines: No water leaks visible Waste Lines: No water leaks visible Water Heater: No leaks noted Plumbing Samples Collected: No

WATER LINES

No visible water line leaks were noted at the time of the inspection.







WASTE LINES

No visible waistline leaks were noted at the time of the inspection.







WATER HEATER

No leaks were noted at the water heater at the time of the inspection.



PLUMBING FIXTURES

No visible leaks were noted at the plumbing fixtures at the time of the inspection.

Attic

The key to mold control is moisture control.

The following items are important to reducing conditions conducive to mold growth in the attic space:

- 1. Maintain the roof and roof flashings,
- 2. Controlling moisture from condensation.
- 3. Moisture from condensation in attics is caused by warm air infiltrating the attic space and condensing on the underside of the cold roof sheathing. Proper roof ventilation, insulation, and venting of fans and appliances should prevent condensation build-up and reduce the chance of mold growth.

BASIC INFORMATION

Attic Restrictions: Limited access-no flooring Mold or Mold-like Growth: None Visible

Evidence of Water Intrusion: No

Attic Ventilation: Ridge vent and Soffit vents

Insulation: Adequate

Bath Ventilation Fans: Vented to the exterior

Attic Sample(s) Collected: No

ATTIC ROOF STRUCTURE

A water stain was noted under the upper rear plumbing vent. The leak appears to be from a pasted leak at the plumbing flashing collar. Currently, the flashing collar is in good condition. There does not appear to be an active roof leak.



ATTIC VENTILATION

The roof is well-vented with both ridge and soffit vents.





INSULATION

The attic floor area was insulated with approximately 10 to 12 inches of insulation. Providing an approximate R-value of R30, good.





VENTILATION FANS

The bathroom ventilation fans are vented to the exterior, good.

Interior

The key to mold control is moisture control.

The following items are important to reducing conditions conducive to mold growth inside the home:

- 1. Maintaining the HVAC system
- 2. Preventing plumbing leaks
- 3. Maintaining the wall, ceiling, and floor surfaces in wet locations like kitchens, bathrooms, and laundry rooms
- 4. Properly ventilate wet locations like kitchens, bathrooms, and laundry rooms
- 5. Keeping the humidity of the home within an acceptable range. Most experts recommend that the humidity inside the home be maintained at 30% to 60% and not exceed 60%.

BASIC INFORMATION

Mold or Mold-like Growth: None Visible

Walls: Good Ceilings: Good Floors: Good

Windows: No water intrusion visible Doors: No water intrusion visible

Interior Air Sample(s) Collected: Yes and an air sample was collected and sent to the laboratory for

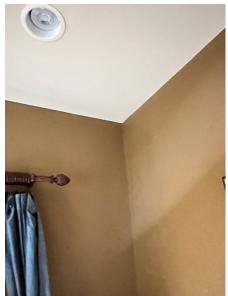
analysis. See lab sample report.





Family room

WALLSNo visible evidence of water stains or mold in the accessible areas.

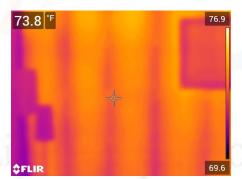


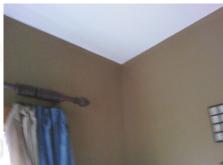


The walls were scanned with an infrared camera to check for temperature differences on walls that could indicate water intrusion.

No anomalies were noted.



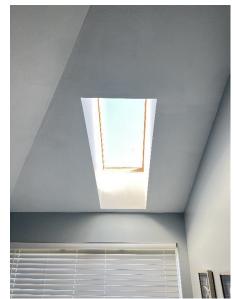


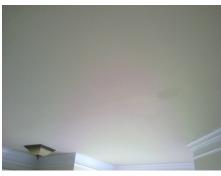




CEILINGS

No visible evidence of water stains or mold in the accessible areas.





The ceilings were scanned with an infrared camera to check for temperature differences on ceilings that could indicate water intrusion.

No anomalies were noted.













FLOORS

No visible evidence of water stains or mold in the accessible areas.

WINDOWS

No visible evidence of water intrusion or mold growth was noted at the window.





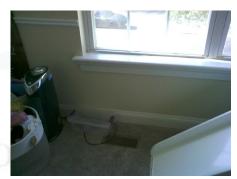


The walls aground the windows were scanned with an infrared camera to check for temperature differences near the windows that could indicate water intrusion.

No anomalies were noted.













DOORS

No visible evidence of water intrusion or mold growth was noted at the exterior doors.





The floors near the exterior doors were scanned with an infrared camera to check for temperature differences on the floors that could indicate water intrusion.

No anomalies were noted.

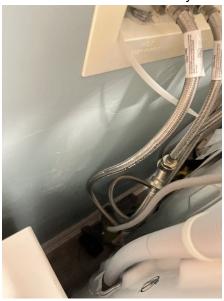




WASHER AND DRYER AREA

No signs of water stains or mold growth were noted in the laundry area.









