



Advanced Consulting Services LLC
60501 Foxglove Rd
Coos Bay, OR 97420
[Tel:541-306-1023](tel:541-306-1023)
chris@ac-srv.com

March 03, 2022
Building Health and Air Quality Assessment
ACS-22-119 Lakeside City Hall



Site Address:

915 N Lake Rd.
Lakeside, OR. 97449

Client:

Lakeside City Hall
915 N Lake Rd.
Lakeside, OR. 97449
541-759-3011

Project Description:

The purpose of this assessment is to evaluate the general air quality and visually inspect suspected asbestos and lead materials for public safety concerns.

Facilities included are the main City Hall offices, the library and the senior center.

Advanced Consulting Services LLC. was contacted to conduct general air quality sampling of the Lakeside City Hall Facility located at 915 N Lake Rd. in Lakeside, Oregon. The inspection was conducted on 2/10/2022 and 2/22/2022 by Christopher G. Cook, an AHERA certified asbestos building inspector.

For maintenance and repair recommendations please see page 13.



Building 1: Lakeside City Hall Offices

❖ Exterior Building Materials:

➤ Northern Wall:

- Brick, Metal Clad Doors, Vinyl Windows, Wood Trim, Wood Facia and Metal Gutters/Downspouts.

Condition: No Visible Mold or fungal growth. All building materials appear to be operable and in good condition.



Note: Observed the vegetation around the building is within 1 foot from the exterior walls. It is recommended that the landscaping be trimmed back to provide 2 feet of clear space.

➤ Western Wall:

- Brick, Vinyl Windows, Wood Trim, Wood Facia and Metal Gutters/Downspouts.

Condition: No Visible Mold or fungal growth. All building materials appear to be operable and in good condition.



Note: Observed the vegetation around the building is within 1 foot from the exterior walls. It is recommended that the landscaping be trimmed back to provide 2 feet of clear space.

➤ **Southern Wall:**

- Wood lap siding, Metal Clad Doors, Vinyl Windows, Wood Trim, Wood Facia, Plywood Soffits and Metal Gutters/Downspouts.

Condition: No Visible Mold or fungal growth. All building materials appear to be operable and in good condition.



Note: Grass and moss had grown in the cracks of the walkways and between the walkway and foundation. It is recommended that these areas be cleaned and appropriately sealed to minimize facility damage.

➤ **Roofing:**

- Rolled/Torch down Roofing.

Condition: No Visible Mold or fungal growth. All building materials appear to be operable and in good condition.

Note: Moss had grown in the seams of the roofing. It is recommended that these areas be cleaned and appropriately sealed to minimize facility damage and moisture infiltration.

❖ **Interior Building Materials:**

➤ **Reception area, Front offices and Bathroom**

- Ceilings/Walls:
 - Sheetrock with Joint Compound and Texture
- Floor:
 - Concrete Slab/Mastic/Gray 12x12 tile
- Windows/Doors:
 - Vinyl Clad Windows, Metal Clad Exterior Doors
- Bathrooms:
 - One bathroom with standard commode and sink.
 - Standard Exhaust Fan

Condition: No Visible Mold or fungal growth. All building materials appear to be operable and in good condition.

➤ **Main Council Room:**

- Ceilings/Walls:
 - Wood Paneling, Sheetrock with Joint Compound and Texture Walls, Glued Pressboard Acoustical Ceiling Tiles
- Floor:
 - Concrete Slab, Raised Wood Floor, Carpet
- Windows/Doors:
 - Vinyl Clad Windows, Metal Clad Exterior Windows
- Sinks and Counters:
 - One sink with cabinet:

Condition: No Visible Mold or fungal growth. All building materials appear to be operable and in good condition.



Note: Areas of discoloration were noted on the ceiling tiles from previous roof leaks. There is no evidence of any growth and no moisture detected at the time of inspection.

Note: Bissel Air filter in use in the main council chamber. AQI 002-005 during inspection

➤ **Mayor's Office:**

- Ceilings/Walls:
 - Sheetrock with Joint Compound and Texture Walls, Glued Pressboard Acoustical Ceiling Tiles.
- Floor:
 - Concrete Slab, Raised Wood Floor, Carpet
- Windows/Doors:
 - Vinyl Clad Windows, Metal Clad Exterior Windows
- Sinks and Counters:
 - One sink with cabinet:

Condition: No Visible Mold or fungal growth. All building materials appear to be operable and in good condition.



Note: Areas of discoloration were noted on the ceiling tiles from previous roof leaks. There is no evidence of any growth and no moisture detected at the time of inspection. This being the most discolored, it was removed to inspect underneath. No growth and only minor discoloration was noted behind the tile.



Building 2: Lakeside Library

❖ Exterior Building Materials:

➤ Northern Wall:

- Brick, Metal Clad Doors, Metal Clad windows, Vinyl Windows, Wood Trim, Wood Facia and Metal Gutters/Downspouts.

Condition: No Visible Mold or fungal growth. All building materials appear to be operable and in good condition



Note: Observed the vegetation around the building is within 1 foot from the exterior walls. It is recommended that the landscaping be trimmed back to provide 2 feet of clear space.

The facia appears to have surface discoloration. This could indicate moisture infiltration of the building material. ACS recommends the facia be cleaned and sealed/repainted to minimize any future damage.

➤ Eastern Wall:

- Wood Lap Siding, Vinyl Windows, Wood Trim, Wood Facia and Metal Gutters/Downspouts.

Condition: No Visible Mold or fungal growth. All building materials appear to be operable and in good condition.



Note: Grass and moss had grown in the cracks of the walkways and between the walkway and foundation. Moss was also noted growing on the metal flashing at the base of the lap siding. It is recommended that these areas be cleaned and appropriately sealed to minimize facility damage.

➤ **Southern Wall:**

- Wood lap siding, Metal Clad Doors, Wood Trim, Wood Facia, Plywood Soffits and Metal Gutters/Downspouts.

Condition: No Visible Mold or fungal growth. All building materials appear to be operable and in good condition.



Note: Moss was noted in the corners and around the gutters. It is recommended that these areas be cleaned and appropriately sealed to minimize facility damage.

➤ **Roofing:**

- Rolled/Torch down Roofing.

Condition: No Visible Mold or fungal growth. All building materials appear to be operable and in good condition.

Note: Moss had grown in the seams of the roofing. It is recommended that these areas be cleaned and appropriately sealed to minimize facility damage and moisture infiltration.

❖ Interior Building Materials:**➤ Reception Area, Front Office and Main Library Area**

- Ceilings/Walls:
 - Sheetrock with Joint Compound and Texture, Glued Pressboard Acoustical Ceiling Tiles.
- Floor:
 - Concrete Slab/Carpet
- Windows/Doors:
 - Metal Clad Windows, Vinyl Clad Windows, Solid Core Wood Exterior Doors

Condition: No Visible Mold or fungal growth. All building materials appear to be operable and in good condition.

➤ Bathrooms:

- Ceilings/Walls:
 - PVC Paneling, Sheetrock with Joint Compound and Texture Walls
- Floor:
 - Concrete Slab, Sheet Vinyl
- Windows/Doors:
 - Vinyl Clad Windows, Metal Clad Exterior Windows
- Sinks and Counters:
 - Two bathrooms with standard commodes and sinks.
 - Standard Exhaust Fans

Condition: No Visible Mold or fungal growth. All building materials appear to be operable and in good condition.



Note: Cracks in the sheet vinyl flooring was noted. It is recommended the cracks are sealed to reduce moisture collection and future mold growth.

➤ Children's Reading Area:

- Ceilings/Walls:
 - Sheetrock with Joint Compound and Texture Walls, Glued Pressboard Acoustical Ceiling Tiles.
- Floor:
 - Concrete Slab, Carpet
- Windows/Doors:
 - Vinyl Clad Windows, Metal Clad Exterior Windows

Condition: No Visible Mold or fungal growth. All building materials appear to be operable and in good condition.



Building 3: Lakeside Senior Center

❖ Exterior Building Materials:

➤ Northern Wall:

- Solid Core Wood Doors, Wood Windows, Wood Lap Siding, Wood Trim, Wood Facia and Metal Gutters/Downspouts.

Condition: No Visible Mold or fungal growth. All building materials appear to be operable.



Note: Moss was noted on the pavement and discoloration to the lower wood skirting at the northeast corner. This indicated increased moisture in this area. It is recommended that these areas be cleaned and appropriately sealed to minimize facility damage.

➤ Western Wall:

- Wood Lap Siding, Vinyl Windows, Wood Trim, Wood Facia and Metal Gutters/Downspouts.

Condition: No Visible Mold or fungal growth. All building materials appear to be operable and in good condition.



Note: Paint deterioration has been noted on the northwestern corner of the building. Based on the age of the building the exterior should be assessed or assumed to contain lead-based paint. ACS recommends a lead-based paint certified contractor be contacted to assess the damaged areas and encapsulate, remove or repair as required.

➤ **Southern Wall:**

- Wood Lap Siding, Wood Windows, Wood Trim, Wood Facia, Plywood Soffits and Metal Gutters/Downspouts.

Condition: No Visible Mold or fungal growth. All building materials appear to be operable and in good condition.



Note: Moss And discoloration was noted on the soffits, facia, and around the gutters. It is recommended that these areas be cleaned and appropriately sealed to minimize facility damage.

➤ **Roofing:**

- 3 Tab Asphaltic Shingles

Condition: No Visible Mold or fungal growth. All building materials appear to be operable and in good condition.

Note: Moss had grown in the seams of the roofing. It is recommended that these areas be cleaned and appropriately sealed to minimize facility damage and moisture infiltration.

❖ **Interior Building Materials:**

➤ **Front Entry:**

- Ceilings/Walls:
 - Lath and Plaster, Sheetrock with Joint Compound and Texture
- Floor:
 - Wood Floor, Carpet
- Windows/Doors:
 - Wood Windows, Solid Core Wood Exterior Doors

Condition: No Visible Mold or fungal growth. All building materials appear to be operable and in good condition.



Note: Bissell Air filter in use in the main council chamber. AQI 002-005 during inspection

➤ **Bathrooms:**

- Ceilings/Walls:
 - Lath and Plaster, Sheetrock with Joint Compound and Texture
- Floor:
 - Wood Floor, Carpet, Vinyl Plank Flooring
- Sinks and Counters:
 - Two bathrooms with standard commodes and sinks.
 - Standard Exhaust Fans

Condition: No Visible Mold or fungal growth. All building materials appear to be operable and in good condition.

