IAQ ASSESSMENT REPORT

Revision 1 (REV1)
Polk State College – LTB Building
3425 Winter Lake Road
Lakeland, Polk County, Florida 33803

PREPARED FOR:
Mr. Brad McConnell – Facilities Manager
Polk State College
3425 Winter Lake Road
Lakeland, Florida 33803

NOVA Project Number: 10106-3024310

October 9, 2024 – Revised October 29, 2024

NOVA
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October 9, 2024

Via email: BMcConnell@polk.edu

Mr. Brad McConnell - Facilities Manager
Polk State College
3425 Winter Lake Road
Lakeland, Florida 33803

Subject: **Indoor Air Quality Report – REV1 (10/29/2024)**
Polk State College – LTB Building
Lakeland Campus
3425 Winter Lake Road
Lakeland, Florida 33803
NOVA Project No. 10106-3024310

Dear Mr. McConnell:

NOVA Engineering and Environmental, LLC (NOVA) has completed the authorized Indoor Air Quality Clearance Assessment of the specified rooms/labs of the LTB Building located within the Polk State College, Lakeland Campus at 3425 Winter Lake Road, Lakeland, Polk County, Florida. The assessment was conducted in general accordance with NOVA Proposal #: 10106-3024310 dated September 20, 2024. The assessment was performed on October 1, 2024, and included a visual inspection, temperature / relative humidity / carbon monoxide (CO) / carbon dioxide (CO_2) measurements and a microbial contamination assessment. This assessment was performed using current guidelines and protocols published by the American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE, 2016, 2018), National Institute of Occupational Safety and Health (NIOSH), the American Conference of Governmental Industrial Hygienists (ACGIH), the Occupational Safety and Health Administration (OSHA) and the Environmental Protection Agency (EPA).

According to information relayed to the NOVA inspector, this area previously experienced positive and negative pressure throughout the building with elevated percent relative humidity (%RH). The NOVA inspector noted stained ceiling tiles in the Auditorium and Room 2285. There were

no known water intrusions at the time of the inspection. There were known indoor air quality complaints by occupants of the areas inspected.

REV1 10/29/2024; due to incorrect Room identification in Table 1, Table 2 and Sample Location Map. Room 2274 was identified in October 1, 2024; actual room was 2275.

VISUAL INSPECTION

NOVA performed a visual inspection of each of the rooms of the specified by the Client. The NOVA inspector noted visible mold on ceiling tiles in the Auditorium that had been previously removed by staff. Photographs can be found in **Attachment A**

The building air conditioning was operating with MERV 10 filters on all air handlers at the time of this inspection.

TEMPERATURE, RELATIVE HUMIDITY, CO AND CO_2 MEASUREMENTS

Measurements were collected throughout the building to obtain information on temperature, relative humidity, CO and CO_2. Results are provided in **Table 1**. The measurements were taken with a TSI Model 7575-X Q-Trak Indoor Air Quality Monitor and compared to the ASHRAE guidelines and OSHA permissible exposure limits (PELs). All measured CO and CO_2 levels were within acceptable ranges. Elevated levels of temperature were noted in Room 2287 (74.3°F) and Room 2274 (74.1°F). Percent relative humidity (%RH) was noted in Room 2285 (64.1 – 66.1).

The upper ASHRAE guideline for CO_2 is the outdoor concentration in parts per million (ppm) plus 700 ppm (<1,139 (700 + 439) ppm for the building). The acceptable range for temperature is 68ºF - 74ºF, and the acceptable range for %RH is between 30 - 65. Temperatures and %RH above this range encourages mold growth.

Results are provided in **Table 1**.

MOLD SAMPLING

Air Samples

Each sample was collected for a period of ten (10) minutes at a flow rate of 15 liters/minute for a total volume of 150 Liters (L), utilizing a laboratory supplied spore trap sampling cassette. The samples were labeled with a distinct sample identification number, the sampler's initials and the

date of collection. Each sample container was properly sealed, labeled and transported to EMSL Analytical, Inc., an American Industrial Hygiene Association (AIHA) accredited laboratory for microscopic analysis. Spore trap results are provided in **Table 2**. The complete laboratory report and chain of custody is provided in **Attachment C**.

Air samples were collected from seven (7) interior locations to measure the airborne fungal concentrations inside the referenced locations. In addition, two (2) outdoor samples were collected outside of the building that were submitted for background (control) comparison purposes. One quality control (QC) sample was submitted.

West Corridor Labs/Rooms:
Air sampling results for the Rooms/Labs indicate adequate air filtration. These areas are safe for occupants.

Auditorium:
Air sampling results in the Auditorium indicates inadequate air filtration and periods of prolonged moisture. This area has been closed off from occupants as well as the 2nd Floor Breakroom which shares the air handler. These areas are scheduled for Negative Air Filtration and Mold remediation in the near future.

No empirical air data exists to support quantitative rankings of fungal activity. As buildings experience a continuing incursion of outdoor air, and it is generally recognized that the quantities and species of mold spores present in indoor samples should be similar to (within an order of magnitude) or less than what is found in the local outdoor air. In the absence of established threshold limit values; this has evolved as the standard for normal interior air. For this reason, outside air samples are taken for comparison to indoor samples.

Tape Lift Samples

One tape lift sample was collected from an interior ceiling tile to evaluate the presence of fungal contamination. The sample was collected using media provided by EMSL Analytical, Inc. The sampling slide is flexible plastic with a static clear plastic cover over the sticky sample surface. The cover is removed from the sampling surface, then the slide is pressed onto the sampling area, then placed in its own rigid slide container to prevent cross-contamination.

The sample was labeled with a distinct sample identification number then transported to EMSL Analytical, Inc. Tape lift samples are provided in **Table 3.** The complete laboratory report and chain of custody is provided in **Attachment B**.

Sample SL-1, collected from the Auditorium on a ceiling tile that was previously removed contained High (>1000 spores of area analyzed) counts of *Cladosporium*. *Cladosporium* produces more than then (10) antigens and is a common cause of extrinsic asthma.

Overall:

West Corridor Labs/Rooms:
Samples obtained throughout the Labs and/or Classrooms of the 2nd Level contained similar types and levels of exterior spore types.

Auditorium:
The elevated levels of *Aspergillus/Penicillium* (greater than one order of magnitude compared to exterior samples) and the presence of *Stachybotrys* (zero tolerance mold with the ability to produce endotoxins) indicates prolonged levels of moisture and possible lack of proper air filtration. These areas were to be closed following a Teams meeting on October 4, 2024, to reduce the cross contamination from the servicing air handler to other areas within the building. NOVA was notified that MERV 10 level filters are utilized in all of the air handlers for this building.

Descriptions of all of the molds sampled for and a discussion potential health effects are provided following the laboratory report in **(Attachment D).**

REMEDIATION RECOMMENDATIONS

The Auditorium and associated Break Room should be remediated while under negative air, HEPA filtered. All areas of removal to be enclosed with 4-mil poly walls; HVAC systems off, return air vents sealed. Current, “state of the art” removal techniques are to be utilized to prevent the spread of dusts and spores throughout the area to other adjacent areas that have are at acceptable levels. HEPA filtration units are to be run until final air clearance can be achieved (the units will be turned off during the final air clearance sampling and then turned on following the sampling).