Bathrooms

The key to mold control is moisture control.

The following items are important to reducing conditions conducive to mold growth in bathrooms:

- 1. Maintain walls, ceilings, and floors to prevent water intrusion behind these areas.
- 2. Keep walls, ceilings, and floor surfaces clean
- 3. Prevent plumbing leaks
- 4. Repair plumbing leaks quickly should they accrue
- 5. Maintain proper ventilation

BASIC INFORMATION

Mold or Mold-like Growth: None Visible

Plumbing Leaks: No Water Stains: No

Bathroom ventilation: Yes, Vent fans and windows

Bathroom Sample(s) Collected: No

BATHROOM WALLS

The walls were in good condition, with no loose cracked, or missing tiles noted.

BATHROOM CEILING

The ceilings were in good condition, with no water stains. mold or mildew noted.

BATHROOM FLOORS

The floors were found to be in good condition, with no loose, cracked, or missing tiles noted.

The floors around the toilets were probed with a moisture meter. The meter did not detect elevated levels of moisture near the toilets.









The floors around the tub/showers were probed with a moisture meter. The meter did not detect elevated levels of moisture.







BATHROOM VENTILATION

The bathroom ventilation fans were functional at the time of the inspection.

BATHROOM SINKS

No leaks were found at the bathroom sinks. No water stains or mold growth were noted in the sink cabinets











Kitchen

The key to mold control is moisture control.

The following items are important to reducing conditions conducive to mold growth:

- 1. Prevent plumbing leaks
- 2. Repair leaks quickly should they accrue
- 3. Wet areas from leaks should be dried quickly.

BASIC INFORMATION

Mold or Mold-like Growth: None Visible Kitchen Sink: No water leaks visible Dishwasher: No water stains visible Refrigerator: No water leaks visible Kitchen Sample(s) collected: No

KITCHEN SINK

No visible leaks were noted under the kitchen sink. No water stains or mold growth were noted in the sink cabinets



DISHWASHER

The floor near the dishwasher was proper with a moisture meter. The meter did not detect elevated levels of moisture.





REFRIGERATOR

No water stains or mold growth was noted behind the refrigerator.



General Tip for Reducing Mold in Homes

Moisture control is the key.

- 1. Keep the building clean and dry. Dry any wet or damp areas within 48 hours.
- 2. Fix leaky plumbing and any leaks in the building's envelope as soon as possible.
- 3. Watch for condensation and wet spots. Fix the sources of moisture problems as soon as possible.
- 4. Prevent moisture due to condensation by increasing surface temperature or reducing the moisture level in the air (humidity). To increase surface temperature, insulate or increase air circulation. To reduce the moisture level in the air, repair leaks and increase ventilation (if outside air is cold and dry), or dehumidify (if outdoor air is warm and humid).
- 5. Keep heating, ventilation, and air conditioning (HVAC) drip pans clean, flowing properly, and unobstructed.
- 6. Vent moisture-generating appliances, such as dryers, to the outside, where possible.
- 7. Maintain low indoor humidity, below 60% relative humidity (RH), and, ideally, between 30% and 50%, if possible.
- 8. Perform regular building and HVAC inspections and scheduled maintenance.
- 9. Don't let foundations stay wet. Provide drainage, and slope the ground away from the foundation.
- 10. If you are not experienced with home and building repairs, you may want to consult a professional when making necessary repairs, or for assistance related to mold-prevention changes to your home or building.

Summary of Inspection Findings

This is a summary review of the inspector's findings during this inspection. However, it does not contain every detailed observation. This is provided as an additional service to our client, and is presented in the form of a listing of the items which, in the opinion of your inspector, merit further attention, investigation, or improvement. Some of these conditions are of such a nature as to require repair or modification by a skilled craftsman, technician, or specialist. Others can be easily handled by a homeowner such as yourself.

Often, following the inspector's advice will result in improved performance and/or extended life of the component(s) in question. In listing these items, your inspector is not offering any opinion as to who, among the parties to this transaction, should take responsibility for addressing any of these concerns. As with most of the facets of your transaction, we recommend consultation with your Real Estate Professional for further advice with regards to the following items:

BASEMENT/CRAWL SPACE WALLS

MR 1: Mold or mold-like growth was noted on the backside of the finished wall in the basement office. Mold or mold-like growth was noted on the back side of the sheetrock.

The owner reported that the discolored area of sheetrock is going to be removed. A sample of the discolored sheetrock was not taken.

HVAC HUMIDIFIER

2: The water panel in the humidifier is dirty. The discoloration on the water panel cold be mold growth. I recommend replacing the water panel and cleaning the inside of the humidifier.

ROOF ASPHAT SHINGLES

3: A small hole was noted at the ridge cap at the front of the house. A qualified roof should repair the damaged ridge cap to prevent the possibility of water intrusion.

