Mold inspection report
Date of inspection: 7/7/2025
Prepared by: Bryce A. Kibbey
Prepared for: John and Jane Smith
Address: 12345 Main St., Anytown, TX 99999

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Table of Contents

Statement of Limitations

The following mold assessment is based on findings of the physical inspection and testing. Findings are current and accurate for the date and time they were found, but do not reflect expected or predictable mold growth and infestation on and within the property.

This report addresses only those areas physically inspected and sampled. Gumshoe Property Inspection LLC is not responsible or liable for the non-discovery of any water damage, water problems, mold contamination, or other conditions of the Subject Property which may occur or may become evident after the inspection and testing time and date. Gumshoe Property Inspection LLC is neither an insurer nor guarantor against water problems, mold problems or other defects in the Subject Property and improvements, systems or components inspected. Gumshoe Property Inspection LLC makes no warranty, expressed or implied as to the fitness for use of condition of the systems or components inspected. Gumshoe Property Inspection LLC assumes no responsibility for the cost of repairing any water problems, mold problems or any other defects or conditions. Gumshoe Property Inspection LLC is not responsible or liable for any future water problems, mold problems or any other future failures or repairs.

Remediation recommendations are suggested guidelines, not a detailed remediation protocol. More or less actions maybe necessary and will be determined by the remediation company chosen by the property owners or other responsible party.

This inspection was conducted under the regulations set forth by the Texas Department of Licensing and Regulation (TDLR).

Testing and Sampling procedures were conducted using the Standards of Practice (SOP) of the International Association of Certified Indoor Air Consultants (IAC2).

Project Location & Assessment Protocol

A Complete mold assessment and testing was performed on 7/7/2025 by Bryce A. Kibbey, Owner of Gumshoe Property Inspection LLC. The subject property is located at 12345 Main St. in Anytown, TX.

The IAC2 Standards of Practice (SOP) defines a Complete mold inspection to be:

- A non-invasive, visual examination of the readily accessible, visible, and installed systems and components of the building.

That includes:

- Moisture, temperature and humidity measurements; and
- Mold samples according to the IAC2's mold sampling procedures.

Decisions on when, where, and under what conditions to take samples, and sample type, were made using the IAC2 Mold Sampling Decision chart shown below:

IAC2 Mold Sampling Decision Chart

CONDITION	Perform Swab Sampling?	Perform Tape Sampling?	Perform Interior Air Sampling?	Perform Outdoor Air Sampling?	Perform Carpet Sampling?	Perform Wall Sampling?
visible, apparent mold	YES (or a tape sampling)	YES (or a swab sampling)	YES, in the area(s) of the building with visible, apparent mold growth	YES: two outdoor samples (one windward; one leeward)	POSSIBLY, at the discretion of the inspector	NO
no visible apparent mold, but there are visible condition/s conducive to mold growth	YES (or a tape sampling), at water stains, water damage, areas of moisture, or other areas, at the discretion of the inspector	YES (or a swab sampling), at water stains, water damage, areas of moisture, or other areas, at the discretion of the inspector	YES, in the area/s of the building with condition/s conducive to mold growth	YES: two outdoor samples (one windward; one leeward)	YES, in the area/s of the building with condition/s conducive to mold growth	YES, at the wall with condition/s conducive to mold growth.
no visible, apparent mold, and no visible conducive conditions	NO	NO	YES, near HVAC return duct (if available); otherwise, at least one sampling in the most lived-in common room (such as the family room or living room)	YES		

Project Location & Assessment Protocol

The following diagnostic tools were used in the physical investigation:

- Visual assessment of interior and exterior areas of the subject property
- Infrared camera scan: indicates variations in temperature of building materials
- Moisture meter: indicates relative moisture of building materials up to one inch deep; used along walls, floors, ceilings, and other building materials
  - Less than 15% moisture indicates normal moisture levels (low moisture)
  - Between 15% and 25% warrant further investigation (moderate moisture)
  - Greater than 25% indicates excessive moisture (high moisture)
- Govee remote thermo-hygrometers to establish local temperature and relative humidity in the areas of the building tested.

Four samples were collected at the subject property. Air sampling cassettes and sampling pump calibrated to 15 liters per minute were used to collect air samples. All ambient air samples were collected for 10 minutes. Two outdoor ambient air sample was collected to establish background levels of mold spores naturally occurring in the area. Two indoor air samples were taken, one each in a common living space on their respective levels. All samples were delivered to EMSL Analytical, Inc. for analysis.

Site Conditions

Preliminary

Property Information
Address: 12345 Main St., Anytown, TX 99999
Year built: 2014
Foundation type: Slab on grade
Floors/Levels: 2
No. of bedrooms: 4
No. of bathrooms: 3 1/4
Garage attached: Y
Is the home currently occupied? Y

Attendees: Bryce Kibbey, homeowner

Outdoor Atmospherics
Date/Time: 7/7/2025 07:00 – 08:30
Temperature: 79*F
Relative Humidity: 76.6%
Winds: Light (5mph or less)

Closed building conditions
Per agreement with the client, closed building conditions were established a minimum of 6 hrs before the test, and were maintained throughout the duration of the test.