All surfaces to be completely dried prior to Final Air Clearance(s) and reinstallation of building materials.

All removed building materials to be either placed in 4-mil plastic sheeting (or bags), taped shut and removed from the building for proper disposal, or placed in a plastic lined roll-cart with a 4-mil plastic sheeting cover and removed from the building for proper disposal.

DISCUSSION/CONCLUSIONS

Building materials with visible staining should be removed and replaced as soon as possible.

Following the assessment on October 1, 2024, PSC staff sealed off the Auditorium and associated Break Room and contracted special cleaning in all of the Labs/Rooms of the 2nd Floor, West Corridor. According to information relayed to NOVA, cleaning included the wiping of horizontal surfaces using a 50/50 bleach and water solution.

RECOMMENDATIONS – LTB Building (Auditorium and associated Break Room)

1. Proper remediation in the Auditorium and associated Break Room to include HEPA air filtration and disinfecting of floors and duct work in accordance with a Mold Remediation Protocol and Specification document.
2. Continue to replace air filters with MERV 10 rated filters at scheduled times; or after power loss.
3. Remove and replace all stained and/or water damaged ceiling tiles.
4. A final air clearance should be completed to ensure inhabitant health following all remediation and prior to re-installation of building materials.
5. Occupancy should not be allowed to occur until the above items are completed.

RECOMMENDATIONS – LTB Building (West Corridor Labs and Rooms)

1. These areas are safe for occupancy.
2. Continue scheduled normal cleaning and disinfecting of surfaces.
3. Remove and replace all stained and/or water damaged ceiling tiles.
4. Continue to replace air filters with MERV 10 rated filters at scheduled times; or after power loss.

LIMITATIONS

Opinions and findings offered in the report were based upon observable conditions or features and information derived from the most recent site reconnaissance date and from other activities described within the report. This is not intended to identify *de minimis* conditions that do not present a material risk of harm to the public health or the environment and would not be the subject of an enforcement action if brought to the attention of appropriate governmental entities.

Any type or quantity of mold may produce reactions in hypersensitive or allergic individuals. Although mold containing areas or surfaces may be cleaned or removed, mold will reoccur if the source of moisture is not remedied.

The findings and opinions conveyed in this report are based upon information obtained at a specific date from a variety of sources listed within the report, and which NOVA believes are reliable. Nonetheless, NOVA cannot and does not warrant the authenticity or reliability of the information sources.

This study and report was prepared on behalf of and for the exclusive use of Client solely for its use and reliance in the sampling of this site. Client is the only party to which NOVA has explained the risks involved and which has been involved in shaping the scope of services needed to satisfactorily address the Client's interests. This report may not be relied upon by any third party without the execution of an agreement between NOVA and that third party.

NOVA appreciates the opportunity to provide the above services. Please call if you have questions or require additional information.

Mark C. Bottorff
Senior Environmental Scientist

Larry G. Schmaltz, PE, GC
Senior Consultant – Principal Technical Professional
Florida Licensed Mold Assessor (MRSA3048)

Attachments

Table 1 – Indoor Air Quality Measurements
Table 2 – Spore-Trap (Airborne) Mold Sampling Results
Table 3 – Tape Lift Sample Results

Attachment A – Photograph Log of Visual Inspection
Attachment B – Sample Location Map
Attachment C – Laboratory Report and Chain of Custody
Attachment D – Fungal Glossary of Identified Species

TABLES

TABLE 1

Indoor Air Quality Measurements

NOVA ENGINEERING AND ENVIRONMENTAL

IAQ Sampling Form - Table 1

Test Site (Address):	Polk State College, 3425 Winter Lake Road, Lakeland, Florida	**Page:**	1 of 1
Equipment Model:	TSI Q-Trak 7575X - S/N: 7575X1206003	**Date:**	10/1/2024
NOVA Project Number:	10106-3024310 - LTB Building	**Inspector:**	Bottorff, Mark

Location	Time	ºF	% RH	CO (ppm)	CO2 (ppm)	Notes
Exterior: Northwest in Parking Lot 4	10:47	88.1	63.5	0.0	437	ST-1 Location
Auditorium	11:02	72.7	78.9	0.0	476	ST-2; SL-1 Location
Room 2287	11:18	**74.3**	52.7	0.0	582	ST-3 Location
Room 2286	11:20	73.6	54.4	0.0	513	ST-4 Location
Room 2275	11:37	**74.1**	51.8	0.0	667	ST-5 Location
Room 2284	11:40	72.2	56.5	0.0	579	ST-6 Location
Room 2283	11:49	71.9	57.1	0.0	663	ST-8 Location
Room 2284	11:50	71.6	59.3	0.0	604	
Room 2285	11:54	71.5	64.1	0.0	520	ST-7 Location
Room 2285	12:02	71.3	**66.1**	0.0	490	
Exterior: Northwest in Parking Lot 4	12:07	91.7	73.5	0.0	441	ST-9 Location
Current Recommended Limits:		**68-74**	**30-65**	**<50**	**<1139**	

NOTES:

1) Time	Measured in 24 hour/Military Time (3:00PM = 1500)
2) Area/Location:	Building, Room #, Direction, etc.
3) CO:	Carbon Monoxide in PPM
4) CO2:	Carbon Dioxide in PPM

TABLE 2
Spore Trap (Air) Results

Table 2
Mold Sampling Results (Air)
October 1, 2024
Polk State College – LTB Building
3425 Winter Lake Road
Lakeland, Florida

Location (*)	Sample ID	Time	Total Spores/m³	Predominant Species/(Spores/m³)
Exterior – Parking Lot 4, Northwest of Building	ST-1	10:47	6,480	*Ascospores* (750); *Aspergillus/Penicillium (880); Basidiospores* (4,330)
Auditorium	**ST-2**	**11:02**	**78,450**	***Aspergillus/Penicillium (77,800);*** *Cladosporium* (510); ***Stachybotrys/Memnoniella* (100)**
Room 2287	ST-3	11:18	1,090	*Aspergillus/Penicillium (750); Basidiospores* (240)
Room 2286	ST-4	11:20	2,380	*Aspergillus/Penicillium (1,700); Basidiospores* (600); *Cladosporium* (100)
Room 2275 *(Sample states Rm. 2274 on Chain)	ST-5	11:37	877	*Aspergillus/Penicillium (510); Basidiospores* (100); *Cladosporium* (200); *Stachybotrys/Memnoniella* (7**)
Room 2284	ST-6	11:40	1,747	*Aspergillus/Penicillium (1,400); Basidiospores* (220)
Room 2285	ST-7	11:51	3,227	*Aspergillus/Penicillium (2,560); Basidiospores* (490); *Stachybotrys/Memnoniella* (7**)
Room 2283	ST-8	11:49	1,570	*Aspergillus/Penicillium (1,200); Basidiospores* (200)
Exterior – Parking Lot 4, Northwest of Building	ST-9	12:10	16,607	*Aspergillus/Penicillium (420); Basidiospores* (14,600); *Cladosporium* (490)
QC Blank	ST-10	12:07	0	*No Trace*

(**) Includes other spores with similar morphology.
Spores/m³ Total Fungal Spore Count per Cubic Meter.