ROOF FLASHINGS

4: Missing kick-out or diverter flashings were noted at the front of the house in two locations. The flashing detail called a kick-out is needed at locations where a roof ends on an exterior wall. The kick-out prevents water from running behind the siding and from streaking down the front of the siding by diverting it from the roof surface into the gutter.

Proper flashings reduce the chances of water intrusion.

A qualified siding contractor should install the kick-out flashings.

EXTERIOR GRADING & DRAINAGE

5: Poor drainage (grading) was noted near the foundation on the left side. The ground slopes towards the house.

Poor drainage (grading) was noted near the foundation at the front of the house. There is a slump (low area).

The soil around the home should be graded to take water away from the foundation. In order for drainage to be effective, the landscaping must be configured so that the yard is sloped away from the foundation at a pitch of no less than 6 inches in the first ten feet. Failure to maintain sufficient drainage will cause rain and surface runoff to drain toward the foundation where it can seep into basements and crawlspaces.

EXTERIOR DOWNSPOUTS

6: Downspouts were noted draining too close to the house at the front of the house to the left of the front entrance, at the back left corner, and at the right front corner where there is a broken drain pipe. The downspout should be extended to take water further away from the house.

Water should not be allowed to drain right next to the foundations. Ideally, the downspout should extend 4 to 6 feet away from the house.

A qualified person should extend the spout.

EXTERIOR FINISH MATERIALS

7: Damaged siding was noted to the right of the basement exterior door.

Damaged siding can allow water intrusion into the exterior walls.

A qualified siding contractor should repair as needed.

8: Unsealed exterior wall penetrations were noted.

All pipes, vents, cables, and other wall penetrations should be sealed with exterior-grade caulking to prevent water intrusion and energy loss.

9: The front exterior wall near the front entrance rests flush with the concrete landing. No provisions have been installed to prevent water from running under the exterior wall. No provisions have been installed to direct water that gets behind the siding out to the exterior.

Water that hits the hard surface of the concrete landing can run under the wall and become trapped between the wall framing and the concrete landing. This will damage the wall over time.

Note: The floor frame on the interior of the home is not visible. The finish ceiling prevents inspecting the floor framing in this area for water intrusion.

The bottom edge of the vinyl siding must be clear to allow water that gets behind the siding to drain out to the exterior. When the bottom of an exterior wall is up against a hard surface flashing needs to be installed. L flashing should be installed up behind the siding and behind any building paper or house wrap. The flashing should extend out onto the hard surface. Also the wall patio intersection must be sealed to prevent water from running under the flashings.

The exterior of the home is made up of two components, the watershed (siding, stucco, simulated stone or brick etc.) and the water barrier or drainage plane (building paper or house wrap). Obviously, the water shed takes most of the weather and deflects most of the rainwater away from the house. However, some water will still get past the watershed. This happens mostly at wall joints, inside and outside corners, window and door penetrations, deck attachments, etcetera, and can be accelerated by wind-driven rain, snow, or ice. For this reason, the water barrier (house wrap or building paper) must form a drainage plane to direct water down the wall and out to the exterior. The seams and overlaps of the water barrier must be installed in shingle-like fashion. The windows and doors as well as any other penetrations in the exterior must be flashed and the flashings must be integrated in shingle-like fashion with the drainage plane. The lack of proper flashings, incorrect overlaps at flashing details, holes or damage in the water barrier, and incorrect overlaps in the water barrier can all allow water to penetrate the drainage plane and lead to damage to the exterior wall.

10: Shrubs and trees were noted growing on the side of the house. Shrubs and tree limbs should not be leaning on or touching the house.

Plants on the side of a house can hold moisture against the house for extended periods of time. This can contribute to decay and water intrusion.

Pruning of the shrubs and trees around the house is recommended.

EXTERIOR DOORS

11: Wood decay was noted at the bottom of the main entry door where the side jams meet the threshold. Some deterioration was also noted on the door itself.

To prevent the possibility of water intrusion a qualified contractor should repair as needed.

HVAC INTERIOR WALLS OF HVAC CABINET

12: Water stains were noted on the ductwork directly under the HVAC system. Condensation leaks or a leak from the humidifier could contribute to mold growth in the HVAC system.

I recommend cleaning the ductwork under the HVAC system to remove the water stains. The system should be monitored during use to confirm that there are no active leaks.

HVAC DUCTS, REGISTERS AND RETURNS

13: A representative number of register covers were removed for inspection. Debris was just inside the ductwork. Dust, dirt, sawdust, and other debris can be a food source for mold. I recommend removing and cleaning under the HVAC registers.