➤ **Cafeteria and Kitchen Area:**

- Ceilings/Walls:
 - Lath and Plaster, Sheetrock with Joint Compound and Texture
- Floor:
 - Wood Floor, Carpet and Sheet Vinyl
- Windows/Doors:
 - Vinyl Clad Windows
- Sinks and Counters:
 - Kitchen Sinks and Serving counters:

Condition: No Visible Mold or fungal growth. All building materials appear to be operable and in good condition. The exhaust hood was clean and in good condition. Plumbing showed no signs of leaks or discoloration.

➤ **Northeastern Classroom and Storage Closet:**

- Ceilings/Walls:
 - Lath and Plaster, Sheetrock with Joint Compound and Texture
- Floor:
 - Wood Floor, Carpet
- Windows/Doors:
 - Wood Windows, Solid Core Wood Exterior Doors

Condition: No Visible Mold or fungal growth. All building materials appear to be operable and in good condition.

➤ **Book Exchange:**

- Ceilings/Walls:
 - Lath and Plaster, Sheetrock with Joint Compound and Texture
- Floor:
 - Wood Floor, Carpet
- Windows/Doors:
 - Wood Windows, Solid Core Wood Exterior Doors

Condition: No Visible Mold or fungal growth. All building materials appear to be operable and in good condition.

➤ **Pantry Storage Room and Adjoining Storage Room:**

- Ceilings/Walls:
 - Lath and Plaster, Sheetrock with Joint Compound and Texture, Drop Ceiling with Pressboard Tiles.
- Floor:
 - Wood Floor
- Windows/Doors:
 - Wood Windows, Solid Core Wood Exterior Doors

Condition: No Visible Mold or fungal growth. All building materials appear to be operable and in good condition.



Note: There is a crack in the plaster wall of the storage room adjoining the pantry storage room. It is recommended the crack be filled and sealed to minimize any progressing damage.

Air Sampling Findings:

Sample results from SanAir laboratory, dated 02/16/22 showed the overall air quality in all buildings to be good compared to the outdoor average and normal levels. Spore counts can vary substantially depending on the weather, humidity and location sampled. Outdoor air samples were taken from the western side of the City Hall Offices, the southern side of the senior center and an eastern sample taken at the end of the breezeway to the rear of the library. The western and southern samples show decreased spore counts compared to the eastern sample. This is to be expected because the western and southern samples were taken on 2/10/2022 in dry areas. The Eastern sample taken at the end of the breezeway was taken on 02/22/2022. Both days were relatively dry, partly cloudy with a 5 to 10 mile an hour breeze. Relative outdoor humidity remained between 50% and 65% during the outdoor sampling.

The City Hall Offices showed the highest level of dander present as compared with the other samples. The sample was taken early in the morning and it was observed that all the heaters were running at that time. The dander levels in the council chamber and the entrance lobby of the senior center show the lowest numbers. It was noted that both these rooms had air purifiers running at the time of sampling. To decrease dander levels, it is recommended that any filtration systems are well-maintained and checked regularly. Vacuums are another source creating possible high dander counts. Ensure that all vacuums being used have HEPA filtration and a good maintenance schedule. Even with dander having the highest counts, the levels tested are still very low.

The mold and fungi count throughout the facility were in the low to very low range. The highest counts indoors were detected in the senior center book exchange room at 329 spores per meter squared. Normal outdoor levels this time of year range between 1000 and 5000 spores per square meter of air. Please See the attached laboratory results for a list of identified materials and their descriptions.

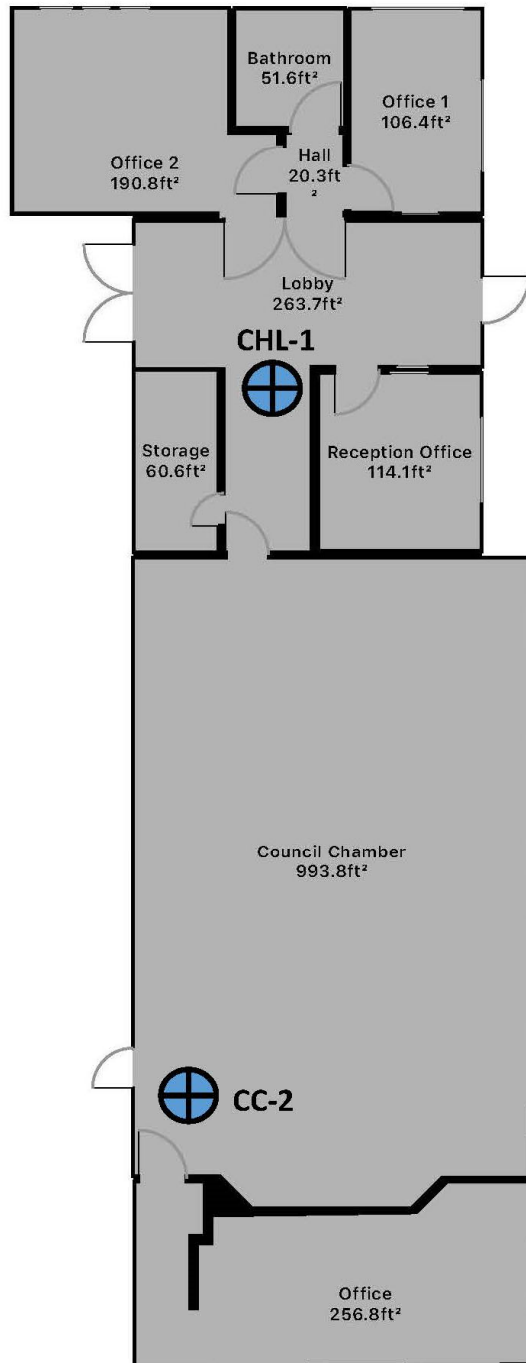
Note:

Air samples were collected to determine indoor air quality relating to microbial contamination using an Air-O-Cell™ spore trap. The samples were collected for a fifteen minute period with a calibrated flow rate of 15 liters per minute for a total sample volume of 225 liters.

The Air-O-Cell™ spore trap is a sampling device designed for the rapid collection and quantitative analysis of a wide range of airborne aerosols. It collects non-viable particulate such as mold spores, pollen, insect parts, skin cell fragment, fibers (asbestos, fiberglass, cellulose, etc.) and inorganic particles.