Closed building conditions are necessary in order to stabilize the air that may contain mold spores or microbial volatile organic compounds (mVOCs), and to increase the reproducibility of the air sampling and measurement.

Closed building conditions consisted of:

- Windows on all levels remained closed for the duration of the closed building conditions.
- External doors remained closed except for normal entry/exit.
- Any external/internal air exchange (e.g. whole house fans, window fans, etc…) were not operated.

Findings, Sample Results & Recommendations

Table 1 – Summary of on-site moisture readings.

	Walls	Floor	Ceiling	Windows	Sink	Toilet	Shower/ Tub	Comments
Office	Low	Low	Low	Low				
Dining Room	Low	Low	Low	Low				
Kitchen	Low	Low	Low	Low				
Family Room	Low	Low	Low	Low				
Master BR	Low	Low	Low	Low				
Master Bath	Low	Low	Low	Low	Low	Low	Low	Ceiling water stain noted in report body
Powder Room	Low	Low	Low		Low	Low		
Upper Landing	Low	Low	Low	Low				
Game Room	Low	Low	Low	Low				
Media Room	Low	Low	Low	Low				
Bedroom 1	Low	Low	Low	Low				
Bedroom 2	Low	Low	Low	Low				
Bedroom 3	Low	Low	Low	Low				
Bathroom 1	Low	Low	Low		Low	Low	Low	
Bathroom 2	Low	Low	Low	Low	Low	Low	Low	

Findings , Sample Results & Recommendations

Results of samples taken at the subject property are provided in section title “Laboratory Sample Analysis”. Air samples were taken to establish the concentration of spores in ambient air.
The total concentration of mold spores per cubic meter of air is given in Table 2.
Under normal conditions, the concentration of spores and types present should be consistent with that captured outside.

Table 2 – Summary of sampling results

Sample Location	Concentration (spores/m^3)	Mold type(s) predominant
Outside (front)	39720	Basidiospores, Ascospores, Aspergillus, Cladosporium
Outside (rear)	32520	Basidiospores, Ascospores, Aspergillus, Cladosporium, Myxomycetes
First Floor Living Room	1037	Basidiospores, Aspergillus, Ascospores
Second Floor Game Room	867	Basidiospores, Aspergillus

Analysis

Outside (front & rear) – The Basidiospores count both front and rear are abnormally high at 38,000 and 30,000 spores/m^3 respectively. For reference a normal outdoor range for Basidiospores would be considered 1,000 – 5,000 spores/m^3.

Basidiospores are a common outdoor mold associated with mushroom growth, smuts, shelf fungi and rusts. The high Basidiospore counts seen here are likely a result of the higher than average amount of green space and landscaping not only on the subject property, but also in the common areas both behind and in front of the property. In other words, it’s likely the Basidiospore count is generally high in the larger neighborhood and not really a cause for concern.

The other mold types seen (Ascospores, Aspergillus, Cladosorium) are within normal levels for outdoor measurement and not a concern.

First Floor Living Room – The Badiospores level of 600 spores/m^3 is very slightly elevated above a normal level of 500 spores/m^3. Given that the outdoor Badiospores is so abnormally high this is not a surprise as this is probably a result of some natural migration of the Badiospores due to normal activity of coming and going, opening/closing doors. As noted, Badiospores are a common outdoor mold, not indoor. This very slightly elevated level is not a cause for concern.

The Aspergillus (240 spores/m^3) and Ascospore (100 spores/m^3) levels are well within normal indoor levels of 500 spores/m^3.

Findings, Sample Results & Recommendations

Second Floor Game Room – The Badiospores count here of 510 spores/m3 is in line with a normal level of 500 spores/m3. As with the First Floor Living Room this level is likely as high as it is due to the abnormally high outdoor levels and similarly not a cause for concern.

The Aspergillus level of 310 spores/m3 is well within a normal indoor level of 500 spores/m3 and not a concern.

Conclusion – Based on the visual inspection of the property and the laboratory analysis it is concluded that the property does not have an active mold problem.

Remedial recommendations – None.

General recommendations:

- Follow up on the recommendations for the roofing material and roof drainage systems found in the Inspection Areas & Summary Findings section.
- Follow up on the recommendations for the fiber cement siding material found in the Inspection Areas & Summary Findings section.
- Homeowner should perform a visual inspection of the roof and attic framing and decking material annually as a way to spot moisture intrusion problems early on.
- Homeowner should be vigilant in maintaining door/window seals and weatherstripping. This will help keep the home “tight” and keep mold levels low. “Drafty” homes tend to have more mold management issues than tight homes.

Inspection Areas & Summary Findings

Roof

Roof covering – The roof was inspected from roof edge on a ladder and from the ground. The roof pitch was determined to be too steep for the inspector to walk safely.