EXPANDED FUNGAL ASSESSMENTREPORT

Prepared Exclusively For

SunLight Inspection Services

590 Sandra Lane Phoenixville, PA 19460 Phone:610-450-6056

 Report Date:
 7/25/2023

 Project:
 23072101D

 EMSL Order:
 072306202

AIHA LAP, LLC-EMLAP Accredited #100662



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Daniel Keogh Attn:

SunLight Inspection Services

590 Sandra Lane Phoenixville, PA 19460 Customer ID: SLIS75

EMSL Order:

7/21/2023 - 7/21/2023 Collected:

072306202

Received: 7/24/2023 7/24/2023 Analyzed:

23072101D Proj:

1. Description of Analysis

Analytical Laboratory

EMSL Analytical, Inc. (EMSL) is a nationwide, full service, analytical testing laboratory network Indoor Air Quality, Microbiological. providing Asbestos. Mold. 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, such as AIHA-LAP, LLC's EMLAP and proficiency testing providers such as AIHA, LLC's EMPAT programs, 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 AIHA-LAP, LLC policy modules and 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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SunLight Inspection Services

590 Sandra Lane

Phoenixville, PA 19460

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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/m3) 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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Attn: Daniel Keogh

SunLight Inspection Services

590 Sandra Lane Phoenixville, PA 19460

Phoenixville, PA 19460

EMSL Order: 072306202 Customer ID: SLIS75

Collected: 7/21/2023 - 7/21/2023

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Proj: 23072101D

Air Samples - Spore traps:

2. Analytical Results

See attached data reports and charts.



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7/21/2023 - 7/21/2023 Collected: 590 Sandra Lane

Phoenixville, PA 19460 Received: 7/24/2023 7/24/2023 Analyzed:

23072101D Proj:

Spore Trap ASSESSMENTReport™ Air-O-Cell(™) Analysis of Fungal Spores & Particulates (Methods MICRO-SOP-201, ASTM D7391)

072306202

| | Particle Identification | Raw Count | (Count/m³) | % of Total | Interpretation Guideline |
|-------------------|---------------------------|-----------|------------|------------|---------------------------|
| 072306202-0001 | Alternaria (Ulocladium) | 1 | 20 | 0.3 | * 😓 💧 |
| | Ascospores | 130 | 2870 | 44.7 | ** |
| Client Sample ID | Aspergillus/Penicillium | 6 | 100 | 1.6 | ** |
| 32545251 | Basidiospores | 150 | 3310 | 51.6 | <u>★</u> |
| | Bipolaris++ | - | - | - | |
| | Chaetomium++ | - | - | - | |
| Location | Cladosporium | 1 | 20 | 0.3 | ** |
| Front exterior | Curvularia | - | - | - | |
| | Epicoccum | 1 | 20 | 0.3 | ★ |
| Sample Volume (L) | Fusarium++ | - | - | - | |
| | Ganoderma | - | - | - | |
| 150 | Myxomycetes++ | 1 | 20 | 0.3 | * |
| | Pithomyces++ | 2* | 10* | 0.2 | 本 * * * |
| Sample Type | Rust | 1* | 7* | 0.1 | * |
| | Scopulariopsis/Microascus | - | - | - | |
| Background | Stachybotrys/Memnoniella | - | - | - | |
| Comments | Unidentifiable Spores | - | - | - | |
| Comments | Zygomycetes | - | - | - | |
| | Cercospora++ | - | - | - | |
| | Polythrincium | 1 | 20 | 0.3 | * |
| | Zygophiala/Schizothyrium | 1 | 20 | 0.3 | <u>本</u> 本 |
| | Total Fungi | 295 | 6417 | 100 | |
| | Hyphal Fragment | 1* | 7* | - | |
| | Insect Fragment | 1 | 20 | - | |
| | Pollen | 1* | 7* | _ | * |

Analytical Sensitivity 600x: 22 counts/cubic meter Analytical Sensitivity 300x *: 7*

counts/cubic meter

Skin Fragments: 1 Fibrous Particulate: 1 1 to 4 (low to high) 1 to 4 (low to high)

1 to 4 (low to high): 5 (overloaded) Background:

Not commonly found growing indoors, spores likely come from outside. Spores reported to be able to cause allergies in individuals.

Potential for mycotoxin production exists with these fungi.

These fungi are considered water damage indicators.

Bipolaris++ = Bipolaris / Drechslera / Exserohilum Myxomycetes++ = Myxomycetes / Smut /

Initial report from: 07/25/2023 09:45:44

Daoxin Li, PH.D, Lab Manager or Other Approved Signatory

Skin Fragment and Fibrous Particulate ratings are based on the percent of non-fungal material they represent: 1 (1-25%), 2 (26-50%), 3 (51-75%), or 4 (76-100%). Background ratings are based on the total area covered by non-fungal particles: 1 (1-25%), 2 (26-50%), 3 (51-75%), 4 (76-99%), or 5 (100%; overloaded, prohibiting accurate detection and quantification). High levels of background will obscure spores and other particulates, leading to underestimation. 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. 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. When the information supplied by the customer can affect the validity of the result, it will be noted on the