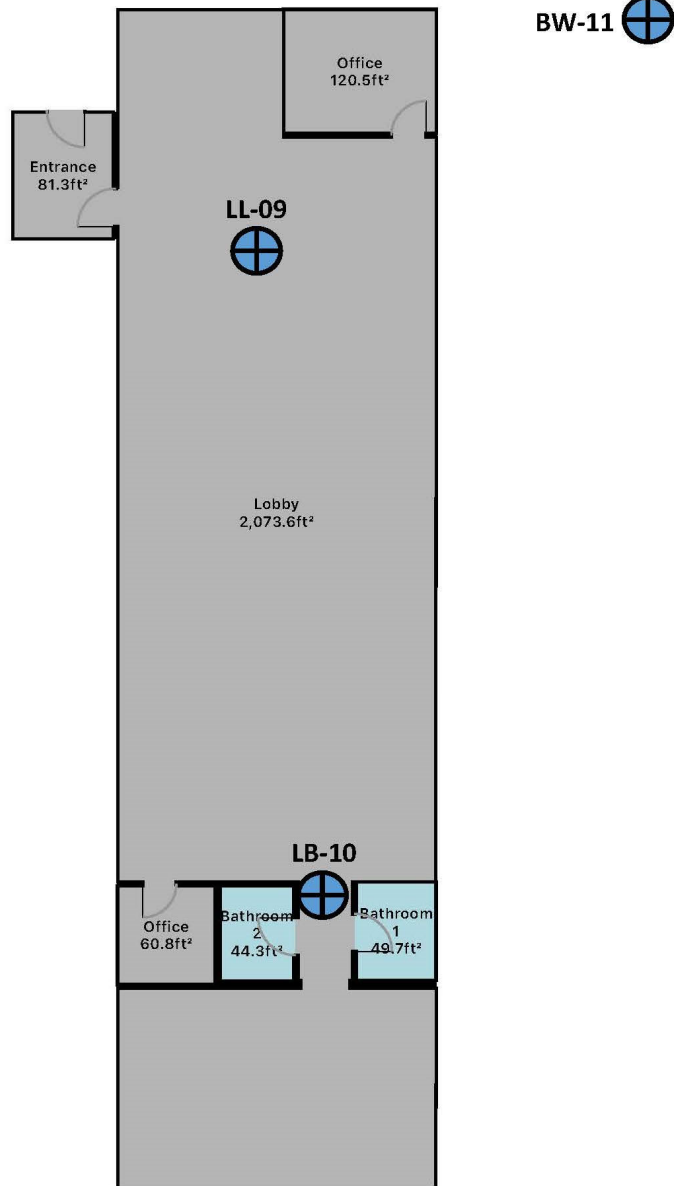
Lakeside City Hall
Entrance Floor

 Air Sampling Location



Lakeside Library
Entrance Floor

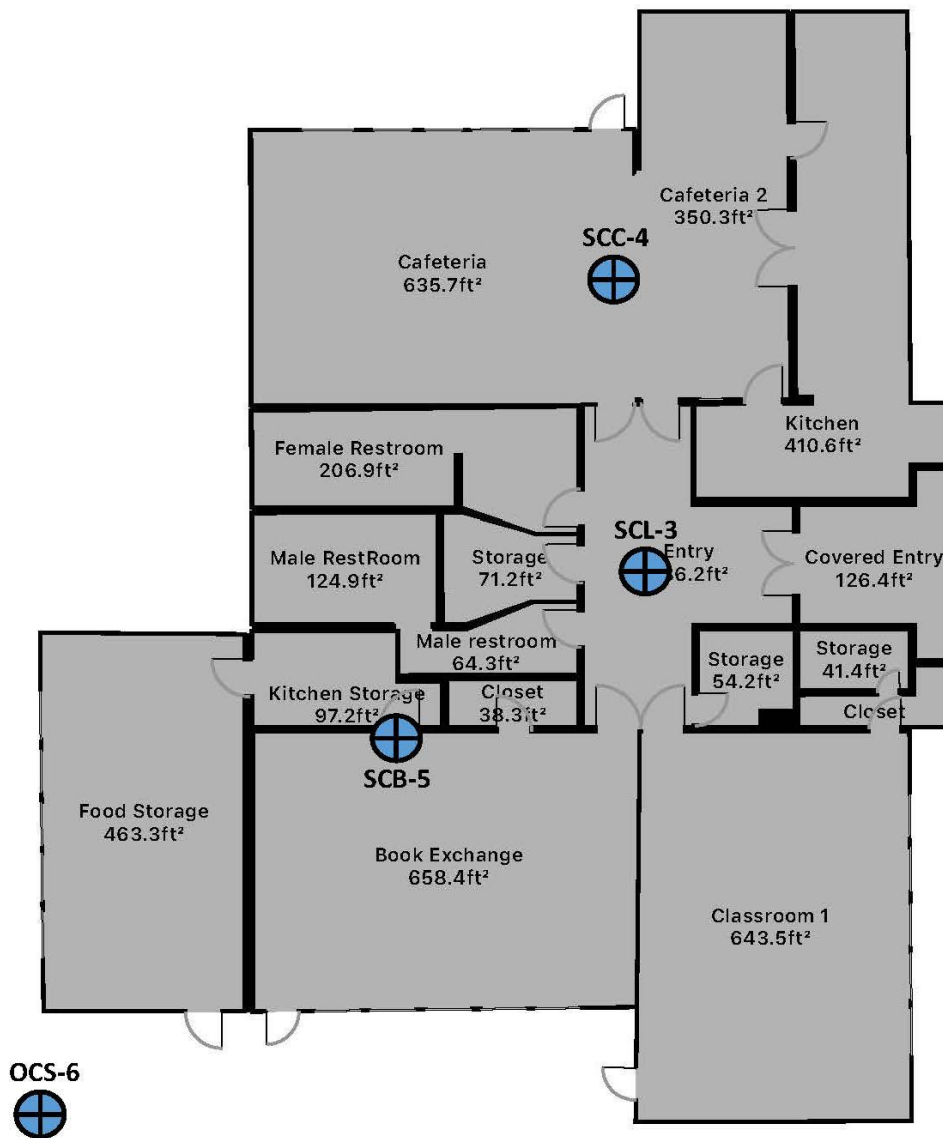
 Air Sampling Location



Lakeside Senior Center-food Pantry Entrance Floor

 Air Sampling Location

OCW-7

Asbestos Considerations:

Overall, the facilities suspect asbestos materials are in good condition. All Suspect materials observed are encapsulated with paint, floor wax or covered with another surface (new flooring).

Suspected asbestos containing building materials include:

Sheetrock with joint compound

Sprayed on or troweled on surfacing materials(texture)

Vinyl tile or sheet vinyl

Adhesive mastics (glue)

Some types of insulation that are mainly used in boiler systems.

These are just a few examples, for a more detailed list see the Oregon DEQ's asbestos information webpage. Per Oregon regulations materials exceeding 1% asbestos are regulated by Oregon DEQ and must be assessed(tested) by a certified asbestos inspector and removed/disposed of by a licensed Asbestos Abatement Contractor into a DEQ-approved landfill. If at any time a suspect asbestos-containing material is going to be disturbed due to renovation or demolition a licensed asbestos inspector must be contacted to test the materials. A report is required to be onsite during the project.

Lead-based Paint Considerations:

Lead-based paint testing before any disturbance is required for any building built prior to 1978 Per Oregon DEQ and Oregon Health Authority. Although all the buildings meet this criteria the City Hall and library appear to be well-maintained. The comments above have identified two areas of concern on the senior center. Peeling, cracked and chipped paint was noted on the north western corner and stairways and landings attached to the eastern side of the building. The condition of the paint does not pose an immediate risk but should be addressed in order to mitigate the risk of damage to the building and possible contamination of the surrounding grounds. For more information on the rules and regulations regarding lead-based paint see the oregon.gov website or contact the CCB.

Maintenance and Repair Recommendations:

1. Trim or remove vegetation around buildings to maintain a 2' clear space.
2. Moss removal and cleaning should be maintained on all buildings to mitigate possible damage that could cause moisture intrusion in the future.
3. Seal and repair areas of deteriorated paint. Test areas for lead-based paint prior to repairs in order to mitigate any safety concerns. It is recommended the city consult with a certified lead-based paint contractor to conduct the repairs.
4. Repair and seal the crack in the wall behind the door leading to the food pantry storage room.
5. Ensure that all heating systems are clean and vacuums being used have HEPA filtration along with a good maintenance schedule to maintain low dander levels.

It is important to note that our findings relating to physical conditions observed during this assessment were not intended nor do they attempt to identify every possible source of contamination, mold or otherwise, in the structure. This inspector is neither insurer nor guarantor against water problems, mold problems or other defects in the subject property or any of its components.

Any measured results, analysis data and/or physical observations made are valid only for the period in which this inspection was conducted. Any additional degradation of building materials or contamination from new or reactivated sources or areas inaccessible at the time of the inspection are not the responsibility of *Advanced Consulting Services LLC*.

Historical events or ambient air conditions that may have existed prior to this inspection cannot be correlated in any way with the enclosed data. No warranty, real or implied, is made as to what was or is the exact cause or source that may have adversely affected the indoor air quality.

Please review the following sampling report, site map and pictures, and brief explanation of mold. If you have any questions, please do not hesitate to call, we are happy to help as your good health and comfort is our goal. If anyone is having a health concerns connected with this facility, please provide these results to their healthcare professional for comparison.

If any questions or concerns arise regarding this report, please feel free to contact our office for clarification.

Inspector: Christopher G. Cook, AHERA/ASHERA Inspector # IBI1032
60501 Fox Glove Rd, Coos Bay, OR. 97420
541-306-1023

Laboratory: SanAir Technologies Laboratory
1551 Oakbridge Drive, Suite B
Powhatan, VA 23139
804-897-1177

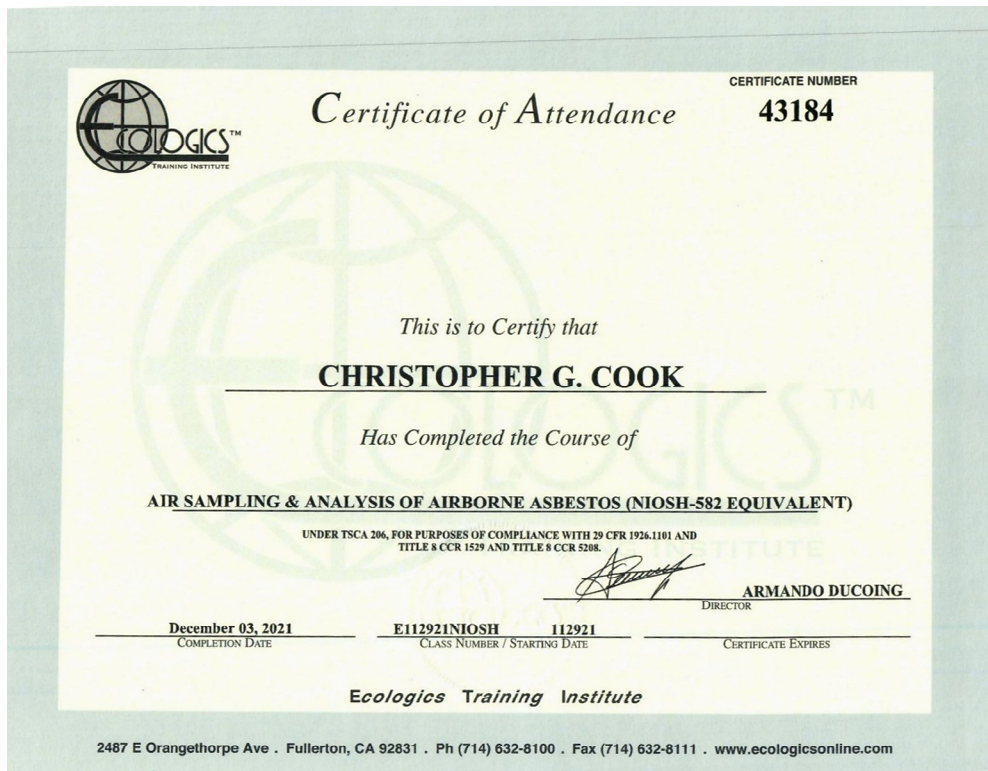
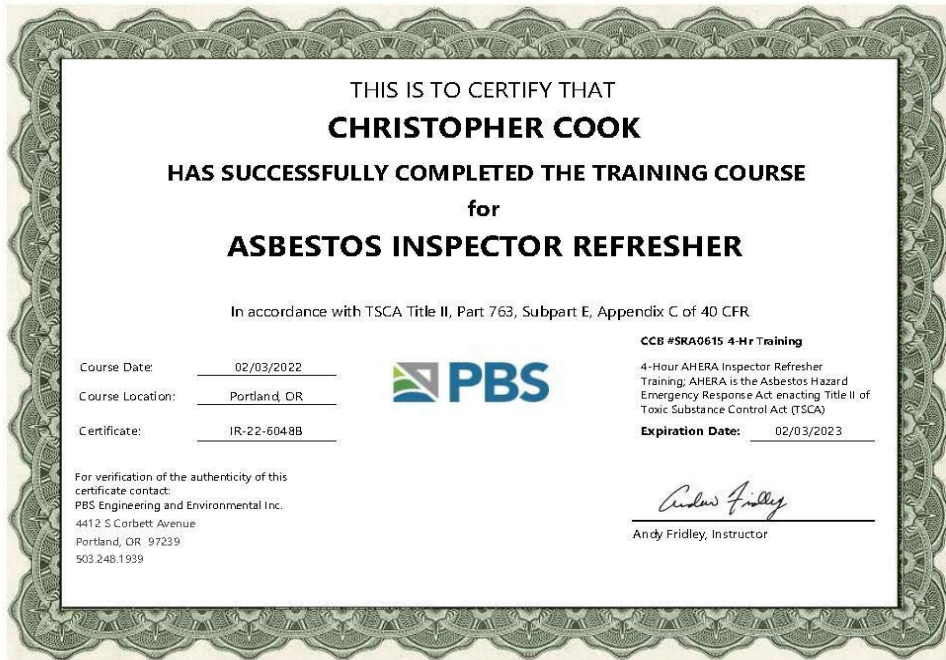
Christopher Cook

A handwritten signature in blue ink, appearing to read 'Chris Cook', is written over a circular, metallic-looking seal or stamp. The seal has a central emblem and some illegible text around the perimeter.