TABLE 3

Tape Lift (Surface) Results

Table 3
Tape Lift Sampling Results
October 1, 2024
Polk State College – LTB Building
3425 Winter Lake Road
Lakeland, Florida

Location	Sample ID	*Cladosporium*
Auditorium: Ceiling Tile	SL-1	High

ND	None Detected
Rare	Ubiquitous/normal amounts (1 - 10 spores per area analyzed)
Low	Slightly above average (11 – 100 spores per area analyzed)
Medium	Indicates possible growth (101 - 1,000 spores per area analyzed)
High	Indicates contamination may exist (>1,000 spores per area analyzed)

ATTACHMENT A

Photograph Log of Visual Inspection

1. Auditorium – Ceiling Tiles removed

2. Auditorium – ST-1 Location

3. Auditorium: Removed Ceiling Tile – SL-1 Location

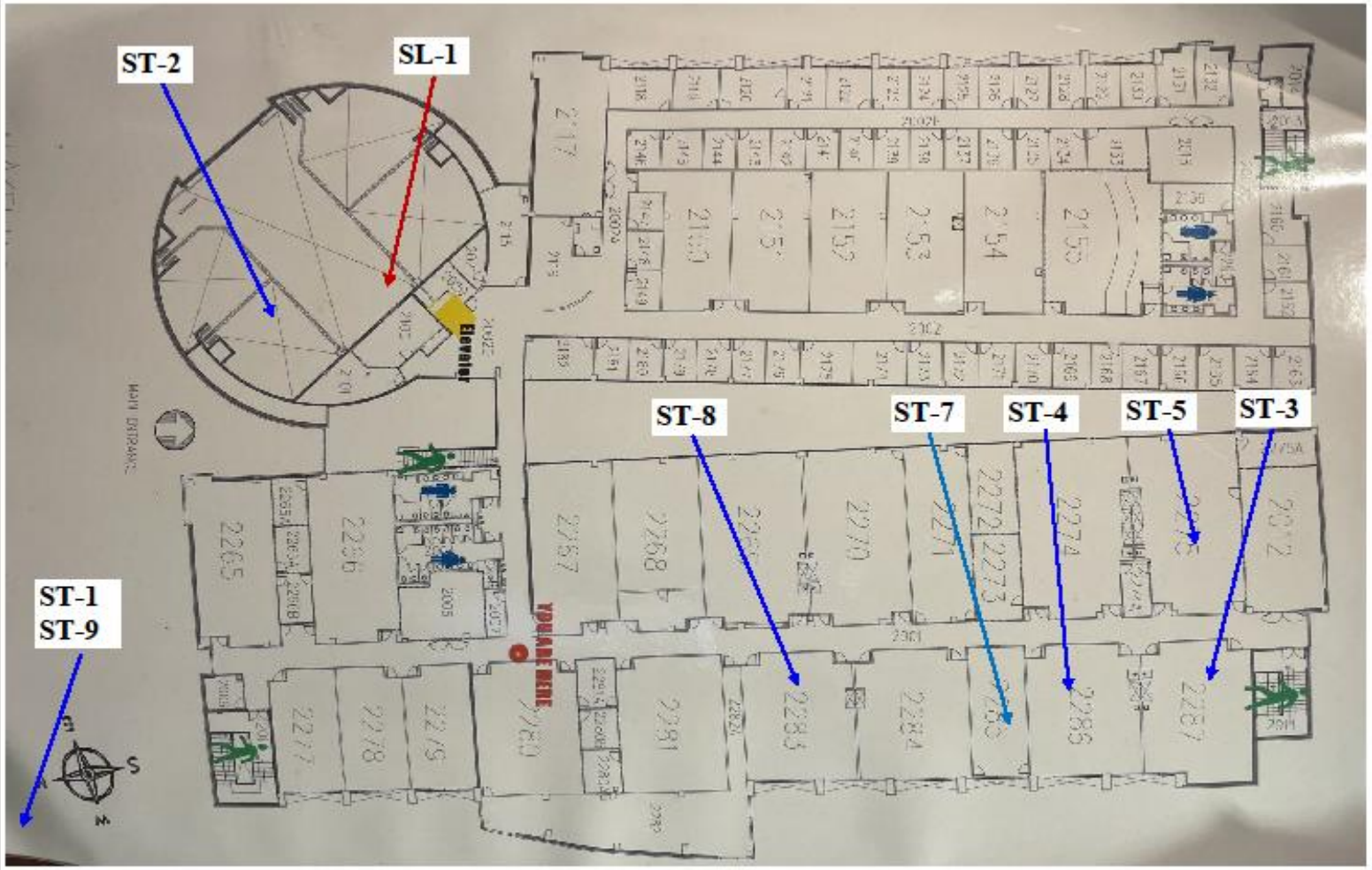
4. Room 2287: ST-3 Location

5. Room 2285: ST-7 Location

6. Room 2285: Some ceiling tile staining

ATTACHMENT B

Sample Location Map



Scale: Not To Scale **Date Drawn:** October 28, 2024 **Drawn By:** M. Bottorff **Checked By:** L. Schmaltz	NOVA 4524 Oak Fair Blvd., Suite 200 Tampa, FL 33610 813-623-3100 • 813-623-3545	**PSC – LTB BUILDING: 2nd FLOOR** **3425 Winter Lake Road** Lakeland, Polk County, Florida *NOVA Project Number 10106-3024310*

ATTACHMENT C

Laboratory Reports and Chains of Custody

EMSL Analytical, Inc.
5406 Hoover Blvd, Suite 21 Tampa, FL 33634
Tel/Fax: (813) 280-8752 / (813) 280-8753
http://www.EMSL.com / tampalab@emsl.com

EMSL Order: 932406756
Customer ID: NOVA34
Customer PO:
Project ID:

Attention: Larry Schmaltz
Nova Engineering & Environmental
4524 Oak Fair Blvd.
Suite 200
Tampa, FL 33610
Project: 10106-3024310

Phone: (813) 623-3100
Fax:
Collected Date: 10/01/2024
Received Date: 10/01/2024 01:27 PM
Analyzed Date: 10/03/2024