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Daniel Keogh Attn:

EMSL Order: SunLight Inspection Services Customer ID: SLIS75

7/21/2023 - 7/21/2023 Collected: 590 Sandra Lane

Phoenixville, PA 19460 Received: 7/24/2023 7/24/2023 Analyzed:

23072101D Proi:

Spore Trap ASSESSMENTReport™ Air-O-Cell(™) Analysis of Fungal Spores & Particulates (Methods MICRO-SOP-201, ASTM D7391)

| | Particle Identification | Raw Count | (Count/m³) | % of Total | Interpretation Guideline |
|-------------------|---------------------------|-----------|------------|------------|--|
| 072306202-0002 | Alternaria (Ulocladium) | - | - | - | |
| | Ascospores | 7 | 200 | 11.6 | Acceptable ** |
| Client Sample ID | Aspergillus/Penicillium | 48 | 1100 | 63.9 | ELEVATED |
| 32545261 | Basidiospores | 8 | 200 | 11.6 | Acceptable ★ ★ Slightly Elevated ★ ★ ☆ |
| | Bipolaris++ | 1* | 7* | 0.4 | Slightly Elevated 🛕 💥 😓 |
| | Chaetomium++ | 2 | 40 | 2.3 | Slightly Elevated |
| Location | Cladosporium | 6 | 100 | 5.8 | Slightly Elevated *** |
| Basement | Curvularia | 1* | 7* | 0.4 | Slightly Elevated 🛕 💥 |
| | Epicoccum | - | - | - | |
| Sample Volume (L) | Fusarium++ | - | - | - | |
| | Ganoderma | - | - | - | |
| 150 | Myxomycetes++ | 1 | 20 | 1.2 | Acceptable ** Slightly Elevated ** |
| | Pithomyces++ | 2 | 40 | 2.3 | Slightly Elevated 🛕 💥 |
| Sample Type | Rust | - | - | - | |
| | Scopulariopsis/Microascus | - | - | - | |
| Inside | Stachybotrys/Memnoniella | - | = | - | |
| Comments | Unidentifiable Spores | - | - | - | |
| | Zygomycetes | - | - | - | |
| | Cercospora++ | 1* | 7* | 0.4 | Slightly Elevated 🛕 |
| | Polythrincium | - | - | - | |
| | Zygophiala/Schizothyrium | - | - | - | |
| | Total Fungi | 77 | 1721 | 100 | Acceptable |
| | Hyphal Fragment | 2 | 40 | - | Slightly Elevated |
| | Insect Fragment | - | = | - | |
| | Pollen | - | - | - | |

Analytical Sensitivity 600x: 22 counts/cubic meter Analytical Sensitivity 300x *: 7* counts/cubic meter

Acceptable Concentration at or below background

Skin Fragments: 3 1 to 4 (low to high) Fibrous Particulate: 2 1 to 4 (low to high)

072306202

Rackground: 2 1 to 4 (low to high): 5 (overloaded)
Not commonly found growing indoors, spores likely come from outside.

Slightly Elevated Concentration above background

Spores reported to be able to cause allergies in individuals.

ELEVATED Concentration 10X or more above background

Potential for mycotoxin production exists with these fungi.

These fungi are considered water damage indicators.

Bipolaris++ = Bipolaris / Drechslera / Exserohilum Myxomycetes++ = Myxomycetes / Smut /

Initial report from: 07/25/2023 09:45:44

Daoxin Li, PH.D, Lab Manager or Other Approved Signatory

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072306202 EMSL Order: SunLight Inspection Services Customer ID: SLIS75

7/21/2023 - 7/21/2023 Collected: 590 Sandra Lane

Phoenixville, PA 19460 Received: 7/24/2023 7/24/2023 Analyzed:

23072101D Proj:

Spore Trap ASSESSMENTReport™ Air-O-Cell(™) Analysis of Fungal Spores & Particulates (Methods MICRO-SOP-201, ASTM D7391)

| | Particle Identification | Raw Count | (Count/m³) | % of Total | Interpretation Guideline |
|-------------------|---------------------------|-----------|------------|------------|--------------------------|
| 072306202-0003 | Alternaria (Ulocladium) | - | - | - | |
| | Ascospores | - | - | - | |
| Client Sample ID | Aspergillus/Penicillium | 17 | 380 | 73.1 | Slightly Elevated *** |
| 32545267 | Basidiospores | 5 | 100 | 19.2 | Acceptable 🛕 |
| | Bipolaris++ | - | - | - | |
| | Chaetomium++ | - | - | - | |
| Location | Cladosporium | - | = | - | |
| Master Bedroom | Curvularia | 1 | 20 | 3.8 | Slightly Elevated |
| | Epicoccum | 1 | 20 | 3.8 | Acceptable ** |
| Sample Volume (L) | Fusarium++ | - | - | - | |
| | Ganoderma | - 1 | - | - | |
| 150 | Myxomycetes++ | - | - | - | |
| | Pithomyces++ | - | - | - | |
| Sample Type | Rust | - | - | - | |
| | Scopulariopsis/Microascus | - | = | - | |
| Inside | Stachybotrys/Memnoniella | - | - | - | |
| Comments | Unidentifiable Spores | - | - | - | |
| | Zygomycetes | - | - | - | |
| | Cercospora++ | - | - | - | |
| | Polythrincium | - | - | - | |
| | Zygophiala/Schizothyrium | - | - | - | |
| | Total Fungi | 24 | 520 | 100 | Acceptable |
| | Hyphal Fragment | 1 | 20 | - | Slightly Elevated |
| | Insect Fragment | - | - | - | |
| | Pollen | - | - | - | |