President
AHERA/ASHERA Inspector
Advanced Consulting Services LLC

INTRODUCTION TO SOME COMMON MOLDS

<u>Name</u>	<u>Description</u>	<u>Health Risk</u>
Atlernaria	One of the most common molds. This genus contains about 40 to 50 different species only a few of which are commonly found indoors. It is common outdoors in soil and dead organic debris. Indoors they can be found in house dust, carpets, damp shower surfaces and around window frames and other areas where condensation occurs.	They are a Type I allergen (hay fever, asthma) and Type III (hypersensitivity pneumonitis).
Aspergillus	Aspergillus is so visually similar to Penicillium they are commonly discussed as a group. There are about 600 different species of Aspergillus. These fungi are found in soil, compost, plant debris and stored grain. Indoors they are found throughout the home in dust, growing on wallpaper, decaying fabrics and behind paint. They may also be found on nuts, apples, oranges and onions.	Type I and Type III
Botrytis	Found in soil, stored and transported fruit and vegetables. Plant pathogen and saprophyte on flowers, leaves, stems and fruit. Leaf rot on grapes, strawberries, lettuce, cabbage and onions. May be found on indoor plants. "Gray Mold" or "Noble Rot" on wine grapes but is often used in wine production.	Type I and Type III
Chaetomiun	A common mold whose genus contains about 80-90 species. Found in soil, seeds, cellulose, dung, woody and straw materials. In water damaged buildings it is frequently found on sheetrock and paper products.	Type I though not well studied
Cladosporium	An abundant mold worldwide and one of the most commonly found in both indoor and outdoor samples. Found in soils, plant litter, leaf surfaces and decaying plants. Indoors on moist windowsills and dirty refrigerators. It often discolors interior paint and textiles stored in humid conditions.	Type I and Type III. A common and important allergen
Mucor	One of the quicker invading organisms able to contaminate many kinds of stored food products. It is often found in stored seed, manure and house dust. It is frequently found in air samples from indoor environments in carpeting and HVAC systems.	Minor Type I and Type III
Rhizopus	Closely related to mucor and inhabits the same niches. Frequently found in house dust, soil, fruit, nuts, compost, vegetable garbage and forgotten leftover food.	Type I and Type III
Stachybotrys	This ubiquitous mold is found in soil and decaying plant matter including hay and straw. It is dark colored and thrives on water damaged sheet rock, paper, ceiling tiles and wallpaper. It is slow growing but when water is available it will grow for prolonged periods on cellulose containing materials. It is able to produce extremely toxic gases. Exposure to these toxins can occur through inhalation, ingestion or through the skin.	Type I. Dermatitis, cough, rhinitis, nose bleeds and burning sensations in the nose and mouth.





The Identification Specialists

Analysis Report
prepared for
Advanced Consulting Services LLC

Report Date: 2/16/2022

Project Name: Lakeside City Hall

Project #: ACS-22-119

SanAir ID#: 22006954



10501 Trade Court | North Chesterfield, Virginia 23236
888.895.1177 | 804.897.1177 | fax: 804.897.0070 | IAQ@SanAir.com | SanAir.com



SanAir ID Number
22006954
FINAL REPORT
2/16/2022 3:31:15 PM

Name: Advanced Consulting Services LLC
Address: 60501 Fox Glove Rd
Coos Bay, OR 97420
Phone: 541-306-1023

Project Number: ACS-22-119
P.O. Number:
Project Name: Lakeside City Hall
Collected Date: 2/10/2022
Received Date: 2/14/2022 9:55:00 AM

Dear Chris Cook,

We at SanAir would like to thank you for the work you recently submitted. The 7 sample(s) were received on Monday, February 14, 2022 via UPS. The final report(s) is enclosed for the following sample(s): OCS-6, OCW-7, CHL-1, CC-2, SCL-3, SCC-4, SCB-5.

These results only pertain to this job and should not be used in the interpretation of any other job. This report is only complete in its entirety. Refer to the listing below of the pages included in a complete final report.

Sincerely,

A handwritten signature in black ink that reads "L. Claire Macdonald". The signature is written in a cursive, flowing style.

L. Claire Macdonald
Microbiology Laboratory Manager
SanAir Technologies Laboratory

Final Report Includes:
- Cover Letter
- Air Cassette Analysis
- Disclaimers and Additional Information

Sample conditions:
- 7 samples in Good condition.



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SanAir ID Number
22006954
FINAL REPORT
 2/16/2022 3:31:15 PM

Analyst: Zeliff, Dustin

Air Cassette Analysis

ND = None Detected. Blank spaces indicate no spores detected.

SanAir ID Number	22006954-001			22006954-002			22006954-003			22006954-004		
Analysis Using STL	105C			105C			105C			105C		
Sample Number	CHL-1			CC-2			SCL-3			SCC-4		
Sample Identification	Lobby/Front Offices			Council Chambers			Senior Center Lobby			Senior Center Cafeteria		
Sample Type	Air Cassette - Air-O-Cell			Air Cassette - Air-O-Cell			Air Cassette - Air-O-Cell			Air Cassette - Air-O-Cell		
Volume	225 Liters			225 Liters			225 Liters			225 Liters		
Analytical Sensitivity	4 Count/M ³			4 Count/M ³			4 Count/M ³			4 Count/M ³		
Background Density	2+			2+			2+			2+		
Other	Raw Count	Count/M³	%	Raw Count	Count/M³	%	Raw Count	Count/M³	%	Raw Count	Count/M³	%
Dander	432	1920	n/a	262	1164	n/a	337	1498	n/a	313	1391	n/a
Fibers	47	209	n/a	31	138	n/a	51	227	n/a	35	156	n/a
Mycelial Fragments				1	4	n/a	8	36	n/a	2	9	n/a
Pollen	6	27	n/a				1	4	n/a			
Fungal Identification	Raw Count	Count/M³	%	Raw Count	Count/M³	%	Raw Count	Count/M³	%	Raw Count	Count/M³	%
Alternaria species							1	4	< 1			
Ascospores	4	18	4	3	13	2	6	27	4	1	4	< 1
Aspergillus/Penicillium	40	178	39	35	156	27	45	200	33	61	271	43
Basidiospores	51	227	50	71	316	55	75	333	55	68	302	48
Cladosporium species	8	36	8	19	84	15	9	40	7	12	53	8
Curvularia species												
Epicoccum species							1	4	< 1	1	4	< 1
Smuts/Myxomycetes				2	9	2						
TOTAL	103	458		130	578		137	609		143	636	

Signature:

Date: 2/15/2022

Reviewed:

Date: 2/16/2022



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Analyst: Zeliff, Dustin

Air Cassette Analysis

ND = None Detected. Blank spaces indicate no spores detected.

SanAir ID Number	22006954-005			22006954-006			22006954-007		
Analysis Using STL	105C			105C			105C		
Sample Number	SCB-5			OCS-6			OCW-7		
Sample Identification	Senior Center Book Exchange			Southern Outdoor Control			Western Outdoor Control		
Sample Type	Air Cassette - Air-O-Cell			Air Cassette - Air-O-Cell			Air Cassette - Air-O-Cell		
Volume	225 Liters			225 Liters			225 Liters		
Analytical Sensitivity	4 Count/M ³			4 Count/M ³			4 Count/M ³		
Background Density	2+			1+			1+		
Other	Raw Count	Count/M ³	%	Raw Count	Count/M ³	%	Raw Count	Count/M ³	%
Dander	309	1373	n/a	38	169	n/a	15	67	n/a
Fibers	39	173	n/a	3	13	n/a	7	31	n/a
Mycelial Fragments	3	13	n/a	1	4	n/a	1	4	n/a
Pollen				30	133	n/a	13	58	n/a
Fungal Identification	Raw Count	Count/M ³	%	Raw Count	Count/M ³	%	Raw Count	Count/M ³	%
Alternaria species									
Ascospores	4	18	2	3	13	3	4	18	3
Aspergillus/Penicillium	74	329	40	56	249	51	21	93	15
Basidiospores	83	369	45	44	196	40	93	413	68
Cladosporium species	22	98	12	6	27	5	17	76	13
Curvularia species	1	4	< 1						
Epicoccum species									
Smuts/Myxomycetes				1	4	< 1	1	4	< 1
TOTAL	184	818		110	489		136	604	

Signature:

Date: 2/15/2022

Reviewed:

Date: 2/16/2022



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 FINAL REPORT
 2/16/2022 3:31:15 PM

Analyst: Zeliff, Dustin

Air Cassette Analysis - Spores % of Outside Air



Count/m³ higher than Baseline	Aspergillus/Penicillium	Basidiospores
Count/m³ comparable to Baseline		
Within 50% of Baseline Count/m³		

*The Baseline Level (100%) represents the average baseline sample counts. Counts above the baseline may indicate higher than expected levels of a given result.



Name: Advanced Consulting Services LLC
Address: 60501 Fox Glove Rd
 Coos Bay, OR 97420
Phone: 541-306-1023