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

Lab Sample Number:	932406756-0001			932406756-0002			932406756-0003		
Client Sample ID:	ST-1			ST-2			ST-3		
Volume (L):	150			150			150		
Sample Location:	Parking Lot N of Bldg			Auditorium 1			Rm 2287		
Spore Types	**Raw Count†**	**Count/m³**	**% of Total**	**Raw Count†**	**Count/m³**	**% of Total**	**Raw Count†**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	34	750	11.6	-	-	-	-	-	-
Aspergillus/Penicillium++	40	880	13.6	160(3520)	77800	99.2	34	750	68.8
Basidiospores	107(196)	4330	66.8	-	-	-	11	240	22
Bipolaris++	1	20	0.3	-	-	-	-	-	-
Chaetomium++	-	-	-	-	-	-	-	-	-
Cladosporium	4	90	1.4	23	510	0.7	5	100	9.2
Curvularia	5	100	1.5	1	20	0	-	-	-
Fusarium++	-	-	-	-	-	-	-	-	-
Ganoderma	3	70	1.1	-	-	-	-	-	-
Myxomycetes++	-	-	-	1	20	0	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	5	100	0.1	-	-	-
Blakeslea/Choanephora	6	100	1.5	-	-	-	-	-	-
Cercospora++	1	20	0.3	-	-	-	-	-	-
Helicoma	1	20	0.3	-	-	-	-	-	-
Nigrospora	4	90	1.4	-	-	-	-	-	-
Pyricularia	-	-	-	-	-	-	-	-	-
Spegazzinia	-	-	-	-	-	-	-	-	-
Tetraploa	-	-	-	-	-	-	-	-	-
Zygophiala/Schizothyrium	2	10*	0.2	-	-	-	-	-	-
Total Fungi	**297**	**6480**	**100**	**3550**	**78450**	**100**	**50**	**1090**	**100**
Hyphal Fragment	-	-	-	1	7*	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	1	20	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	22	-	-	22	-	-	22	-
Analyt. Sensitivity 300x	-	7*	-	-	7*	-	-	7*	-
Skin Fragments (1-4)	-	1	-	-	2	-	-	1	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	2	-	-	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.

Gerald Iannuzzi, Laboratory Manager
or other Approved Signatory

Initial report from: 10/03/2024 05:21 PM

For information on the fungi listed in this report, please visit the Resources section at www.emsl.com

EMSL Analytical, Inc.
5406 Hoover Blvd, Suite 21 Tampa, FL 33634
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EMSL Order: 932406756
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Phone: (813) 623-3100
Fax:
Collected Date: 10/01/2024
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Analyzed Date: 10/03/2024

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

Lab Sample Number:	932406756-0004			932406756-0005			932406756-0006		
Client Sample ID:	ST-4			ST-5			ST-6		
Volume (L):	150			150			150		
Sample Location:	Rm 2286			Rm 2274			Rm 2284		
Spore Types	**Raw Count†**	**Count/m³**	**% of Total**	**Raw Count†**	**Count/m³**	**% of Total**	**Raw Count†**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	2	40	1.7	-	-	-	1	20	1.1
Aspergillus/Penicillium++	78	1700	71.4	23	510	58.2	62	1400	80.1
Basidiospores	27	600	25.2	6	100	11.4	10	220	12.6
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium++	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	7	200	22.8	6	100	5.7
Curvularia	1	20	0.8	2	10*	1.1	1	7*	0.4
Fusarium++	-	-	-	-	-	-	-	-	-
Ganoderma	1	20	0.8	1	20	2.3	-	-	-
Myxomycetes++	-	-	-	1	20	2.3	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	1	7*	0.8	-	-	-
Blakeslea/Choanephora	-	-	-	-	-	-	-	-	-
Cercospora++	-	-	-	-	-	-	-	-	-
Helicoma	-	-	-	-	-	-	-	-	-
Nigrospora	-	-	-	2	10*	1.1	-	-	-
Pyricularia	-	-	-	-	-	-	-	-	-
Spegazzinia	-	-	-	-	-	-	-	-	-
Tetraploa	-	-	-	-	-	-	-	-	-
Zygophiala/Schizothyrium	-	-	-	-	-	-	-	-	-
Total Fungi	**109**	**2380**	**100**	**43**	**877**	**100**	**80**	**1747**	**100**
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	22	-	-	22	-	-	22	-
Analyt. Sensitivity 300x	-	7*	-	-	7*	-	-	7*	-
Skin Fragments (1-4)	-	2	-	-	2	-	-	2	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	2	-	-	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.

Gerald Iannuzzi, Laboratory Manager
or other Approved Signatory

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Collected Date: 10/01/2024
Received Date: 10/01/2024 01:27 PM
Analyzed Date: 10/03/2024

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

Lab Sample Number:	932406756-0007			932406756-0008			932406756-0009		
Client Sample ID:	ST-7			ST-8			ST-9		
Volume (L):	150			150			150		
Sample Location:	Rm 2285			Rm 2283			Ext. Parking Lot #4		
Spore Types	**Raw Count†**	**Count/m³**	**% of Total**	**Raw Count†**	**Count/m³**	**% of Total**	**Raw Count†**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	2	40	0.2
Ascospores	3	70	2.2	1	20	1.3	33	730	4.4
Aspergillus/Penicillium++	116	2560	79.3	56	1200	76.4	19	420	2.5
Basidiospores	22	490	15.2	8	200	12.7	120(660)	14600	87.9
Bipolaris++	-	-	-	-	-	-	1	20	0.1
Chaetomium++	-	-	-	-	-	-	-	-	-
Cladosporium	2	40	1.2	2	40	2.5	22	490	3
Curvularia	2	40	1.2	3	70	4.5	4	90	0.5
Fusarium++	-	-	-	-	-	-	1	20	0.1
Ganoderma	-	-	-	-	-	-	6	100	0.6
Myxomycetes++	1	20	0.6	1	20	1.3	2	10*	0.1
Pithomyces++	-	-	-	1	20	1.3	-	-	-
Stachybotrys/Memnoniella	1	7*	0.2	-	-	-	-	-	-
Blakeslea/Choanephora	-	-	-	-	-	-	-	-	-
Cercospora++	-	-	-	-	-	-	3	20*	0.1
Helicoma	-	-	-	-	-	-	-	-	-
Nigrospora	-	-	-	-	-	-	1	20	0.1
Pyricularia	-	-	-	-	-	-	1	7*	0
Spegazzinia	-	-	-	-	-	-	1	20	0.1
Tetraploa	-	-	-	-	-	-	1	20	0.1
Zygophiala/Schizothyrium	-	-	-	-	-	-	-	-	-
Total Fungi	**147**	**3227**	**100**	**72**	**1570**	**100**	**757**	**16607**	**100**
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	1	7*	-
Analyt. Sensitivity 600x	-	22	-	-	22	-	-	22	-
Analyt. Sensitivity 300x	-	7*	-	-	7*	-	-	7*	-
Skin Fragments (1-4)	-	2	-	-	2	-	-	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.