The roof covering is the original roof so is estimated to be approximately 11 yrs old. While some areas of granule loss and potential hail damage were visible, the roof appears to be performing as intended at it's roughly half-life age (average life of a composition asphalt shingle roof is 15 – 20 yrs). It is recommended however that a roofing professional be consulted as to any repairs needed for the hail damaged areas. The homeowner should also perform a self inspection annually of the roof covering material and underside roof decking to check for any signs or conditions that can lead to water penetration.

There was no visible evidence of water penetration through the roof covering or around the roof penetrations at the time of the inspection.

Roof drainage system, gutters & downspouts – The gutters and downspouts are all clean and in good condition.

The gutter system on the north side of the building above the garage has a deficiency where the gutter is laying on top of the drip edge rather than underneath the drip edge. This creates an environment where water draining off of the roof or wind driven storm water can get between the gutter system and the fascia. This can lead to premature fascia deterioration, mold growth, and water penetration to the attic. It is strongly advised to have this condition corrected. In the two pictures below, the left picture shows the gutter installation on the south side of the building and is done correctly. The right picture shows the gutter installation on the north side over the garage.

Vents, flashings, skylights, chimneys, & other roof penetrations – No deficiencies noted.

Inspection Areas & Summary Findings

Exterior & Grounds

Cladding, flashing & trim – There are multiple areas on both the west and east sides of the building where the fiber cement board siding material is pulling away from the building. As this condition continues it will create opportunity for wind driven storm water to get behind the siding and potentially lead to mold growth. It is recommended that the homeowner consult with a siding specialist to correct this condition. In the photos below, the top photo shows some of these areas on the west side of the building. The photo on the bottom shows some areas on the east side of the building.

Exterior doors, windows, decks, stoops, steps, stairs, porches, railings, eaves, soffits and fascias – No deficiencies noted.

Inspection Areas & Summary Findings

Exterior grading – Exterior grading is sufficient for proper drainage away from the building. On the northwest side of the building there is one splash block that has settled into the soil resulting in a negative pitch back towards the building. It is recommended to shore up this splash block to return positive pitch and direct water away from the building. The photo below shows this splash block and the back pitch condition.

Splash block pitch should mirror the general grading pitch so that water is directed away from the foundation so that the foundation is kept as dry as possible.

Penetrations to exterior siding or covering materials – No deficiencies noted.

Basement, Foundation, Crawlspace and Structure

Ventilation – Foundation is slab on grade so no foundation ventilation is present.

Evidence of moisture intrusion – None noted.

Inspection Areas & Summary Findings

HVAC

Air handler, circ fan and air filter – The air handler and circulation fan are in good condition with no visible defects or evidence of water exposure or internal ponding. The air filter is a whole house type and was dirty. The homeowner was present and replaced it during the inspection.

Readily visible ductwork – All visible ductwork is maintaining integrity and no deficiencies were noted.

Supply & return registers – Supply and return registers were clean with no organic growth visible.

Central humidifiers – Not present

Plumbing

Readily visible main water line – No deficiencies noted.

Readily visible water supply lines – No deficiencies noted, no visible leaks.

Readily visible DWV pipes – No deficiencies noted, no visible leaks.

Hot water source – There are twin 40 gal natural gas water heaters in the attic. These are relatively new and approximately 3 yrs old each. They are properly installed with no visible corrosion or leakage around the water connections.

Toilets, faucets, showers & tubs – No deficiencies or leaks noted.

Inspection Areas & Summary Findings

Attic, Ventilation & Insulation

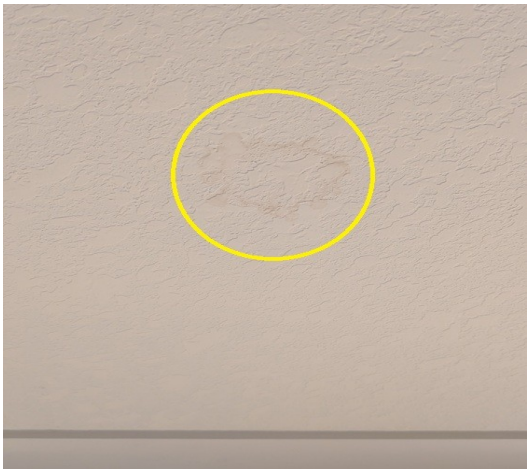
Insulation – Insulation is sufficient with average depth around 10”. No wet or previously wet insulation was observed.

Ventilation – Roof and attic ventilation is achieved by a combination of ridge vents, roof penetration vents, and eave soffit vents. Eave vents all have proper baffles in place. Attic ventilation is sufficient and no deficiencies were noted.

Framing & sheathing – Framing and sheathing are in very good condition and no evidence of water penetration was observed. The attic facing side of the sheathing has a factory installed radiant barrier. This radiant barrier can serve to obscure evidence of water penetration. It is recommended the homeowner conduct an annual inspection of the attic framing and sheathing

Interior

Walls, ceilings, floors, doors & windows – In the master bathroom on the ceiling there is an approx. 2” – 3” diameter water stain visible. This is directly below the location of the twin water heaters. The homeowner was present and explained that when the water heaters were replaced “around 3 yrs ago” a small amount of water leaked out of one of the water heaters in the process of replacement creating this stain.
An examination of this area in the attic revealed no current moisture exists and a pinless moisture meter placed over the stain revealed a moisture level of 0%.