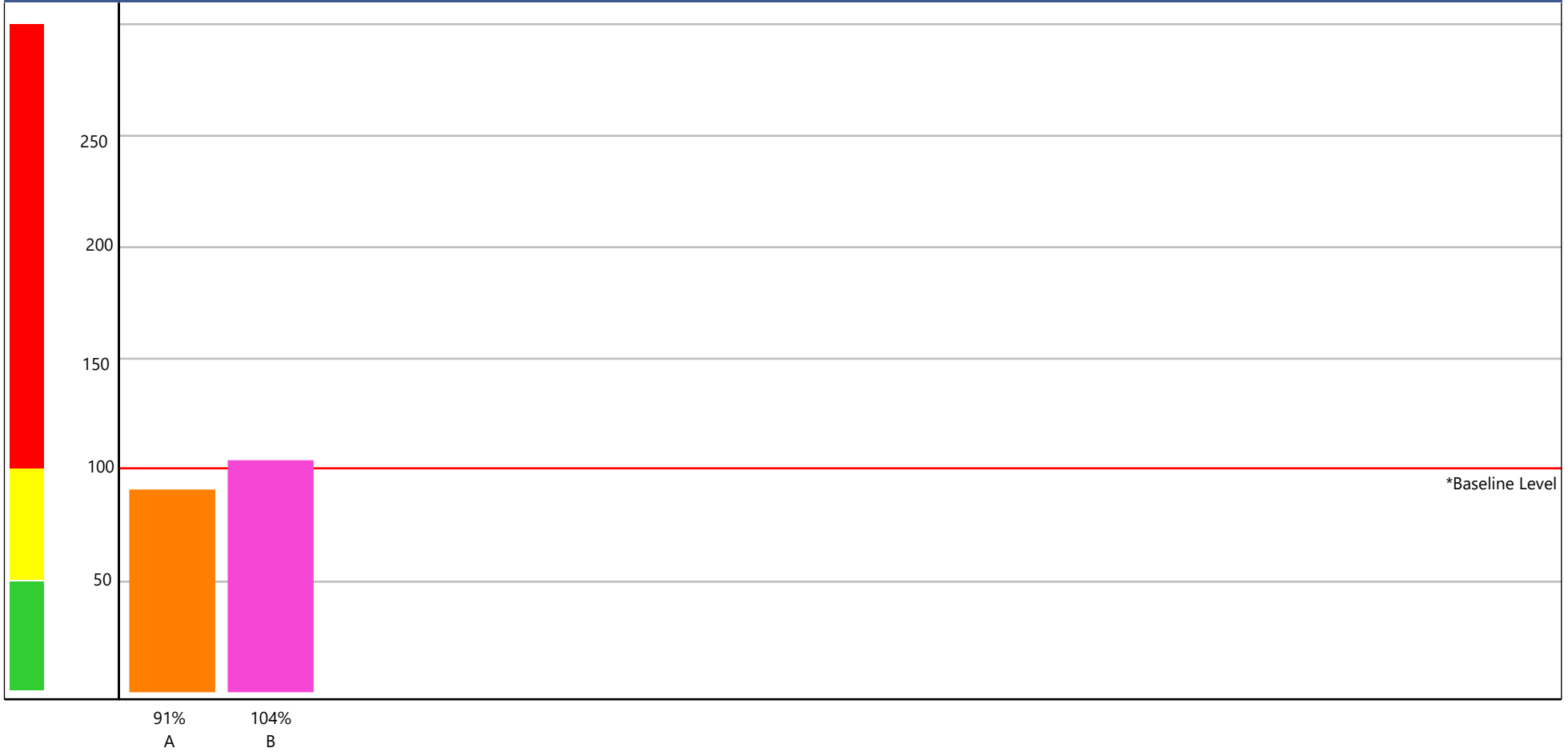
Project Number: ACS-22-119
P.O. Number:
Project Name: Lakeside City Hall
Collected Date: 2/10/2022
Received Date: 2/14/2022 9:55:00 AM

SanAir ID Number
22006954
 FINAL REPORT
 2/16/2022 3:31:15 PM

Analyst: Zeliff, Dustin

Air Cassette Analysis - Spores % of Outside Air

SanAir ID : 22006954-2 Sample # : CC-2 ID : Council Chambers



Count/m³ higher than Baseline	Aspergillus/Penicillium	Basidiospores
Count/m³ comparable to Baseline		
Within 50% of Baseline Count/m³		

*The Baseline Level (100%) represents the average baseline sample counts. Counts above the baseline may indicate higher than expected levels of a given result.



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Project Number: ACS-22-119
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Collected Date: 2/10/2022
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SanAir ID Number
22006954
 FINAL REPORT
 2/16/2022 3:31:15 PM

Analyst: Zeliff, Dustin

Air Cassette Analysis - Spores % of Outside Air



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Analyst: Zeliff, Dustin

Air Cassette Analysis - Spores % of Outside Air



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Analyst: Zeliff, Dustin

Air Cassette Analysis - Spores % of Outside Air



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Project Number: ACS-22-119
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Project Name: Lakeside City Hall
Collected Date: 2/10/2022
Received Date: 2/14/2022 9:55:00 AM

Organism Descriptions

The descriptions of the organisms presented are derived from various reference materials. The laboratory report is based on the data derived from the samples submitted and no interpretation of the data, as to potential, or actual, health effects resulting from exposure to the numbers of organisms found, can be made by laboratory personnel. Any interpretation of the potential health effects of the presence of this organism must be made by qualified professional personnel with first hand knowledge of the sample site, and the problems associated with that site.

Dander - Comprised of human and/or animal skin cells. Counts may be higher in carpeted rooms and in rooms with more traffic.
Health Effects: May cause allergies.

Fibers - This category can include clothing, carpet, and insulation fibers.

Mycelial Fragments - A mycelium (plural = mycelia) is the "body" of a fungus. It is a collective term for hyphae (singular = hypha), which are the tubular units of the mycelium usually composed of chitin. The terms hyphae and mycelial fragments are used interchangeably. [This information was referenced from the mycology text "The Fifth Kingdom"] In some cases a fungal identification cannot be obtained due to lack of sporulation. Only the mycelial fragments are present, and cannot be identified without the distinguishing characteristics of the spores or the structures they grow from.
Health Effects: Allergic reactions may occur in the presence of spores (conidia) or mycelial/hyphal fragments.

Pollen - Produced by trees, flowers, weeds and grasses. The level of pollen production can depend on water availability, precipitation, temperature, and light. Pollen is usually dispersed by either insects or the wind.
Health Effects: Mostly effects the respiratory tract with hay fever symptoms but has also been shown to trigger asthma in some people.

Alternaria species - This genus comprises a large number of saprobes and plant pathogens. It is one of the predominate airborne fungal spores indoor and outdoor. Outdoors it may be isolated from samples of soil, seeds, and plants. It is one of the more common fungi found in nature, extremely widespread and ubiquitous. Conidia are easily carried by the wind, with peak concentrations in the summer and early fall. It is commonly found in outdoor samples. It is often found in indoor environments, on drywall, ceiling tiles, in house dust, carpets, textiles, and on horizontal surfaces in building interiors. Often found on window frames. This genus also includes species that were once identified as *Ulocladium*. Genetic testing has shown that the two are not phylogenetically distinct, and as such have been combined.
Health Effects: In humans, it is recognized to cause allergic responses. Because of the large size of the spores, it can be deposited in the nose, mouth and upper respiratory tract, causing nasal septum infections. It has been known to cause Baker's asthma, farmer's lung, and hay fever. It has been associated with hypersensitivity pneumonitis, sinusitis, dermatomycosis, onychomycosis, subcutaneous phaeohyphomycosis, and invasive infection. Common cause of extrinsic asthma (immediate-type hypersensitivity: type I). Acute symptoms include edema and bronchospasms, chronic cases may develop pulmonary emphysema.
References: Flannigan, Brian, Robert A. Samson, and J. David Miller, eds. *Microorganisms in Home and Indoor Work Environments*. London and NY: Taylor & Francis, 2001. de Hoog, G.S. et al. *Atlas of Clinical Fungi*. 4th ed. Foundation Atlas of Clinical Fungi. 2020

Ascospores - From the fungal Subphylum Ascomycotina. Ascospores are ubiquitous in nature and are commonly found in the outdoor environment. This class contains the "sac fungi" and yeasts. Some ascospores can be identified by spore morphology, however; some care should be exercised with regard to specific identification. They are identified on tape lifts and non-viable analysis by the fact that they have no attachment scars and are sometimes enclosed in sheaths with or without sacs. Ascomycetes may develop both sexual and asexual stages. Rain and high humidity may help asci to release, and disperse ascospores, which is why during these weather conditions there is a great increase in counts.
Health Effects: This group contains possible allergens.



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Aspergillus/Penicillium - These spores are easily aerosolized. Only through the visualization of reproductive structures can the genera be distinguished. Also included in this group are the spores of the genera Acremonium, Phialophora, Verticillium, Paecilomyces, etc. Small, round spores of this group lack the necessary distinguishing characteristics when seen on non-viable examination.

Health Effects: Can cause a variety of symptoms including allergic reactions. Most symptoms occur if the individual is immunocompromised in some way (HIV, cancer, etc). Both Penicillium and Aspergillus spores share similar morphology on non-viable analysis and therefore are lumped together into the same group.

Basidiospores - From the Subphylum Basidiomycotina which contains the mushrooms, shelf fungi, and a variety of other macrofungi. They are saprophytes, ectomycorrhizal fungi or agents of wood rot, which may destroy the structure wood of buildings. 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. The release of basidiospores is dependant upon moisture, and they are dispersed by wind.

Health Effects: Many have the potential to produce a variety of toxins. Members of this group may trigger Type I and III fungal hypersensitivity reactions. Rarely reported as opportunistic pathogens.

Cladosporium species - The most commonly identified outdoor fungus. The outdoor numbers are reduced in the winter and are often high in the summer. Often found indoors in numbers less than outdoor numbers. 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. Often found in dirty refrigerators and especially in reservoirs where condensation is collected, on moist window frames it can easily be seen covering the whole painted area with a velvety olive green layer.

Health Effects: It is a common allergen. It can cause mycosis. Common cause of extrinsic asthma. Acute symptoms include edema and bronchospasms, chronic cases may develop pulmonary emphysema. Illnesses caused by this genus can include phaeohyphomycosis, chromoblastomycosis, hay fever and common allergies.

References: Flannigan, Brian, Robert A. Samson, and J. David Miller, eds. Microorganisms in Home and Indoor Work Environments. London and NY: Taylor & Francis, 2001. de Hoog, G.S. et al. Atlas of Clinical Fungi. 4th ed. Foundation Atlas of Clinical Fungi. 2020

Curvularia species - Curvularia is found on plant material and is considered a saprobe. It has also been isolated from dust samples and from wallpaper.

Health Effects: It has been reported to be a cause of allergic fungal sinusitis. It may cause corneal infections, mycetoma and infections in immune compromised hosts.

References: de Hoog, G.S. et al. Atlas of Clinical Fungi. 4th ed. Foundation Atlas of Clinical Fungi. 2020

Epicoecum species - It is found in plants, soil, grains, textiles, and paper products. Frequently isolated from air and occasionally occurs in house dust. Is a saprophyte and considered a weakly parasitic secondary invader of plants, moldy paper and textiles.

Health Effects: A common allergen. It also has the potential to produce type I fungal hypersensitivity reactions.

References: Flannigan, Brian, Robert A. Samson, and J. David Miller, eds. Microorganisms in Home and Indoor Work Environments: Diversity, Health Impacts, Investigation, and Control. London and New York: Taylor & Francis, 2001.



SanAir ID Number
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Name: Advanced Consulting Services LLC
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Project Number: ACS-22-119
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Project Name: Lakeside City Hall
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Smuts/Myxomycetes - Smuts and Myxomycetes are parasitic plant pathogens. They are typically grouped together due to their association with plants, the outdoors and because they share similar microscopic morphology.

Health Effects: Can produce type I fungal hypersensitivity reactions.

References: Martin, G.W., C.J. Alexopoulos, and M.L. Farr. The Genera of Myxomycetes. Iowa City, Iowa: University of Iowa Press, 1983.