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)

Rackground: 1 1 to 4 (low to high): 5 (overloaded)
Not commonly found growing indoors, spores likely come from outside.

Spores reported to be able to cause allergies in individuals. Potential for mycotoxin production exists with these fungi.

These fungi are considered water damage indicators.

Acceptable Concentration at or below background

Slightly Elevated Concentration above background



ELEVATED Concentration 10X or more above background

Bipolaris++ = Bipolaris / Drechslera / Exserohilum Myxomycetes++ = Myxomycetes / Smut /

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SunLight Inspection Services

590 Sandra Lane Phoenixville, PA 19460

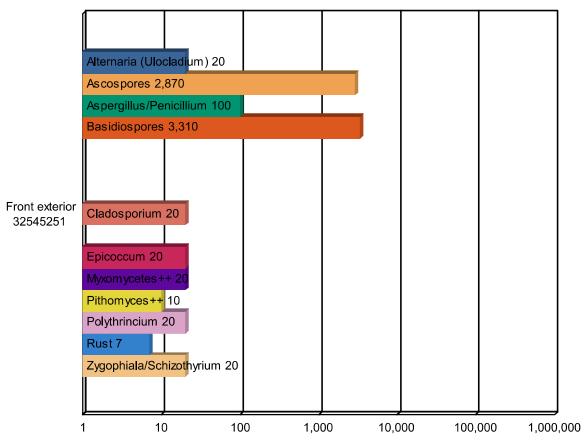
Proj: 23072101D

EMSL Order: 072306202 Customer ID: SLIS75

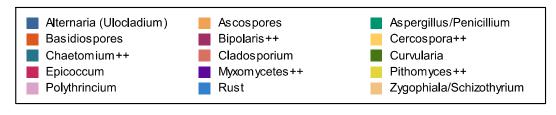
Collected: 7/21/2023 - 7/21/2023

Received: 7/24/2023 Analyzed: 7/24/2023

Spore Trap Report: Total Counts



Spore Counts per m3



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



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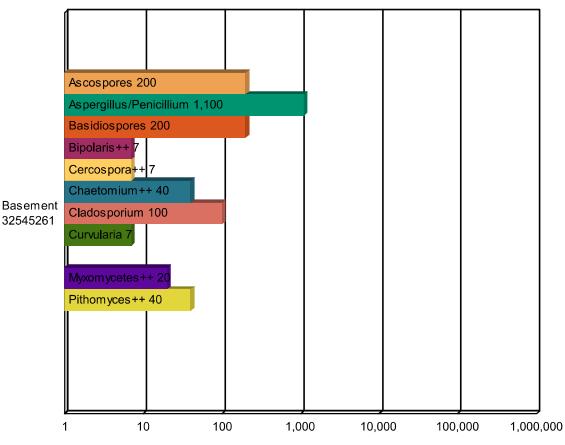
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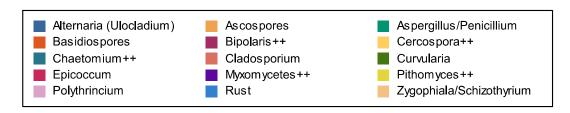
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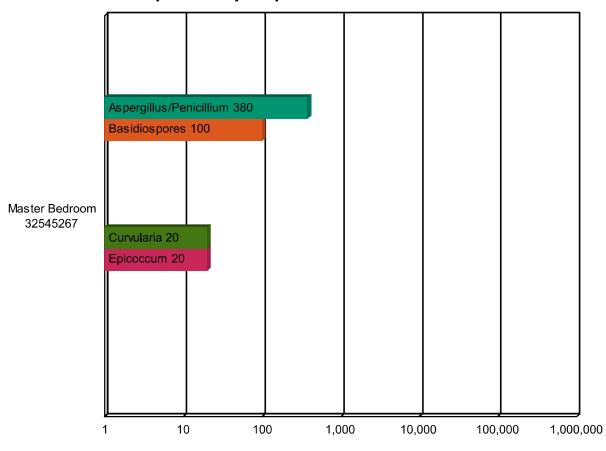
Proj: 23072101D