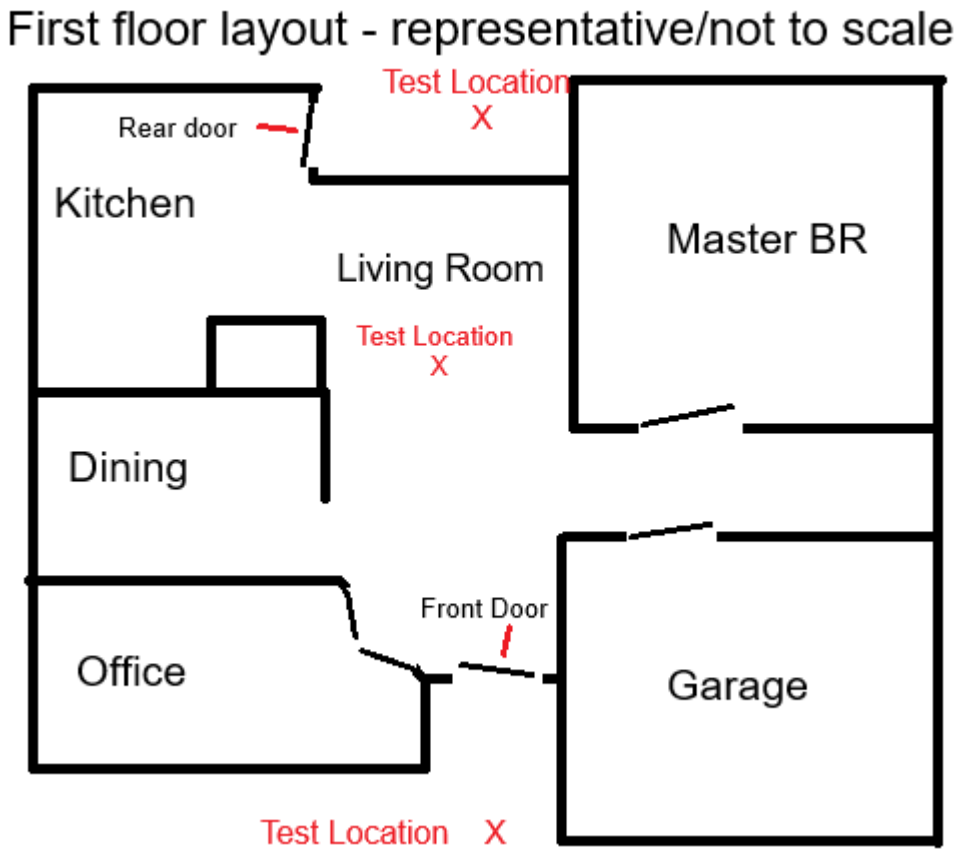


Inspection Areas Summary & Findings

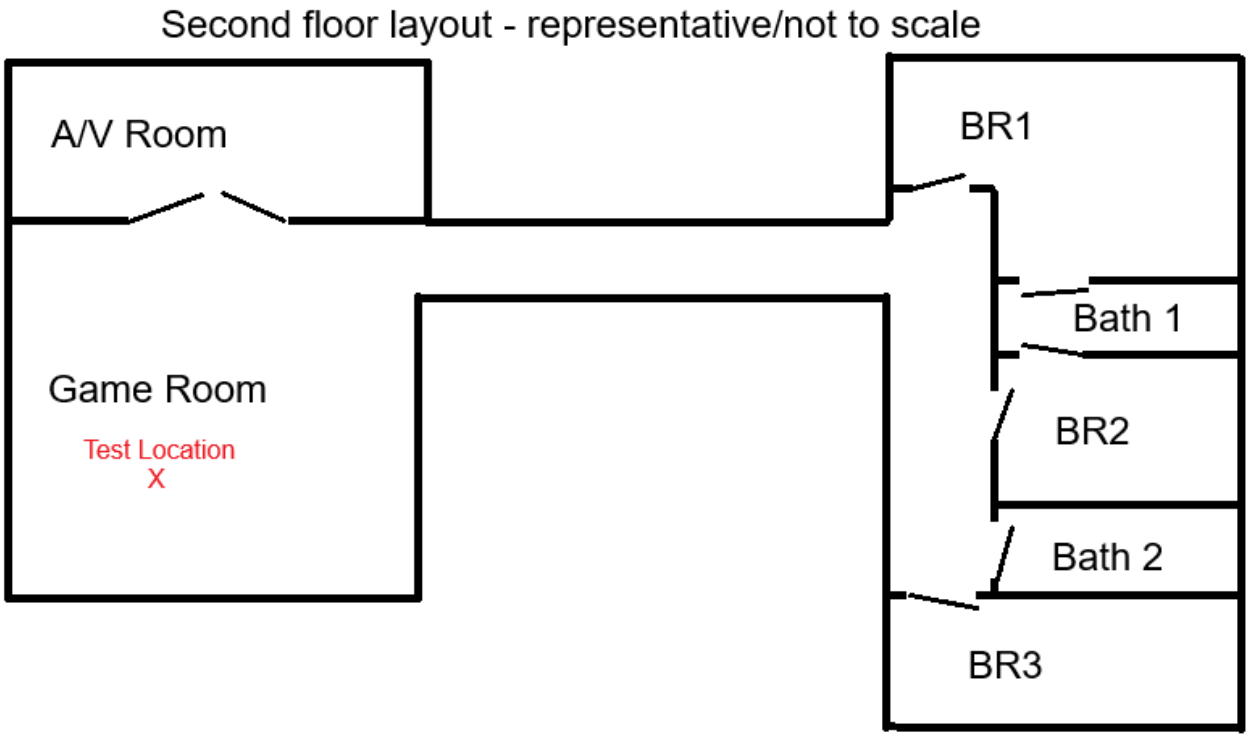
Kitchen, bath & laundry room ventilation – No deficiencies noted.