Additional Information

Air Cassette Analyses

Air cassette reports indicate the genus and concentration of viable (living) and non-viable mold spores detected on the slide (A2 Analysis). Whether or not these spores are viable cannot be determined using this type of analysis. However, keep in mind that spores can remain allergenic even after cellular death. Other possible allergens include dander, pollen and fibers which are included in air cassette reports for the A1 Analysis. A1 and A2 analyses are performed on several types of air cassettes. Light microscopy at a 400 to 1000x magnification is used for air cassette sample analysis. SanAir always analyzes 100% of the impacted slide.

Explanation of Background Densities

The background density of an air cassette aids in the overall interpretation of results as it indicates the level of background debris present (e.g. dander, pollen, fibers, insect parts, soot, fly ash, etc.). Excessive background debris may mask the presence of fungal spores thereby reducing the accuracy of the count. It may also serve as an alert that the volume of air pulled was too high or too low. The following table explains background densities.

Air Cassette Density	Amount of Particulate on Slide	Explanation
1	Insignificant	Should not skew any counts
1+	Low	Should not skew any counts
2	Low to Moderate	Should not skew any counts
2+	Moderate to High	May cause occlusion of small spores
3	High	May cause occlusion of small to medium spores
3+	Very High	Will cause occlusion of spores
4	Overloaded	Level of particulate too high to perform analysis

A Note About the Fungal Spores

In some instances certain groups of fungi cannot be identified due to a lack of distinguishing characteristics. These fungi will be categorized as %unknown spores+on the final report.

The genera *Aspergillus* and *Penicillium* are typically composed of small, round spores that are difficult to distinguish from each other; therefore, they are grouped into the category *Aspergillus / Penicillium*. Other fungi that produce spores of similar characteristics may also be placed into this category, including *Paecilomyces*, *Gliocladium*, and *Trichoderma*, among others.

Stachybotrys and *Memnoniella* spores are coated with a sticky %lime+layer that may inhibit aerosolization.

Any genus of fungi detected on an air cassette with a high raw count (i.e. exceeding 500 spores) may be estimated. Any estimate higher than 12,000 spores will be reported as >12,000.

Understanding the Air Cassette Report

Each sample has 3 columns of information provided. The left is the raw count which is the number of spores for that fungal type detected on the trace. The middle column is the count per cubic meter (Count/m³) which is the raw count converted based on the total volume pulled for that sample. It represents the number of spores that should be expected in a cubic meter of air from the location in question *if* the spores were distributed evenly throughout the air. This column is helpful for interpreting results when the samples were pulled at different total volumes. In other words, the raw count of a cassette pulled at 75 liters should not be compared to the raw count of a cassette pulled at 150 liters because there may be higher counts associated with the higher volume. By comparing the %Count/m³+columns the difference in volumes are accounted for.

The limit of detection is the lowest spore count detectable with reasonable certainty, and it is calculated this way using a raw count of one. Keep in mind there are 1,000 liters in a cubic meter.

$$1 \times (1,000 / \text{Total Volume in Liters})$$

How to calculate the count per cubic meter:

$$\text{Raw Count} \times (1,000 / \text{Total Volume in Liters})$$

The last column on the right shows the percentage for which each spore type comprised the total spore count.

Understanding the Air Cassette Graph (If included in the final report)

The graph is a visual representation of the baseline sample (usually the outdoor air sample) compared individually against each indoor sample. Each spore type found on the indoor sample is compared to what was found outdoors per cubic meter.

The graph shows the percentile representation of each indoor spore count derived by dividing the indoor Count/m³ by the outdoor Count/m³. If the percentage is below 50% of the outside count, then the bar is below 50 on the chart, which corresponds to %Within 50% of Baseline Count/m³.+ If the percentage is between 50 and 100%, then the bar on the chart will stop between 50 and 100, which corresponds to %Count/m³ comparable to Baseline.+ If the percentage is greater than 100%, then the bar will be above 100 on the chart, which corresponds to %Count/m³ higher than Baseline.+

Each organism is given a threshold level for the Count/m³. If this threshold level is not met in an inside sample, then the organism will not be graphed on the chart. This is used to prevent the graph from showing every spore type that is commonly found outside and doesn't typically indicate a possible moisture problem inside. For example, most common outdoor spores (e.g. ascospores, basidiospores, and *Cladosporium*) have a threshold level of 100. Therefore, in order to show up on the chart, the inside Count/m³ must be above 100. On the other hand, fungi that may indicate water damage (e.g. *Stachybotrys*, *Ulocladium*, *Chaetomium*, *Memnoniella*, etc.) are given lower threshold levels. These fungi have a higher water activity value and therefore require more moisture to grow. *Stachybotrys* and *Chaetomium* have threshold values of 14 and 30, respectively, as even a low count of those types of spores may indicate an issue with excess moisture.

Keep in mind that this graph is to be used only as a tool in the inspection of a building. Visual examination and knowledge of water damage, past remediation, and weather conditions, among other elements, is essential in the decision regarding the indoor air quality of a building.

Assistance with Remediation Projects

more information pertaining to interpretation of results is available on our website www.sanair.com

For assistance in a remediation project you may consult the Institute of Inspection, Cleaning and Restoration Certification (IICRC) S500 and S520 protocols. The S500 is a reference guide for water-damage restoration and the S520 pertains specifically to mold remediation. Other standards and guidelines regarding Indoor Air Quality that may assist in remediation projects:

- AIHA (Recognition, Evaluation, and Control of Indoor Mold)
- AIHA (The Facts About Mold)
- NADCA (ACR 2006)
- IESO (Standards of Practice for the Assessment of Indoor Air Quality)
- EPA (Mold Remediation in Schools and Commercial Buildings)
- New York City Department of Health and Mental Hygiene (Guidelines on Assessment and Remediation of Fungi in Indoor Environments)

Disclaimer

SanAir Technologies Laboratory does not make contamination corrections to reports based upon analysis of laboratory and/or field blanks.

This report is the sole property of the client named on the SanAir Technologies Laboratory chain-of-custody. Neither results nor reports will be discussed with or released to any third party without our client's written permission. The information provided in this report applies only to the samples submitted and is relevant only for the date, time, and location of sampling. SanAir assumes no responsibility for the method of sample procurement. SanAir assumes no responsibility for information provided by the client on the COC such as project number, project name, collection dates, po number, special instructions, samples collected by technician name, sample numbers, sample identifications, sample type, selected analysis type, flow rate, total volume or area, and start stop times that may affect the validity of the results in this report. Evaluation reports are based solely on the sample(s) in the condition in which they arrived at the laboratory and on the information provided by the client on the COC. SanAir will not provide any opinion on the safety of a building as visual inspection and knowledge of water damage, past remediation and weather conditions during sampling, among other elements, is essential in this decision. All samples are disposed of after 90 days unless otherwise requested by the client. SanAir is accredited by AIHA-LAP, LLC in the EMLAP program. Refer to our accreditation certificate or www.aihaaccreditedlabs.org for an up to date list of the Fields of Testing for which we are accredited.

This report does not constitute endorsement by AIHA-LAP, LLC/NVLAP and/or any other U.S. governmental agencies; and may not be certified by every local, state and federal regulatory agency.

LELAP Lab ID#05088

AIHA Lab ID: LAP-162952

SanAir Technologies Laboratory, Inc.

1551 Oakbridge Drive, Suite B - Powhatan, VA 23139
 804-897-1177 / 888-895-1177 / Fax 804-897-0070
 www.sanair.com

Microbiology Chain of Custody

SanAir ID Number

22006954


Advanced Consulting Services LLC	Project Number: ACS-22-119	Phone #:
60501 Fox Glove Rd	Project Name: Lakeside City Hall	Phone #: 541-306-1023
Coos Bay, OR 97420	Date Collected: 2/10/22	Fax #:
Samples Collected By: Christopher Cook	P.O. Number:	Email:

Sample Types		Analysis Types	Turn Around Time
AC	Air Cassette	A1 - Identification and Enumeration of Fungal spores, plus total dander, fiber, and pollen count	Hours 3/6/24/48-Std
		A2 - Identification and Enumeration of Fungal spores only	Hours 3/6/24/48-Std
T B S*	Tape Bulk Swab*	D1 - Direct Identification of Fungi	Hours 3/6/24/48-Std
		D2 - Direct Identification of Mites, Insects, Pollen, etc.	Hours 3/6/24/48-Std
AP B S	Air Plate Bulk Swab	C1 - Culture Identification and Enumeration of Fungi only	5-10 Days
		C2 - Culture Identification and Enumeration of Bacteria only	2-4 Days
		C3 - Culture Identification and Enumeration of Fungi and Bacteria	5-10 Days
		C4 - Culture Identification and Enumeration of Thermophilic Bacteria with C2 or C3 analysis	2-4 or 5-10 Days
W	Water	L1 - Culture Identification and Enumeration of <i>Legionella sp.</i>	7-10 Days
D	Dust	M1 - Dust Mite Allergen Test	Hours 3/6/24/48-Std

SanAir Technologies Laboratory offers speciation by PCR. Please call for details and pricing.

Sample #	Sample Identification	Sample Type	Analysis Type(s)	Turn Around Time	Total Volume (L) or Area (in ²)	Time Start - Stop	
CHL-1	Lobby/Front Offices	AC	A1	STD	225L	0720	0735
CC-2	Council Chambers	AC	A1	STD	225L	0725	0740
SCL-3	Senior Center Lobby	AC	A1	STD	225L	0835	0850
SCC-4	Senior Center Cafeteria	AC	A1	STD	225L	0840	0855
SCB-5	Senior Center Book Exchange	AC	A1	STD	225L	0850	0905
OCS-6	Southern Outdoor Control	AC	A1	STD	225L	1035	1050
OCW-7	Western Outdoor Control	AC	A1	STD	225L	1055	1110

Special Instructions

Relinquished by	Date	Time	Received by	Date	Time
	2/10/22	1500	EDR	2/14/22	9:55 a.m.

Unless scheduled, the turn around time for all samples received after 3 pm Friday will begin at 8 am Monday morning. Weekend or Holiday work must be scheduled ahead of time and is charged 150% of analytical rate.

*Although we allow Direct Identification from a swab sample, best results are received from tape samples.