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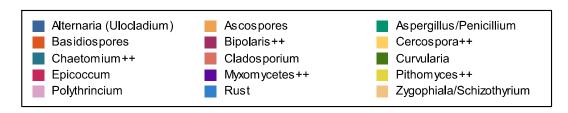
Collected: 7/21/2023 - 7/21/2023

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Spore Trap Report: Total Counts



Spore Counts per m3



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



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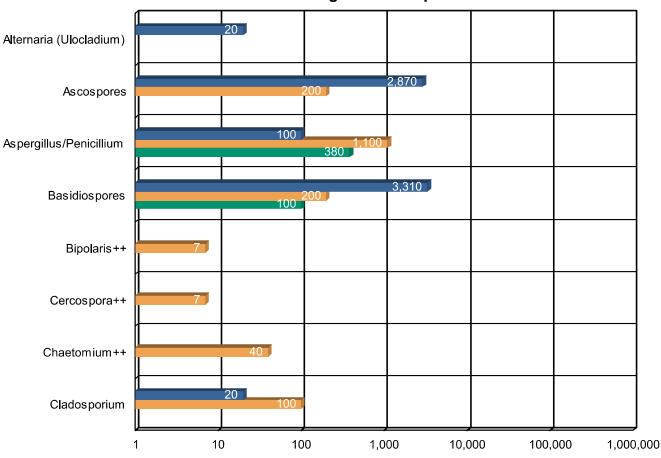
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Background Comparison Chart



Spore Counts per m3



^{*} The chart is displayed using a logarithmic scale. The bar size is not directly proportional to the number of spores.



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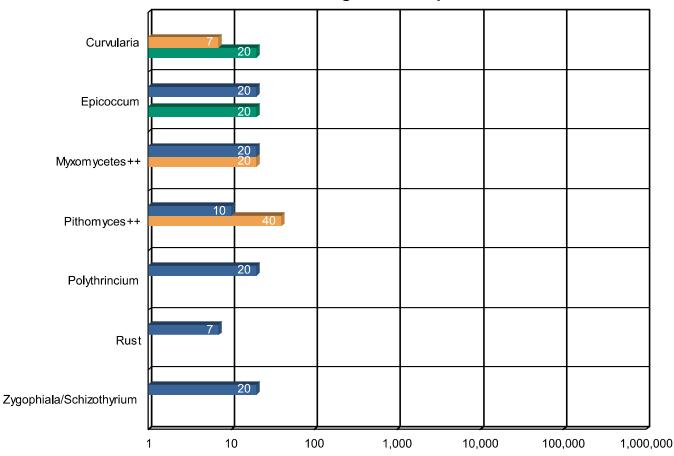
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Background Comparison Chart



Spore Counts per m3



^{*} The chart is displayed using a logarithmic scale. The bar size is not directly proportional to the number of spores.



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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, <u>Bioaerosols: Assessment and Control</u>, 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

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

| ASCOSPORES | |
|--|--|
| Allergic Potential | Depends on genus and species. |
| Industrial Uses | |
| Mode of Dissemination | Forcible ejection or passive release and dissemination by wind or insects. |
| Natural Habitat | Everywhere in nature. |
| Other Comments | 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. |
| Potential or Opportunistic Pathogens | Depends on genus and species. |
| Potential Toxins Produced | |
| Suitable Substrates in the Indoor Environment Water Activity | |



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| ASPERGILLUS/PENICILLIUM | | |
|---|--|--|
| Allergic Potential | Type I (hay fever, asthma) ·Type III (hypersensitivity) | |
| Industrial Uses | Many depending on the species | |
| Mode of Dissemination | Wind ·Insects | |
| Natural Habitat | Plant debris ·Seed ·Cereal crops | |
| Other Comments | 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. | |
| Potential or Opportunistic | Possible depending on the species. | |
| Pathogens | | |
| Potential Toxins Produced | | |
| Suitable Substrates in the Indoor Environment | 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 | |
| Water Activity | Aw=0.75-0.94 | |

Analyzed:

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| BASIDIOSPORES | |
|---|---|
| Allergic Potential | Type I allergies (hay fever, asthma) . Type III (hypersensitivity pneumonitis) |
| Industrial Uses | Edible mushrooms are used in the food industry. |
| Mode of Dissemination | Forcible ejection. Wind currents. |
| Natural Habitat | Forest floors. Lawns .Plants (saprobes or pathogens depending on genus) |
| Other Comments | 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. |
| Potential or Opportunistic Pathogens | Depends on genus. |
| Potential Toxins Produced | Amanitins. monomethyl-hydrazine. muscarine. ibotenic acid. psilocybin. |
| Suitable Substrates in the Indoor Environment | Depends on genus. Wood products |
| Water Activity | Unknown. |