Whole house ventilation fans – Not present

General Building Layout & Orientation



General Building Layout & Orientation



Laboratory Sample Analysis

EMSL Analytical, Inc.
5960 Fairbanks N. Houston Rd. Houston, TX 77040
Tel/Fax: (713) 686-3635 / (713) 686-3645
http://www.EMSL.com / houstonlab@emsl.com

EMSL Order: 152502873
Customer ID: +34GUM09
Customer PO:
Project ID:

Attention: Bryce Kibbey
Gumshoe Property Inspection LLC
5900 Balcones Drive
Suite 100
Austin, TX 78731
Project: 12345 Main St

Phone: [redacted]
Fax:
Collected Date: 07/07/2025
Received Date: 07/07/2025 09:12 AM
Analyzed Date: 07/07/2025

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

Lab Sample Number:	162502873-0001			162502873-0002			162502873-0003		
Client Sample ID:	CS1			CS2			IAS1		
Volume (L):	160			160			160		
Sample Location:	Control-Outside Front Entrance			Control-Outside Rear Entrance			First Floor Living Room		
Spore Types	**Raw Count†**	**Count/m³**	**% of Total**	**Raw Count†**	**Count/m³**	**% of Total**	**Raw Count†**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	1	7*	0.7
Ascospores	44	970	2.4	59	1300	4	5	100	9.6
Aspergillus/Penicillium++	13	290	0.7	10	220	0.7	11	240	23.1
Basidiospores	156(1720)	38000	95.7	124(1360)	30000	92.3	27	600	57.9
Bipolaris++	1	20	0.1	3	70	0.2	1	20	1.9
Chaetomium++	-	-	-	-	-	-	-	-	-
Cladosporium	12	270	0.7	26	570	1.8	2	40	3.9
Curvularia	-	-	-	-	-	-	1	20	1.9
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium++	-	-	-	2	40	0.1	-	-	-
Ganoderma	2	40	0.1	2	40	0.1	-	-	-
Myxomycetes++	-	-	-	8	200	0.6	-	-	-
Pithomyces++	-	-	-	2	40	0.1	-	-	-
Rust	-	-	-	-	-	-	2	10*	1
Scopulariopsis/Microascus	1	20	0.1	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Nigrospora	-	-	-	1	20	0.1	-	-	-
Paecilomyces++	4	90	0.2	-	-	-	-	-	-
Pyricularia	1	20	0.1	1	20	0.1	-	-	-
Total Fungi	**1798**	**39720**	**100**	**1474**	**32520**	**100**	**50**	**1037**	**100**
Hyphal Fragment	-	-	-	1	20	-	1	20	-
Insect Fragment	1	20	-	4	90	-	-	-	-
Pollen	-	-	-	1	20	-	1	20	-
Analyt. Sensitivity 600x	-	22	-	-	22	-	-	22	-
Analyt. Sensitivity 300x	-	7*	-	-	7*	-	-	7*	-
Skin Fragments (1-4)	-	1	-	-	1	-	-	1	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	1	-	-	1	-	-	1	-

† Due to method stopping rules, extrapolated raw counts are reported in parenthesis.