The Identification Specialists

Analysis Report
prepared for
Advanced Consulting Services LLC

Report Date: 2/24/2022

Project Name: Lakeside City Hall

Project #: ACS-22-119

SanAir ID#: 22008891



10501 Trade Court | North Chesterfield, Virginia 23236

888.895.1177 | 804.897.1177 | fax: 804.897.0070 | IAQ@SanAir.com | SanAir.com



SanAir ID Number
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FINAL REPORT
2/24/2022 12:23:15 PM

Name: Advanced Consulting Services LLC
Address: 60501 Fox Glove Rd
Coos Bay, OR 97420
Phone: 541-306-1023

Project Number: ACS-22-119
P.O. Number:
Project Name: Lakeside City Hall
Collected Date: 2/22/2022
Received Date: 2/23/2022 10:40:00 AM

Dear Chris Cook,

We at SanAir would like to thank you for the work you recently submitted. The 3 sample(s) were received on Wednesday, February 23, 2022 via UPS. The final report(s) is enclosed for the following sample(s): BW-11, LL-09, LB-10.

These results only pertain to this job and should not be used in the interpretation of any other job. This report is only complete in its entirety. Refer to the listing below of the pages included in a complete final report.

Sincerely,

A handwritten signature in black ink that reads "L. Claire Macdonald". The signature is written in a cursive, flowing style.

L. Claire Macdonald
Microbiology Laboratory Manager
SanAir Technologies Laboratory

Final Report Includes:
- Cover Letter
- Air Cassette Analysis
- Disclaimers and Additional Information

Sample conditions:
- 3 samples in Good condition.



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Project Number: ACS-22-119
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Project Name: Lakeside City Hall
Collected Date: 2/22/2022
Received Date: 2/23/2022 10:40:00 AM

SanAir ID Number
22008891
 FINAL REPORT
 2/24/2022 12:23:15 PM

Analyst: Di Leo, Rob

Air Cassette Analysis

ND = None Detected. Blank spaces indicate no spores detected.

SanAir ID Number	22008891-001			22008891-002			22008891-003		
Analysis Using STL	105C			105C			105C		
Sample Number	LL-09			LB-10			BW-11		
Sample Identification	Library Main Lobby			Library Bathroom Hall			Outdoor Breeze Way		
Sample Type	Air Cassette - Air-O-Cell			Air Cassette - Air-O-Cell			Air Cassette - Air-O-Cell		
Volume	225 Liters			225 Liters			225 Liters		
Analytical Sensitivity	4 Count/M ³			4 Count/M ³			4 Count/M ³		
Background Density	1+			1+			1+		
Other	Raw Count	Count/M³	%	Raw Count	Count/M³	%	Raw Count	Count/M³	%
Dander	162	720	n/a	281	1249	n/a	15	67	n/a
Fibers	27	120	n/a	50	222	n/a	4	18	n/a
Mycelial Fragments							1	4	n/a
Pollen	2	9	n/a	2	9	n/a			
Fungal Identification	Raw Count	Count/M³	%	Raw Count	Count/M³	%	Raw Count	Count/M³	%
Alternaria species	1	4	5						
Ascospores	3	13	16	2	9	6	55	244	10
Aspergillus/Penicillium	3	13	16	4	18	11	2	9	< 1
Basidiospores	8	36	42	24	107	67	484	2151	89
Chaetomium species	1	4	5						
Cladosporium species	2	9	11	4	18	11	1	4	< 1
Smuts/Myxomycetes	1	4	5	2	9	6			
TOTAL	19	84		36	160		542	2409	

Signature:

Date: 2/24/2022

Reviewed:

Date: 2/24/2022



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Analyst: Di Leo, Rob

Air Cassette Analysis - Spores % of Outside Air



- Count/m³ higher than Baseline
- Count/m³ comparable to Baseline
- Within 50% of Baseline Count/m³

No organisms to graph. Normalized organism counts may not have exceeded the organism thresholds, or there were no organism counts for this sample. Please refer to the analysis report.

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Analyst: Di Leo, Rob

Air Cassette Analysis - Spores % of Outside Air



5%
A

Count/m³ higher than Baseline	Basidiospores
Count/m³ comparable to Baseline	
Within 50% of Baseline Count/m³	

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Received Date: 2/23/2022 10:40:00 AM

Organism Descriptions

The descriptions of the organisms presented are derived from various reference materials. The laboratory report is based on the data derived from the samples submitted and no interpretation of the data, as to potential, or actual, health effects resulting from exposure to the numbers of organisms found, can be made by laboratory personnel. Any interpretation of the potential health effects of the presence of this organism must be made by qualified professional personnel with first hand knowledge of the sample site, and the problems associated with that site.

Dander - Comprised of human and/or animal skin cells. Counts may be higher in carpeted rooms and in rooms with more traffic.
Health Effects: May cause allergies.

Fibers - This category can include clothing, carpet, and insulation fibers.

Mycelial Fragments - A mycelium (plural = mycelia) is the "body" of a fungus. It is a collective term for hyphae (singular = hypha), which are the tubular units of the mycelium usually composed of chitin. The terms hyphae and mycelial fragments are used interchangeably. [This information was referenced from the mycology text "The Fifth Kingdom"] In some cases a fungal identification cannot be obtained due to lack of sporulation. Only the mycelial fragments are present, and cannot be identified without the distinguishing characteristics of the spores or the structures they grow from.
Health Effects: Allergic reactions may occur in the presence of spores (conidia) or mycelial/hyphal fragments.

Pollen - Produced by trees, flowers, weeds and grasses. The level of pollen production can depend on water availability, precipitation, temperature, and light. Pollen is usually dispersed by either insects or the wind.
Health Effects: Mostly effects the respiratory tract with hay fever symptoms but has also been shown to trigger asthma in some people.

Alternaria species - This genus comprises a large number of saprobes and plant pathogens. It is one of the predominate airborne fungal spores indoor and outdoor. Outdoors it may be isolated from samples of soil, seeds, and plants. It is one of the more common fungi found in nature, extremely widespread and ubiquitous. Conidia are easily carried by the wind, with peak concentrations in the summer and early fall. It is commonly found in outdoor samples. It is often found in indoor environments, on drywall, ceiling tiles, in house dust, carpets, textiles, and on horizontal surfaces in building interiors. Often found on window frames. This genus also includes species that were once identified as *Ulocladium*. Genetic testing has shown that the two are not phylogenetically distinct, and as such have been combined.
Health Effects: In humans, it is recognized to cause allergic responses. Because of the large size of the spores, it can be deposited in the nose, mouth and upper respiratory tract, causing nasal septum infections. It has been known to cause Baker's asthma, farmer's lung, and hay fever. It has been associated with hypersensitivity pneumonitis, sinusitis, dermatomycosis, onychomycosis, subcutaneous phaeohyphomycosis, and invasive infection. Common cause of extrinsic asthma (immediate-type hypersensitivity: type I). Acute symptoms include edema and bronchospasms, chronic cases may develop pulmonary emphysema.
References: Flannigan, Brian, Robert A. Samson, and J. David Miller, eds. *Microorganisms in Home and Indoor Work Environments*. London and NY: Taylor & Francis, 2001. de Hoog, G.S. et al. *Atlas of Clinical Fungi*. 4th ed. Foundation Atlas of Clinical Fungi. 2020

Ascospores - From the fungal Subphylum Ascomycotina. Ascospores are ubiquitous in nature and are commonly found in the outdoor environment. This class contains the "sac fungi" and yeasts. Some ascospores can be identified by spore morphology, however; some care should be exercised with regard to specific identification. They are identified on tape lifts and non-viable analysis by the fact that they have no attachment scars and are sometimes enclosed in sheaths with or without sacs. Ascomycetes may develop both sexual and asexual stages. Rain and high humidity may help asci to release, and disperse ascospores, which is why during these weather conditions there is a great increase in counts.
Health Effects: This group contains possible allergens.



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Project Number: ACS-22-119
P.O. Number:
Project Name: Lakeside City Hall
Collected Date: 2/22/2022
Received Date: 2/23/2022 10:40:00 AM

Organism Descriptions

The descriptions of the organisms presented are derived from various reference materials. The laboratory report is based on the data derived from the samples submitted and no interpretation of the data, as to potential, or actual, health effects resulting from exposure to the numbers of organisms found, can be made by laboratory personnel. Any interpretation of the potential health effects of the presence of this organism must be made by qualified professional personnel with first hand knowledge of the sample site, and the problems associated with that site.

Aspergillus/Penicillium - These spores are easily aerosolized. Only through the visualization of reproductive structures can the genera be distinguished. Also included in this group are the spores of the genera Acremonium, Phialophora, Verticillium, Paecilomyces, etc. Small, round spores of this group lack the necessary distinguishing characteristics when seen on non-viable examination.

Health Effects: Can cause a variety of symptoms including allergic reactions. Most symptoms occur if the individual is immunocompromised in some way (HIV, cancer, etc). Both Penicillium and Aspergillus spores share similar morphology on non-viable analysis and therefore are lumped together into the same group.

Basidiospores - From the Subphylum Basidiomycotina which contains the mushrooms, shelf fungi, and a variety of other macrofungi. They are saprophytes, ectomycorrhizal fungi or agents of wood rot, which may destroy the structure wood of buildings. 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. The release of basidiospores is dependant upon moisture, and they are dispersed by wind.

Health Effects: Many have the potential to produce a variety of toxins. Members of this group may trigger Type I and III fungal hypersensitivity reactions. Rarely reported as opportunistic pathogens.

Chaetomium species - It is an ascomycete. It is found on a variety of substrates containing cellulose including paper and plant compost. It can be found on the damp or water damaged paper in sheetrock after a long term water damage. Several species have been reported to play a major role in decomposition of cellulose made materials. These fungi are able to dissolve the cellulose fibers in cotton and paper, and thus cause these materials to disintegrate. The process is especially rapid under moist conditions.

Health Effects: Chaetomium can produce type I fungal hypersensitivity and has caused onychomycosis (nail infections).

References: Flannigan, Brian, Robert A. Samson, and J. David Miller, eds. Microorganisms in Home and Indoor Work Environments. London and NY: Taylor & Francis, 2001. de Hoog, G.S. et al. Atlas of Clinical Fungi. 4th ed. Foundation Atlas of Clinical Fungi. 2020

Cladosporium species - The most commonly identified outdoor fungus. The outdoor numbers are reduced in the winter and are often high in the summer. Often found indoors in numbers less than outdoor numbers. 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. Often found in dirty refrigerators and especially in reservoirs where condensation is collected, on moist window frames it can easily be seen covering the whole painted area with a velvety olive green layer.