Gerald Iannuzzi, Laboratory Manager
or other Approved Signatory

Initial report from: 10/03/2024 05:21 PM

For information on the fungi listed in this report, please visit the Resources section at www.emsl.com

EMSL Analytical, Inc.
5406 Hoover Blvd, Suite 21 Tampa, FL 33634
Tel/Fax: (813) 280-8752 / (813) 280-8753
http://www.EMSL.com / tampalab@emsl.com

EMSL Order: 932406756
Customer ID: NOVA34
Customer PO:
Project ID:

Attention: Larry Schmaltz
Nova Engineering & Environmental
4524 Oak Fair Blvd.
Suite 200
Tampa, FL 33610
Project: 10106-3024310

Phone: (813) 623-3100
Fax:
Collected Date: 10/01/2024
Received Date: 10/01/2024 01:27 PM
Analyzed Date: 10/03/2024

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

Lab Sample Number:	932406756-0011				
Client Sample ID:	ST-10				
Volume (L):					
Sample Location:	QC Blank				
Spore Types	**Raw Count†**	**Count/m³**	**% of Total**		
Alternaria (Ulocladium)	-	-	-		
Ascospores	-	-	-		
Aspergillus/Penicillium++	-	-	-		
Basidiospores	-	-	-		
Bipolaris++	-	-	-		
Chaetomium++	-	-	-		
Cladosporium	-	-	-		
Curvularia	-	-	-		
Fusarium++	-	-	-		
Ganoderma	-	-	-		
Myxomycetes++	-	-	-		
Pithomyces++	-	-	-		
Stachybotrys/Memnoniella	-	-	-		
Blakeslea/Choanephora	-	-	-		
Cercospora++	-	-	-		
Helicoma	-	-	-		
Nigrospora	-	-	-		
Pyricularia	-	-	-		
Spegazzinia	-	-	-		
Tetraploa	-	-	-		
Zygophiala/Schizothyrium	-	-	-		
Total Fungi	-	**No Trace**	-		
Hyphal Fragment	-	-	-		
Insect Fragment	-	-	-		
Pollen	-	-	-		
Analyt. Sensitivity 600x	-	0	-		
Analyt. Sensitivity 300x	-	0^	-		
Skin Fragments (1-4)	-	-	-		
Fibrous Particulate (1-4)	-	-	-		
Background (1-5)	-	-	-		

† 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.

Gerald Iannuzzi, Laboratory Manager
or other Approved Signatory

Initial report from: 10/03/2024 05:21 PM

For information on the fungi listed in this report, please visit the Resources section at www.emsl.com

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EMSL Order: 932406756
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Attention: Larry Schmaltz
Nova Engineering & Environmental
4524 Oak Fair Blvd.
Suite 200
Tampa, FL 33610
Project: 10106-3024310

Phone: (813) 623-3100
Fax:
Collected Date: 10/01/2024
Received Date: 10/01/2024
Analyzed Date: 10/03/2024

Test Report: Microscopic Examination of Fungal Spores, Fungal Structures, Hyphae, and Other Particulates from Tape Samples (EMSL Method MICRO-SOP-200)

Lab Sample Number:	**932406756-0010**				
Client Sample ID:	**SL-1**				
Sample Location:	**Auditorium Ceiling Tile**				
Spore Types	Category				
Alternaria (Ulocladium)	-				
Ascospores	-				
Aspergillus/Penicillium++	-				
Basidiospores	-				
Bipolaris++	-				
Chaetomium++	-				
Cladosporium	*High*				
Curvularia	-				
Epicoccum	-				
Fusarium++	-				
Ganoderma	-				
Myxomycetes++	-				
Pithomyces++	-				
Rust	-				
Scopulariopsis/Microascus	-				
Stachybotrys/Memnoniella	-				
Unidentifiable Spores	-				
Zygomycetes	-				
Hyphal Fragment	-				
Insect Fragment	-				
Pollen	-				
Fibrous Particulate	-				

Category: Count/per area analyzed - Rare: 1 to 10 Low: 11 to 100 Medium: 101 to 1000 High: >1000

- Denotes Not Detected.
++ Includes other spores with similar morphology; see EMSL's fungal glossary for each specific category.
* = Sample contains fruiting structures and/or hyphae associated with the spores.

Gerald Iannuzzi, Laboratory Manager
or other Approved Signatory

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

Initial report from: 10/03/2024 05:21 PM

For information on the fungi listed in this report, please visit the Resources section at www.emsl.com

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200 Route 130 North
Cinnaminson, NJ 08077

PHONE: (800) 220-3675
EMAIL: CinnMicroLab@emsl.com

If Bill-To is the same as Report-To leave this section blank. Third-party billing requires written authorization.

Customer Information

Customer ID:	NOVA34
Company Name:	NOVA Engineering & Environmental, LLC
Contact Name:	Larry Schmaltz
Street Address:	4524 Oak Fair Boulevard; Suite 200
City, State, Zip:	Tampa, FL, 33610
Country:	USA
Phone:	813-623-3100
Email(s) for Report:	LABREPORTSENV@USANOVA.COM

Billing Information

Billing ID:	
Company Name:	
Billing Contact:	Timothy Foster
Street Address:	
City, State, Zip:	
Country:	
Phone:	
Email(s) for Invoice:	Invoicestpa@usanova.com

Project Information

Project Name/No:	10106-3024310
Purchase Order:	
EMSL LIMS Project ID: (if applicable, EMSL will provide)	
State Samples Collected:	FL
Zip Code Samples Collected:	33803

State of Connecticut (CT) must select project location: ☐ Commercial (Taxable) ☐ Residential (Non-taxable)

Sampled By Name: Mark Bottorff

Sampled By Signature: Mark Bottorff

No. of Samples in Shipment: 11

Sterile, Sodium Thiosulfate Preserved Bottle Used: ☐ Biocide Used in Source (specify)

Public Water Supply Samples: ☐ Note: All results may automatically be reported to DOH if required by State.

Turn-Around-Time (TAT) Please call ahead for large projects and/or turnaround times 6 Hours or Less. *32 Hour TAT available for select tests only; samples must be submitted by 11:30am.

☐ 3 Hour ☐ 6 Hour ☐ 24 Hour ☐ 32* Hour ☐ 48 Hour ☒ 72 Hour ☐ 96 Hour ☐ 1 Week ☐ 2 Week