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

Terri Vance

Terri Vance, Laboratory Manager
or other Approved Signatory

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

Laboratory Sample Analysis

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Analyzed Date: 07/07/2025

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

Lab Sample Number:	152502873-0004		
Client Sample ID:	IAS2		
Volume (L):	160		
Sample Location:	Second Floor Game Room		
Spore Types	**Raw Count†**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-
Ascospores	-	-	-
Aspergillus/Penicillium++	14	310	35.8
Basidiospores	23	510	58.8
Bipolaris++	1	7*	0.8
Chaetomium++	-	-	-
Cladosporium	1	20	2.3
Curvularia	-	-	-
Epicoccum	-	-	-
Fusarium++	-	-	-
Ganoderma	-	-	-
Myxomycetes++	-	-	-
Pithomyces++	1	20	2.3
Rust	-	-	-
Scopulariopsis/Microascus	-	-	-
Stachybotrys/Memnoniella	-	-	-
Unidentifiable Spores	-	-	-
Zygomycetes	-	-	-
Nigrospora	-	-	-
Paecilomyces++	-	-	-
Pyricularia	-	-	-
Total Fungi	**40**	**867**	**100**
Hyphal Fragment	1	20	-
Insect Fragment	-	-	-
Pollen	-	-	-
Analyt. Sensitivity 600x	-	22	-
Analyt. Sensitivity 300x	-	7*	-
Skin Fragments (1-4)	-	1	-
Fibrous Particulate (1-4)	-	1	-
Background (1-5)	-	1	-

† Due to method stopping rules, extrapolated raw counts are reported in parenthesis.

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

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

Terri Vance

Terri Vance, Laboratory Manager
or other Approved Signatory

Mold Glossary

ABSIDIA SP

A zygomycete fungus which is considered common to the indoor environment. Reported to be allergenic. May cause mucorosis in immune compromised individuals. The sites of infection are the lung, nasal sinus, brain, eye, and skin. Infection may have multiple sites. Absidia cormbifera has been an invasive infection agent in AIDS and neutropenic patients, as well as, agents of bovine mycotic abortions, and feline subcutaneous abscesses. Acremonium species may be confused with Fusarium species that primarily produce microconidia in culture. Fusarium genera are generally much more rapid growers and produce more aerial mycelium.

ACREMONIUM SP

(Cephalosporium sp.) - Reported to be allergenic. Can produce a trichothecene toxin which is toxic if ingested. It was the primary fungus identified in at least two houses where the occupant complaints were nausea, vomiting, and diarrhea. Asexual state of Emericellopsis sp., Chaetomium sp., and Nectripsis sp. It can produce mycetomas, infections of the nails, onychomycosis, corneal ulcers, eumycotic mycetoma, endophthalmitis, meningitis, and endocarditis.

ALTERNARIA SP

Extremely widespread and ubiquitous. Outdoors it may be isolated from samples of soil, seeds, and plants. It is commonly found in outdoor samples. It is often found in carpets, textiles, and on horizontal surfaces in building interiors. Often found on window frames. The species Alternaria alternata is capable of producing tenuazonic acid and other toxic metabolites which may be associated with disease in humans or animals. Alternaria produces large spores having sizes between 20 - 200 microns in length and 7 - 18 microns in width, suggesting that the spores from this fungi are deposited in the nose, mouth, and upper respiratory tract. It may be related to bakers asthma. It has been associated with hypersensitivity pneumoniti, sinusitis, deratomycosis, onychomycosis, subcutaneous phaeohyphomycosis, and invasive infection. Common cause of extrinsic asthma (immediate-type hypersensitivity: type I). Acute symptoms include edema and bronchiospasms, chronic cases may develop pulmonary emphysema.

ARTHRINIUM PHAEOSPERMUM

Widespread saprophyte on dead plant material, particularly swampy grasses. Should be considered an allergen. This fungus has also been documented in various subcutaneous infections. No toxic related diseases are of record to date.

ASCOMYCETE

One of the major classes of fungal organisms. This class contains the the"sac fungi" and yeasts. Some ascomycete spores can be identified by spore morphology, however; some care should be excersised with regard to specific identification. Many ascomycete spores are reported to be allergenic.

Mold Glossary

ASPERGILLUS SP

A genus of fungi containing approximately 150 recognized species. Members of this genus have been recovered from a variety of habitats, but are especially common as saprophytes on decaying vegetation, soils, stored food, feed products in tropical and subtropical regions. Some species are parasitic on insects, plants and animals, including man. Species within this genus have reported Aw's (water activities) between 0.75 - 0.82. All of the species contained in this genus should be considered allergenic. Various Aspergillus species are a common cause of extrinsic asthma (immediate-type hypersensitivity: type I). Acute symptoms include edema and bronchiospasms. Chronic cases may develop pulmonary emphysema. Members of this genus are reported to cause a variety of opportunistic infections of the ears and eyes. Sever pulmonary infections may also occur. Many species produce mycotoxins which may be associated with disease in humans and other animals. Toxin production is dependent on the species or a strain within a species and on the food source for the fungus. Some of these toxins have been found to be carcinogenic in animal species. Several toxins are considered potential human carcinogens.

AUREOBASIDIUM PULLULANS

A cosmopolitan fungus with the main habitat apparently on the aerial parts of plants. Frequently found in moist environments. This fungus should be considered allergenic. This species has been associated with deratitis, peritonitis, pulmaonary infection, and invasive disease in AIDS patients. Probably aquired by traumatic implantation. May be recovered as a contaminant from human cutaneous sites. No toxic diseases have been documented to date.