Health Effects: It is a common allergen. It can cause mycosis. Common cause of extrinsic asthma. Acute symptoms include edema and bronchospasms, chronic cases may develop pulmonary emphysema. Illnesses caused by this genus can include phaeohyphomycosis, chromoblastomycosis, hay fever and common allergies.

References: Flannigan, Brian, Robert A. Samson, and J. David Miller, eds. Microorganisms in Home and Indoor Work Environments. London and NY: Taylor & Francis, 2001. de Hoog, G.S. et al. Atlas of Clinical Fungi. 4th ed. Foundation Atlas of Clinical Fungi. 2020

Smuts/Myxomycetes - Smuts and Myxomycetes are parasitic plant pathogens. They are typically grouped together due to their association with plants, the outdoors and because they share similar microscopic morphology.

Health Effects: Can produce type I fungal hypersensitivity reactions.

References: Martin, G.W., C.J. Alexopoulos, and M.L. Farr. The Genera of Myxomycetes. Iowa City, Iowa: University of Iowa Press, 1983.

Additional Information

Air Cassette Analyses

Air cassette reports indicate the genus and concentration of viable (living) and non-viable mold spores detected on the slide (A2 Analysis). Whether or not these spores are viable cannot be determined using this type of analysis. However, keep in mind that spores can remain allergenic even after cellular death. Other possible allergens include dander, pollen and fibers which are included in air cassette reports for the A1 Analysis. A1 and A2 analyses are performed on several types of air cassettes. Light microscopy at a 400 to 1000x magnification is used for air cassette sample analysis. SanAir always analyzes 100% of the impacted slide.

Explanation of Background Densities

The background density of an air cassette aids in the overall interpretation of results as it indicates the level of background debris present (e.g. dander, pollen, fibers, insect parts, soot, fly ash, etc.). Excessive background debris may mask the presence of fungal spores thereby reducing the accuracy of the count. It may also serve as an alert that the volume of air pulled was too high or too low. The following table explains background densities.

Air Cassette Density	Amount of Particulate on Slide	Explanation
1	Insignificant	Should not skew any counts
1+	Low	Should not skew any counts
2	Low to Moderate	Should not skew any counts
2+	Moderate to High	May cause occlusion of small spores
3	High	May cause occlusion of small to medium spores
3+	Very High	Will cause occlusion of spores
4	Overloaded	Level of particulate too high to perform analysis

A Note About the Fungal Spores

In some instances certain groups of fungi cannot be identified due to a lack of distinguishing characteristics. These fungi will be categorized as %unknown spores+on the final report.

The genera *Aspergillus* and *Penicillium* are typically composed of small, round spores that are difficult to distinguish from each other; therefore, they are grouped into the category *Aspergillus / Penicillium*. Other fungi that produce spores of similar characteristics may also be placed into this category, including *Paecilomyces*, *Gliocladium*, and *Trichoderma*, among others.

Stachybotrys and *Memnoniella* spores are coated with a sticky %lime+layer that may inhibit aerosolization.

Any genus of fungi detected on an air cassette with a high raw count (i.e. exceeding 500 spores) may be estimated. Any estimate higher than 12,000 spores will be reported as >12,000.

Understanding the Air Cassette Report

Each sample has 3 columns of information provided. The left is the raw count which is the number of spores for that fungal type detected on the trace. The middle column is the count per cubic meter (Count/m³) which is the raw count converted based on the total volume pulled for that sample. It represents the number of spores that should be expected in a cubic meter of air from the location in question *if* the spores were distributed evenly throughout the air. This column is helpful for interpreting results when the samples were pulled at different total volumes. In other words, the raw count of a cassette pulled at 75 liters should not be compared to the raw count of a cassette pulled at 150 liters because there may be higher counts associated with the higher volume. By comparing the %Count/m³+columns the difference in volumes are accounted for.

The limit of detection is the lowest spore count detectable with reasonable certainty, and it is calculated this way using a raw count of one. Keep in mind there are 1,000 liters in a cubic meter.

$$1 \times (1,000 / \text{Total Volume in Liters})$$

How to calculate the count per cubic meter:

$$\text{Raw Count} \times (1,000 / \text{Total Volume in Liters})$$

The last column on the right shows the percentage for which each spore type comprised the total spore count.

Understanding the Air Cassette Graph (If included in the final report)

The graph is a visual representation of the baseline sample (usually the outdoor air sample) compared individually against each indoor sample. Each spore type found on the indoor sample is compared to what was found outdoors per cubic meter.

The graph shows the percentile representation of each indoor spore count derived by dividing the indoor Count/m³ by the outdoor Count/m³. If the percentage is below 50% of the outside count, then the bar is below 50 on the chart, which corresponds to %Within 50% of Baseline Count/m³.+ If the percentage is between 50 and 100%, then the bar on the chart will stop between 50 and 100, which corresponds to %Count/m³ comparable to Baseline.+ If the percentage is greater than 100%, then the bar will be above 100 on the chart, which corresponds to %Count/m³ higher than Baseline.+

Each organism is given a threshold level for the Count/m³. If this threshold level is not met in an inside sample, then the organism will not be graphed on the chart. This is used to prevent the graph from showing every spore type that is commonly found outside and doesn't typically indicate a possible moisture problem inside. For example, most common outdoor spores (e.g. ascospores, basidiospores, and *Cladosporium*) have a threshold level of 100. Therefore, in order to show up on the chart, the inside Count/m³ must be above 100. On the other hand, fungi that may indicate water damage (e.g. *Stachybotrys*, *Ulocladium*, *Chaetomium*, *Memnoniella*, etc.) are given lower threshold levels. These fungi have a higher water activity value and therefore require more moisture to grow. *Stachybotrys* and *Chaetomium* have threshold values of 14 and 30, respectively, as even a low count of those types of spores may indicate an issue with excess moisture.

Keep in mind that this graph is to be used only as a tool in the inspection of a building. Visual examination and knowledge of water damage, past remediation, and weather conditions, among other elements, is essential in the decision regarding the indoor air quality of a building.

Assistance with Remediation Projects

more information pertaining to interpretation of results is available on our website www.sanair.com

For assistance in a remediation project you may consult the Institute of Inspection, Cleaning and Restoration Certification (IICRC) S500 and S520 protocols. The S500 is a reference guide for water-damage restoration and the S520 pertains specifically to mold remediation. Other standards and guidelines regarding Indoor Air Quality that may assist in remediation projects:

- AIHA (Recognition, Evaluation, and Control of Indoor Mold)
- AIHA (The Facts About Mold)
- NADCA (ACR 2006)
- IESO (Standards of Practice for the Assessment of Indoor Air Quality)
- EPA (Mold Remediation in Schools and Commercial Buildings)
- New York City Department of Health and Mental Hygiene (Guidelines on Assessment and Remediation of Fungi in Indoor Environments)

Disclaimer

SanAir Technologies Laboratory does not make contamination corrections to reports based upon analysis of laboratory and/or field blanks.

This report is the sole property of the client named on the SanAir Technologies Laboratory chain-of-custody. Neither results nor reports will be discussed with or released to any third party without our client's written permission. The information provided in this report applies only to the samples submitted and is relevant only for the date, time, and location of sampling. SanAir assumes no responsibility for the method of sample procurement. SanAir assumes no responsibility for information provided by the client on the COC such as project number, project name, collection dates, po number, special instructions, samples collected by technician name, sample numbers, sample identifications, sample type, selected analysis type, flow rate, total volume or area, and start stop times that may affect the validity of the results in this report. Evaluation reports are based solely on the sample(s) in the condition in which they arrived at the laboratory and on the information provided by the client on the COC. SanAir will not provide any opinion on the safety of a building as visual inspection and knowledge of water damage, past remediation and weather conditions during sampling, among other elements, is essential in this decision. All samples are disposed of after 90 days unless otherwise requested by the client. SanAir is accredited by AIHA-LAP, LLC in the EMLAP program. Refer to our accreditation certificate or www.aihaaccreditedlabs.org for an up to date list of the Fields of Testing for which we are accredited.

This report does not constitute endorsement by AIHA-LAP, LLC/NVLAP and/or any other U.S. governmental agencies; and may not be certified by every local, state and federal regulatory agency.

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Microbiology Chain of Custody

SanAir ID Number

2008891

Advanced Consulting Services LLC	Project Number: ACS-22-119	Phone #:
60501 Fox Glove Rd	Project Name: Lakeside City Hall	Phone #: 541-306-1023
Coos Bay, OR 97420	Date Collected: 2/22/22	Fax #:
Samples Collected By: Christopher Cook	P.O. Number:	Email: Chris@AC-SRV.COM

Sample Types		Analysis Types	Turn Around Time
AC	Air Cassette	A1 - Identification and Enumeration of Fungal spores, plus total dander, fiber, and pollen count	Hours 3/6/24/48-Std
		A2 - Identification and Enumeration of Fungal spores only	Hours 3/6/24/48-Std
T B S*	Tape Bulk Swab*	D1 - Direct Identification of Fungi	Hours 3/6/24/48-Std
		D2 - Direct Identification of Mites, Insects, Pollen, etc.	Hours 3/6/24/48-Std
AP B S	Air Plate Bulk Swab	C1 - Culture Identification and Enumeration of Fungi only	5-10 Days
		C2 - Culture Identification and Enumeration of Bacteria only	2-4 Days
		C3 - Culture Identification and Enumeration of Fungi and Bacteria	5-10 Days
		C4 - Culture Identification and Enumeration of Thermophilic Bacteria with C2 or C3 analysis	2-4 or 5-10 Days
W	Water	L1 - Culture Identification and Enumeration of <i>Legionella sp.</i>	7-10 Days
D	Dust	M1 - Dust Mite Allergen Test	Hours 3/6/24/48-Std

SanAir Technologies Laboratory offers speciation by PCR. Please call for details and pricing.

Sample #	Sample Identification	Sample Type	Analysis Type(s)	Turn Around Time	Total Volume (L) or Area (in ²)	Time Start - Stop	
LL-09	Library Main Lobby	AC	A1	Std	225L	0920	0935
LB-10	Library Bathroom Hall	+				0922	0937
BW-11	Outdoor Breese Way	+				0940	0955

Special Instructions

Relinquished by	Date	Time	Received by	Date	Time
Christopher Cook	2/22/22	1100	JAO	2/23/22	06:40

Unless scheduled, the turn around time for all samples received after 3 pm Friday will begin at 8 am Monday morning. Weekend or Holiday work must be scheduled ahead of time and is charged 150% of analytical rate.

*Although we allow Direct Identification from a swab sample, best results are received from tape samples.