MICROBIOLOGY TEST CODES

M001 Air-O-Cell	M174 MoldSnap	M012 *Pseudomonas aeruginosa* (P/A***)	M115 Sewage Screen - Water (P/A***)
M030 Micro 5	M032 Allergenco-D	M024 *Pseudomonas aeruginosa* (MFT*)	M116 Sewage Screen - Water (MPN**)
M041 Fungal Direct Examination		M015 Heterotrophic Plate Count	M117 Sewage Screen - Swab (P/A***)
M169 Pollen ID & Enumeration		M017 Total Coliform & *E. Coli* (Colilert P/A***)	M013 Sewage Screen - Swab (MFT*)
M280 Dust Characterization Level-1		M018 Total Coliform & *E. Coli* (MFT*)	M730 *Methicillin-resistant Staph. aureus* (MRSA)
M281 Dust Characterization Level-2		M114 Total Coliform & *E. Coli* Enumeration (Colilert MPN**)	M031 Rapid-growing non-TB *Mycobacteria* Detection & Enumeration
M005 Viable Fungi-Air Samples (Genus ID & Count)		M019 Fecal Coliform (MFT*)	
M006 Viable Fungi-Air Samples (Includes *Penicillium, Aspergillus, Cladosporium, Stachybotrys* Species ID & Count)		M020 Fecal *Streptococcus* (MFT*)	M014 Endotoxin Analysis
M007 Culturable Fungi-Surface Samples (Genus ID & Count)		M029 *Enterococci* (MFT*)	M044 Group Allergen (Cat, Dog, Cockroach, Dust Mite)
M008 Culturable Fungi-Surface Samples (Includes *Penicillium, Aspergillus, Cladosporium, Stachybotrys* Species ID & Count)		M129 *Enterococci* (Enterolert P/A***)	M095 Bacteroides
M009 Bacteria Culture Gram Stain & Count		M180 Real Time qPCR-ERMI 36 Panel	Other - See Analytical Price Guide for Test Code
M010 Bacteria Count & ID - 3 Most Prominent		M025 Sewage Screen - Water (MFT*)	*Legionella Analysis* Please use EMSL Legionella COC
M011 Bacteria Count & ID - 5 Most Prominent			

*MFT= Membrane Filtration Technique
**MPN = Most Probable Number
***P/A = Presence/Absence

Sample #	Sample Location/Description	Sample Type (Matrix)	Potable / Non-Potable (Only for Water)	Test Code	Volume/Area (L/24hr)	Date / Time Collected	Temperature (Lab Use Only)
Example: Sample 1	Kitchen	Water	Potable	M017	1,000 ml	1/1/2021 3:30pm	
ST-1	Parking lot - N of Bldg	Air		M001	150L	10/4/24 1047	
ST-2	Auditorium 1			M001	150L	1102	
ST-3	Rm 2287			M001	150L	1118	
ST-4	Rm 2286			M001	150L	1120	
ST-5	Rm 2274			M001	150L	1137	
ST-6	Rm 2284			M001	150L	1140	

Special Instructions and/or Regulatory Requirements (Sample Specifications, Processing Methods, Limits of Detection, etc.)

Method of Shipment:	Drop-off	Sample Condition Upon Receipt	
Relinquished by:	Mark Bottorff	Date/Time: 10/4/24 1330	Received by: Desia	Date/Time: 10/4/24 1:27p
Relinquished by:		Date/Time:	Received by:	Date/Time

Controlled Document - COC-34 Micro R13 03/02/2021

☒ AGREE TO ELECTRONIC SIGNATURE (By checking, I consent to signing this Chain of Custody document by electronic signature.)

EMSL Analytical, Inc.'s Laboratory Terms and Conditions are incorporated into this Chain of Custody by reference in their entirety. Submission of samples to EMSL Analytical, Inc. constitutes acceptance and acknowledgment of all terms and conditions by Customer.

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PHONE: (800) 220-3675
EMAIL: CinnMicroLab@emsl.com

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Special Instructions and/or Regulatory Requirements (Sample Specifications, Processing Methods, Limits of Detection, etc.)

Sample #	Sample Location/Description	Sample Type (Matrix)	Potable / Non-Potable (Only for Water)	Test Code	Volume/Area	Date / Time Collected	Temperature (Lab Use Only)
ST-7	Rm 2285	Air	—	M001	150 L	10/1/24 1151	
ST-8	Rm 2283	Air	—	M001	150 L	10/1/24 1149	
ST-9	Ext. Parking Lot #4	Air	—	M001	150 L	10/1/24 1210	
SL-1	Auditorium Ceiling Tile	SL	—	M041	X	10/1/24 1206	
ST-10	QC Blank	Air	—	M001	⊖	10/1/24 1207	

Method of Shipment: Drop-off

Water

Sample Condition Upon Receipt:

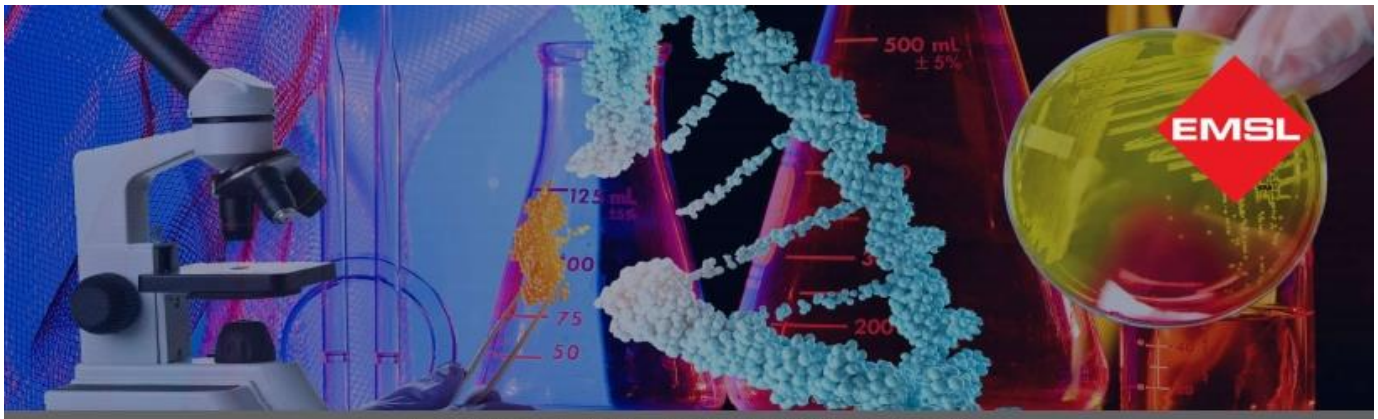
Relinquished by:	Date/Time:	Received by:	Date/Time
[signature]	10/1/24 1330	Sam Desiers	10/1/24 1:27
Relinquished by:	Date/Time:	Received by:	Date/Time

Controlled Document - COC-34 Micro R13 3/02/2021

☒ AGREE TO ELECTRONIC SIGNATURE (By checking, I consent to signing this Chain of Custody document by electronic signature.)