BASIDIOMYCETES

One of the major classes of fungal organisms. This class contains the mushrooms, shelf fungi, puffballs, and a variety of other macrofungi. It is extremely difficult to identify a specific genera of mushrooms by using standard culture plate techniques. Some basidiomycete spores can be identified by spore morphology, however; some care should be exercised with regard to specific identification. Many basidiomycete spores are reported to be allergenic.

BIPOLARIS SP

A widespread fungus that is most frequently associated with grasses, plant material, decaying food, and soil. It is common to both indoor and outdoor environments. Older obsolete names include Drechslera and Helminthosporium. This fungus produces large spores which would be expected to be deposited in the upper respiratory tract. Various species of this fungus can produce the mycotoxin - sterigmatocystin which has been shown to produce liver and kidney damage when ingested by laboratory animals.

Mold Glossary

CANDIDA SP
This genus contains a variety of organisms that have been isolated from the environment, as well as human skin and mucous membranes.

CHAETOMIUM SP
Large ascomycetous fungus producing perithecia. It is found on a variety of substrates containing cellulose including paper and plant compost. It can be readily found on the damp or water damaged paper in sheetrock.

CHRYSOSPORIUM SP
Widespread, common in the soil and on plants. Rare agents of onychomycosis, skin lesions, endocarditis, and uncommon agents of the pulmonary mycosis adiaspiromycosis. No toxic diseases have been documented to date.

CLADOSPORIUM
(Hormodendrum sp.) - Aw (water activity) in the range of 0.84 to 0.88. Most commonly identified outdoor fungus. The outdoor numbers are reduced in the winter. The numbers are often high in the summer. Often found indoors in numbers less than outdoor numbers. It is a common allergen. Indoor Cladosporium sp. may be different than the species identified outdoors. It is commonly found on the surface of fiberglass duct liner in the interior of supply ducts. A wide variety of plants are food sources for this fungus. It is found on dead plants, woody plants, food, straw, soil, paint and textiles. It can cause mycosis. Produces greater than 10 antigens. Antigens in commercial extracts are of variable quality and may degrade within weeks of preparation. Common cause of extrinsic asthma (immediate-type hypersensitivity: type I). Acute symptoms include edema and bronchiospasms, chronic cases may develop pulmonary emphysema.

CURVULARIA SP.
Reported to be allergenic. It may cause corneal infections, mycetoma and infections in immune compromised hosts.

DRESCHLERA SP
Conidia (spores) dimensions 40-120 x 17-28 microns. Found on grasses, grains and decaying food. It can occasionally cause a corneal infection of the eye.

EPICOCCUM SP
Conidia (spores) dimensions 15-25 microns. A common allergen. It is found in plants, soil, grains, textiles, and paper products.

FUSARIUM SP
Aw (water activity) 0.90. A common soil fungus. It is found on a wide range of plants. It is often found in humidifiers. Several species in this genus can produce potent trichothecene toxins (5, 27). The

Mold Glossary

trichothecene (scirpene) toxin targets the following systems: circulatory, alimentary, skin, and nervous. Produces vomitoxin on grains during unusually damp growing conditions. Symptoms may occur either through ingestion of contaminated grains or possibly inhalation of spores. The genera can produce hemorrhagic syndrome in humans (alimentary toxic aleukia). This is characterized by nausea, vomiting, diarrhea, dermatitis, and extensive internal bleeding. Reported to be allergenic. Frequently involved in eye, skin and nail infections.

GEOTRICHUM SP

Aw (water activity) 0.90. Conidia (spores) dimensions 6-12 x 3-6 microns. Aw (water activity) 0.90. A common contaminant of grains, fruits, dairy products, paper, textiles, soil and water, and often present as part of the normal human flora. The species Geotrichum candidum can cause a secondary infection (geotrichosis) in association with tuberculosis. This rare disease can cause lesions of the skin, bronchi, mouth, lung, and intestine.

MUCOR SP

Often found in soil, dead plant material, horse dung, fruits, and fruit juice. It is also found in leather, meat, dairy products, animal hair, and jute. A Zygomycetes fungus which may be allergenic (skin and bronchial tests) (7, 17). This organism and other Zygomycetes will grow rapidly on most fungal media. May cause mucorosis in immune compromised individuals. The sites of infection are the lung, nasal sinus, brain, eye, and skin. Infection may have multiple sites.

NIGROSPORA SP

Reported to be allergenic.

PAECILOMYCES SP

Commonly found in soil and dust, less frequently in air. P. variotii can cause paecilomycosis. Linked to wood-trimmers disease and humidifier associated illnesses. They are reported to allergenic. Some members of this genus are reported to cause pneumonia. It may produce arsine gas if growing on arsenic substrate. This can occur on wallpapers covered with paris green.

PAPULOSPORA SP

This fungi is found in soil, textiles, decaying plants, manure, and paper.

PENICILLIUM SP

Aw (water activity) 0.78 - 0.88. A wide number of organisms have placed in this genera. Identification to species is difficult. Often found in aerosol samples. Commonly found in soil, food, cellulose, and grains (17, 5). It is also found in paint and compost piles. It may cause hypersensitivity pneumonitis and allergic alveolitis in susceptible individuals. It is reported to be allergenic (skin) (7, 17). It is commonly found in carpet, wallpaper, and in interior fiberglass duct insulation (NC). Some species can produce mycotoxins. Common cause of extrinsic asthma (immediate-type hypersensitivity: type I).