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| BIPOLARIS++ | |
|---|---|
| Allergic Potential | Hay fever, asthma. Allergic and chronic invasive sinusitis |
| Free moisture required for mold growth | Unknown |
| Mode of Dissemination | Wind |
| Natural Habitat | Plant saprophyte.Plant pathogen of many plants, causing leaf rot, crown rot, and root rot on warm season turf grasses |
| Other Comments | Includes Bipolaris, Drechslera, Exserohilum. |
| Potential or Opportunistic Pathogens | Invasive sinusitis, disseminated mycoses, peritonitis, keratitis, phaeohyphomycosis |
| Potential Toxins | Can potentially produce sterigmatocystin. |
| Suitable Substrates in the Indoor Environment | House plants, Indoor building materials |

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| CERCOSPORA++ | |
|---|---|
| Allergic Potential | Unknown |
| Mode of Dissemination | Irrigation water, Insects, Rain Wind |
| Natural Habitat | Parasite on higher plants, commonly causes leaf spot diseases. |
| Other Comments | Includes morphologically similar spores of Cercospora, Pseudocercospora, Septoriella, and Septoria. |
| Potential or Opportunistic Pathogens | Unknown |
| Suitable Substrates in the Indoor Environment | |
| Water Activity | Moderate –High humidity |

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



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

| CURVULARIA | |
|--|--|
| Allergic Potential | Hay fever, asthma, allergic fungal sinusitis |
| Free moisture required for mold growth | Unknown |
| Mode of Dissemination | Wind |
| Natural Habitat | A worldwide saprophytic fungi, being isolated from dead plant material and soil. |
| Potential or Opportunistic | In immunocompromised patients can cause cerebral abscess, endocarditis, mycetoma, ocular |
| Pathogens | keratitis, onychomycosis, and pneumonia. |
| Suitable Substrates in the | Paper, wood products |
| Indoor Environment | |

| EPICOCCUM | |
|----------------------------|--|
| Allergic Potential | Hay fever, asthma |
| Mode of Dissemination | Wind |
| Natural Habitat | A worldwide saprophytic fungi, being isolated from dead plant material and soil. |
| Potential or Opportunistic | Unknown |
| Pathogens | |
| Suitable Substrates in the | Paper, textiles |
| Indoor Environment | |
| Water Activity | 0.86-0.90 |



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| MYXOMYCETES++ | |
|--|--|
| Allergic Potential | Type I |
| Free moisture required for mold growth | Unknown |
| Industrial Uses | |
| Mode of Dissemination | Insects, Water, Wind |
| Natural Habitat | Decaying logs, Dead leaves , Dung , Lawns , Mulched flower beds, Lawns |
| Other Comments | Includes Myxomycetes, Smut, Rust, and Periconia. |
| Potential or Opportunistic | Unknown |
| Pathogens | |
| Suitable Substrates in the | Rotting lumber |
| Indoor Environment | |

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

| POLYTHRINCIUM | |
|--|--|
| Allergic Potential | Allergenic potential in this genus is not well understood, and is currently being studied. |
| Natural Habitat | Many Basidiomycetes form arthrospores during their mycelial stage. Geotrichum and Oidiodendron are typical ascomycete arthrospore formers. Arthrospores are formed by microfungi, and yeast-like fungi. Arthrospores are disarticulated cells of a formerly vegetative filament that function as spores. |
| Potential Opportunist or Pathogen | Unknown |
| Potential Toxins Produced | |
| Suitable Substrates in the Indoor Environment | |



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| RUSTS | |
|----------------------------|--|
| Allergic Potential | Type I. (hay fever, asthma) |
| Free moisture required for | Unknown |
| mold growth | |
| Mode of Dissemination | Wind, Forcible Ejection |
| Natural Habitat | Parasitic on cultivated and many types of plants |
| Potential or Opportunistic | Unknown |
| Pathogens | |
| Suitable Substrates in the | Unknown- rust fungi require a living plant host for growth |
| Indoor Environment | |

| ZYGOPHIALA/SCHIZOTHYRIUM | | |
|----------------------------|--|--|
| Allergic Potential | Unknown | |
| Mode of Dissemination | Wind, Rain | |
| Natural Habitat | Plants, on leaves, twings and fruits of numerous trees and shrubs (one sp. causes flyspeck disease in Apple). | |
| Potential or Opportunistic | Unknown | |
| Pathogens | | |
| Suitable Substrates in the | | |
| Indoor Environment | | |
| Water Activity | | |



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5. 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. EMSLreserves 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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be liable to a client or any third party, whether based upon theories of tort, contract or any other legal or equitable theory, in excess of the amount paid to EMSL by client thereunder.

E. Indemnification

Client shall indemnify EMSL and its officers, directors and employees and hold each of them harmless for any liability, expense or cost, including reasonable attorney's fees, incurred by reason of any third party claim in connection with EMSL services, the test result data or its use by client