ATTACHMENT D

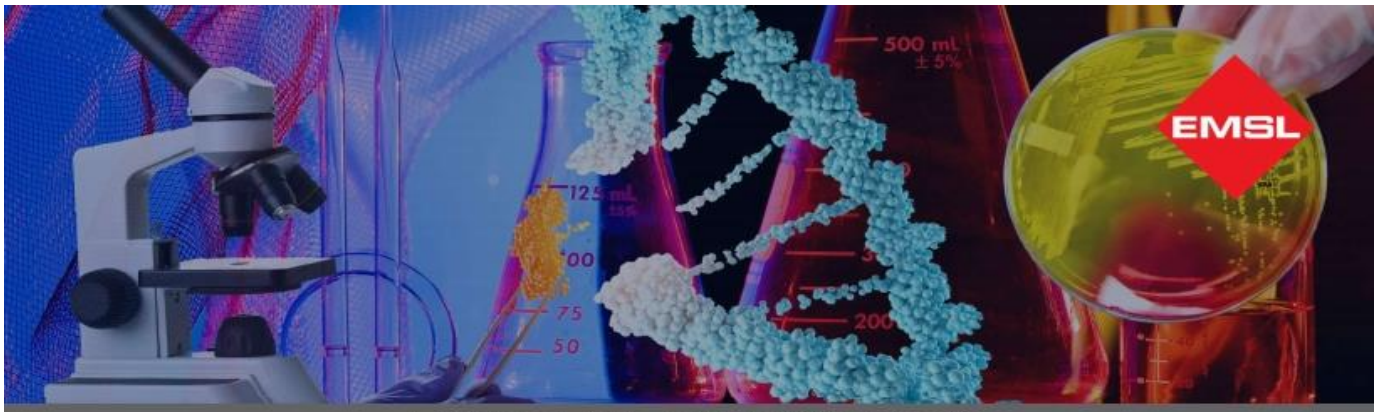
Fungal Glossary of Identified Species



FUNGAL GLOSSARY

Aspergillus

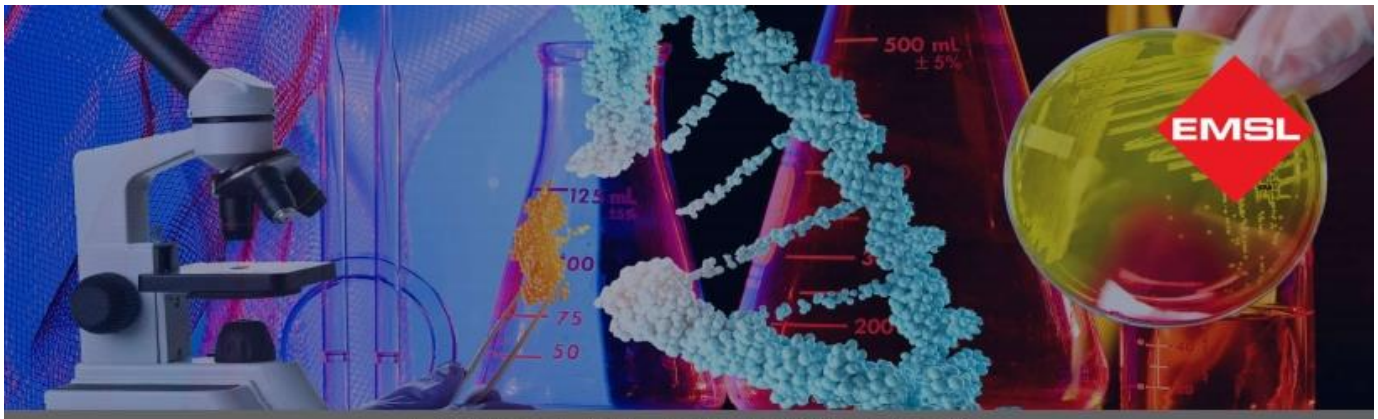
Natural Habitat	◆ Soil ◆ Plant debris
Suitable Substrates in the Indoor Environment	◆ Grows on a wide range of substrates indoors ◆ Prevalent in water damaged buildings
Water Activity	◆ Aw=0.75-0.94
Mode of Dissemination	◆ Wind
Allergenic Potential	◆ Allergic bronchopulmonary aspergillosis (ABPA) which is common in asthmatic and cystic fibrosis patients ◆ Aspergillus sinusitis Invasive aspergillosis in immunocompromised patients
Potential Opportunist or Pathogen	◆ Aspergilloma and chronic pulmonary aspergillosis in people with lung disease
Industrial Uses	◆ *A. sojae* is used for fermented food and beverages in Asia ◆ *A. oryzae* is used in soy sauce production ◆ *A. terreus* produces mevinolin which is able reduce blood cholesterol ◆ *A. niger* produces enzymes used to make some breads and beers and is also used in plastic decomposition ◆ *A. niger* and *A. ochraceus* are used in cortisone production
Potential Toxins Produced	◆ 3-Nitropropionic acid, 5-*metoxysterrmatocystin*, Aflatoxin B1, B2, Aflatoxin G1, G2, Aflatoxin M1, M2, Aflatoxin P1, Aflatoxin Q1, *Aflatoxins*, Aflatrem (alkaloid), Aflatrem (indole alkaloid), *Aflavinin*, Ascalidol, Aspergillic acid, Aspergillomarasmin, Aspertoxin, Asteltoxin, Austamid, Austdiol, Austins, Austocystins, Avenaciolide, Brevianamide A, Candidulin, Citreoviridin,, Citrinin, Clavatol, Cyclopiazonic acid, Cyclopiazonic acid, Cytochalasin E, Emodin, Fumagillin, Fumigaclavine A, Fumigatin, Fumitremorgens, Fumitremorgin A, Gliotoxin, Griseofulvin, Helvolic acid, Kojic acid, Kotanin, Malformins, Naphtopyrones, Neoaspergillic acid, Nidulin, Nidulotoxin, Nigragillin, Ochratoxin A, Ochratoxin B, Ochratoxin C, Ochratoxins ß, Ochratoxins a, Ochratoxins (A,B,C.a, ß.), Orlandin, Oryzacidin, Paspaline, Patulin, Penicillic acid, Phthioic acid, Secalonic acid A, B, D and F, Sphingofungins, Spinulosin, Sterigmatocystin, Terphenyllin, Terredional, Terreic acid, Terrein, Terretonin, Terretonin, Territrem A, Tryptoquivalines, Verruculogen, Versicolorin A, Viomellein, Viriditoxin, Xanthocillin, Xanthomegnin, ß-nitropropionic acid
Other Comments	◆ It is the second most common opportunistic pathogen following *Candida*