Mold Glossary

Acute symptoms include edema and bronchiospasms, chronic cases may develop pulmonary emphysema.

PERICONIA SP

No information available, more to come.

PHOMA SP.

A common indoor air allergen. It is similar to the early stages of growth of Chaetomium sp. The species are isolated from soil and associated plants (particularly potatoes). Produces pink and purple spots on painted walls (3, 17). It may have antigens which cross-react with those of Alternaria sp. It will grow on butter, paint, cement, and rubber. It may cause phaeohyphomycosis, a systematic or subcutaneous disease.

PITHOMYCES SP.

Grows on dead grass in pastures. Causes facial eczema in ruminants.

RHIZOMUCOR SP.

The Zygomycetous fungus is reported to be allergenic. It may cause mucorosis in immune compromised individuals. It occupies a biological niche similar to Mucor sp. It is often linked to occupational allergy. The sites of infection are the lung, nasal sinus, brain, eye, and skin. Infection may have multiple sites.

RHIZOPUS SP

The Zygomycetous fungus is reported to be allergenic. It may cause mucorosis in immune compromised individuals. It occupies a biological niche similar to Mucor sp. It is often linked to occupational allergy. The sites of infection are the lung, nasal sinus, brain, eye, and skin. Infection may have multiple sites.

RHODOTORULA SP

A reddish yeast typically found in moist environments such as carpeting, cooling coils, and drain pans. In some countries it is the most common yeast genus identified in indoor air. This yeast has been reported to be allergenic. Positive skin tests have been reported. It has colonized in terminally ill patients.

SPOROTRICHUM SP

Reported to be allergenic. See also Sporothrix sp. as there is some taxonomic confusion between these two genera. This genera does not cause sporotrichosis.

STACHYBOTRYS SP.

Aw (water activity) - 0.94, optimum Aw (water activity) - >0.98. Several strains of this fungus (S. atra, S. chartarum and S. alternans are synonymous) may produce a trichothecene mycotoxin- Satratoxin H - which is poisonous by inhalation. The toxins are present on the fungal spores. This is a slow growing

Mold Glossary

fungus on media. It does not compete well with other rapidly growing fungi. The dark colored fungi grows on building material with a high cellulose content and a low nitrogen content. Areas with relative humidity above 55% and are subject to temperature fluctuations are ideal for toxin production. Individuals with chronic exposure to the toxin produced by this fungus reported cold and flu symptoms, sore throats, diarrhea, headaches, fatigue, dermatitis, intermittent local hair loss, and generalized malaise. The toxins produced by this fungus will suppress the immune system affecting the lymphoid tissue and the bone marrow. Animals injected with the toxin from this fungus exhibited the following symptoms: necrosis and hemorrhage within the brain, thymus, spleen, intestine, lung, heart, lymph node, liver, and kidney. The mycotoxin is also reported to be a liver and kidney carcinogen. Affects by absorption of the toxin in the human lung are known as pneumomycosis. This organism is rarely found in outdoor samples. It is usually difficult to find in indoor air samples unless it is physically disturbed. The spores are in a gelatinous mass. Appropriate media for the growth of this organism will have a high cellulose content and a low nitrogen content. The spores will die readily after release. The dead spores are still allergenic and toxigenic. Percutaneous absorption has caused mild symptoms.

STEMPHYLIUM SP.

Reported to be allergenic. Isolated from dead plants and cellulose materials.

SYNCEPHALASTRUM SP.

Can cause a respiratory infection characterized by a solid fungal ball.

TRICHODERMA SP

It is commonly found in soil, dead trees, pine needles, paper, and unglazed ceramics. It often will grow on other fungi. It produces antibiotics which are toxic to humans. It has been reported to be allergenic (7, 17). It readily degrades cellulose.

TRICHOPHYTON SP

Can cause ring worm, athlete's foot, skin, nail, beard, and scalp (5, 6). Reported to be allergenic. Found on soil and skin.

ULOCLADIUM SP

Has an Aw (water activity) of 0.89. Isolated from dead plants and cellulose materials. Found on textiles.

VERTICILLIUM SP

Conidia (spores) dimensions 2.3-10 x 1-2.6 microns. Found in decaying vegetation, on straw, soil, and arthropods. A rare cause of corneal infections.

Mold Glossary

WALLEMIA SP

Has an Aw (water activity) of 0.75. Conidia (spores) dimensions 2.5-3.5 microns. Found in sugary foods, salted meats, dairy products, textiles, soil, hay, and fruits

YEAST

Various yeasts are commonly identified on air samples. Some yeasts are reported to be allergenic. They may cause problems if a person has had previous exposure and developed hypersensitivity. Yeasts may be allergenic to susceptible individuals when present in sufficient concentrations.