FUNGAL GLOSSARY

Basidiospore

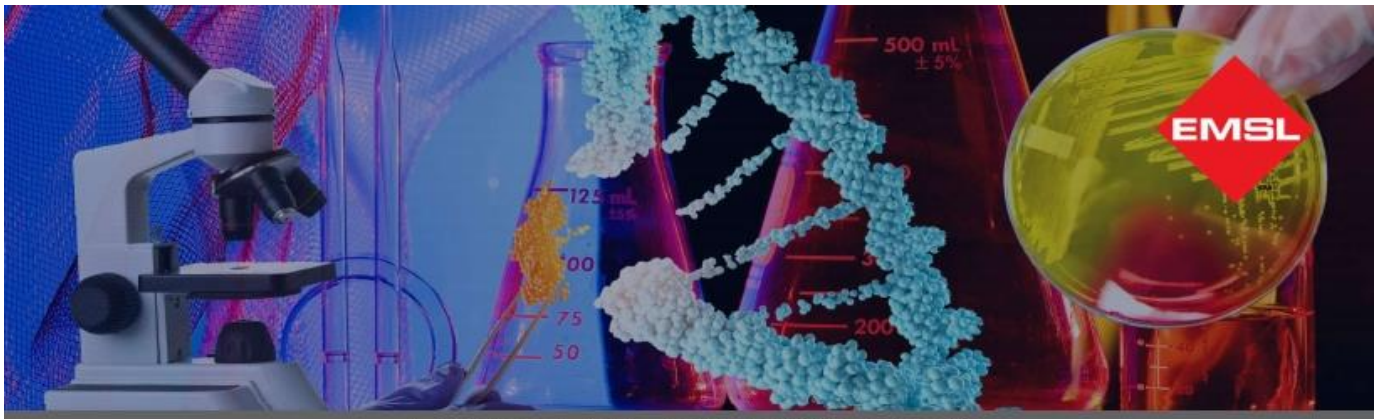
Natural Habitat	◆ Forest floors ◆ Lawns ◆ Plants (saprobes or pathogens depending on genus)
Suitable Substrates in the Indoor Environment	◆ Depends on genus ◆ Wood products
Water Activity	◆ Unknown
Mode of Dissemination	◆ Forcible ejection ◆ Wind currents
Allergenic Potential	◆ Type I allergies (hay fever, asthma) ◆ Type III (hypersensitivity pneumonitis)
Potential Opportunist or Pathogen	◆ Depends on genus
Industrial Uses	◆ Edible mushrooms are used in the food industry
Potential Toxins Produced	◆ Amanitins ◆ monomethyl-hydrazine ◆ muscarine ◆ ibotenic acid ◆ psilocybin
Other Comments	◆ Basidiospores are the result of sexual reproduction and formed on a structure called the basidium. Basidiospores belong to the members of the Phylum Basidiomycota, which includes mushrooms, shelf fungi, rusts, and smuts



FUNGAL GLOSSARY

Cladosporium

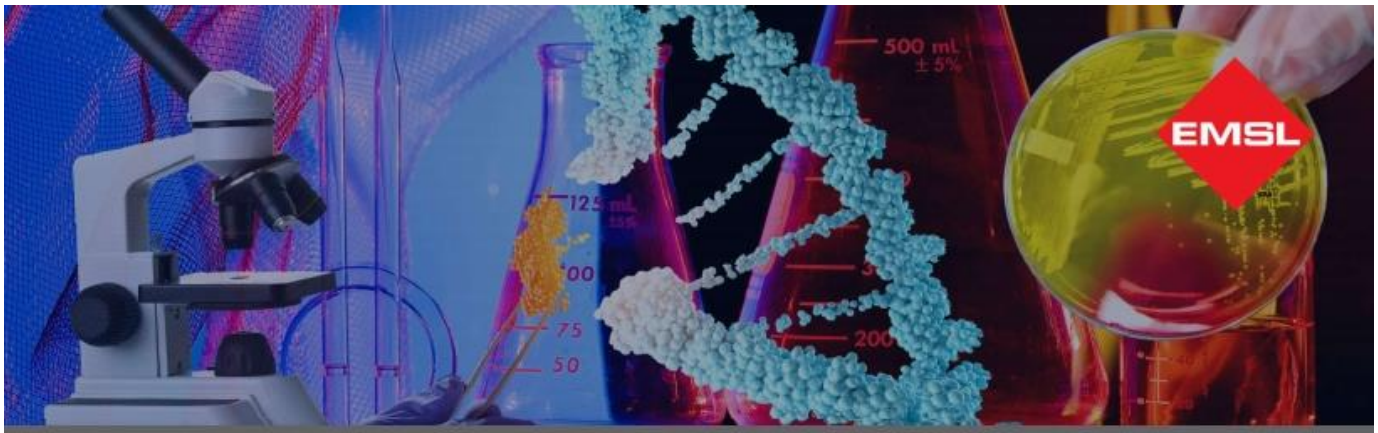
Natural Habitat	◆ Dead plant matter ◆ Straw ◆ Soil ◆ Woody Plants
Suitable Substrates in the Indoor Environment	◆ Fiberglass duct liner ◆ Paint ◆ Textiles ◆ Found in high concentration in water-damaged building materials
Water Activity	◆ Aw 0.84-0.88
Mode of Dissemination	◆ Air
Allergenic Potential	◆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



FUNGAL GLOSSARY

Penicillium

Natural Habitat	◆ Soil ◆ Seed ◆ Cereal crops
Suitable Substrates in the Indoor Environment	◆ Foods (blue mold on cereals, fruits, vegetables, dried foods) ◆ House dust ◆ Fabrics ◆ Leather ◆ Wallpaper ◆ Wallpaper glue
Water Activity	◆ Aw=0.78-0.86
Mode of Dissemination	◆ Wind ◆ Insects
Allergenic Potential	◆ Type I (hay fever, asthma) ◆ Type III (hypersensitivity)
Potential Opportunist or Pathogen	◆ Penicilliosis
Industrial Uses	◆ *P. chrysogenum* for the antibiotic penicillin ◆ *P. griseofulvum* for the antibiotic griseofulvin a ◆ *P. roqueforti* for Roquefort cheese ◆ *P. camemberti* for Camembert cheese ◆ Brie, Gorgonzola, and Danish Blue cheese are also the products of *Penicillium* ◆ Used to cure ham and salami ◆ Production of organic acids such as fumaric, oxalic, gluconic, and gallic
Potential Toxins Produced	◆ Citrinin ◆ Citreoviridin ◆ Cyclopiazonic acid ◆ Fumitremorgen B ◆ Grisiofulvin ◆ Janthitrems ◆ Mycophenolic acid ◆ Paxilline ◆ Penitrem A ◆ Penicillic acid ◆ Ochratoxins ◆ Roquefortine C ◆ Secalonic acid D ◆ Verruculogen ◆ Verrucosidin ◆ Viomellein ◆ Viridicatumtoxin ◆ Xanthomegnin
Other Comments	◆ *Penicillium* is one of the most common genera of fungi
References	◆ Alexopoulos, C.J., Mims, C.W., Blackwell, M. 1996. John Wiley and Sons



FUNGAL GLOSSARY

Stachybotrys

Natural Habitat	◆ Decaying plant materials ◆ Soil
Suitable Substrates in the Indoor Environment	◆ Water damaged building materials such as: ceiling tiles, gypsum board, insulation backing, sheet rock, and wall paper ◆ Paper ◆ Textiles
Water Activity	◆ Aw=0.94
Mode of Dissemination	◆ Insects ◆ Water ◆ Wind
Allergenic Potential	◆ Type I (hay fever, asthma)
Potential Opportunist or Pathogen	◆ Unknown
Industrial Uses	◆ Unknown
Potential Toxins Produced	◆ Cyclosporins ◆ Macrocyclic trichothecenes: roridin E, satratoxin F, G & H, sporidesmin G, trichoverrol, verrucarin J ◆ Stachybotryolactone
Other Comments	◆ *Stachybotrys* may play a role in the development of sick building syndrome. The presence of this fungus can be significant due to its ability to produce mycotoxins. Exposure to the toxins can occur through inhalation, ingestion, or skin exposure