WATER/MOLD DAMAGE INSPECTION AND AIR TESTING REPORT

Prepared For (Client/Site):	Mitchell Gayer NJIT 333 Martin Luther King Blvd. Newark, NJ 07102
Building Type:	College Dormitory
Rooms/Areas Investigated:	Laurel Residence Hall Redwood Residence Hall York Hall
Mold Inspection Date(s):	September 23rd, 2021
Report Date:	October 1st, 2021
Omega Job Number:	21-1247
Report Written By:	Kadeem Hill, CIH
Report Reviewed By:	Veronica Kero, CIH, P.E.

Ω Omega Environmental Services, Inc. 280 Huyler Street • South Hackensack, NJ 07606 • Tel: (201) 489-8700 • Fax: (201) 342-5412

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1.0 MOLD INSPECTION & TESTING OVERVIEW

Subsequent to Hurricane Ida remnant flood events in early September 2021 on campus, water/mold tracking was requested to verify whether additional flood damage corrective action(s) required.

1.1 Why Does Mold Grow Inside a Building or a Home?

In an indoor environment, molds are able to grow wherever there is moisture combined with an organic substrate (food source), under correct temperature conditions. Common mold-sensitive materials include: drywall, ceiling tiles, wood products, furnishings, clothes and paper/books.

Indoor mold growth can be prevented or minimized by actively maintaining and correcting moisture problems in a building.

1.2 Can Mold Cause Health Problems?

According to published studies:

Molds have the potential to cause health problems. Molds produce allergens (substances that can cause allergic reactions), irritants, and in some cases, potentially toxic substances (mycotoxins). Inhaling or touching mold or mold spores may cause allergic reactions in sensitive individuals. Allergic responses include hay fever-type symptoms, such as sneezing, runny nose, red eyes, and skin rash (dermatitis).

Allergic reactions to mold are common. Molds can also cause asthma attacks in people with asthma who are allergic to mold. Mold exposure can also irritate eyes, skin, nose, throat, and lungs of both mold-allergic and non-allergic people. Research on mold and health effects is ongoing.

1.3 Purpose of a Mold Inspection

The purpose of a mold inspection is to identify if mold grow-out issues above outdoor background are present in the indoor environment, to what extent, and what, if any, corrective actions are necessary to address the mold and water/moisture issues.

1.4 Purpose of Mold Remediation

The purpose of mold remediation is to return a space back to normal background fungal ecology. In most cases, it is not possible or necessary to eliminate the presence of all indoor fungal spores and fragments; however, mold growth indoors can and should be prevented and moved if present.

2.0 REPRESENTATIVE MOLD AIR SAMPLING & ANALYSIS

Microbiological sampling is a qualitative and quantitative means of evaluating the presence or absence of fungi and bacteria in the air, on a surface, or in a bulk substrate. Fungal spores tend to cause asthma, rhinitis and other allergic reactions in human beings. Many of the opportunistic pathogens attack immuno-compromised individuals or those under other stress. The samples were submitted to an independent microbiological testing laboratory for mold/fungi analysis.

2.1 Mold Sampling Methodology

All samples were submitted to an AIHA certified independent microbiological testing laboratory for mold/fungi analysis. Omega utilized the following mold sample methods for this inspection:

- *Mold Spore Trap Air Sampling*

Representative mold air samples are collected using *AllergencoD* media. The cassettes collect airborne particles, including mold spores, onto a slide treated with an adhesive, which are screened under an optical compound microscope for mold spores (non-viable method). The detected spores are presumptively identified and the results also do not indicate viability of the fungi and their spores. Spores identified as *Aspergillus/Penicillium* are not distinguishable in spore trap mold air samples.

2.2 Laboratory Analysis of Mold Samples

Mold samples are submitted to an independent microbiological laboratory accredited by the American Industrial Hygiene Association (AIHA) for analysis.

2.3 Mold Sampling Criteria

The following criteria is/are used to assess suitability of a space for general occupancy by normal healthy individuals. Lower criteria apply to health care, school, and other settings where sensitive individuals may be present.

Air Sampling
[Spore Trap]

While there are no promulgated quantities standards for air mold, a spore trap count above 1,000-10,000 structures/m^3 is considered elevated based upon comparison to published research averages. Since microbiological growth is naturally present in the ambient environment, the outside air concentration levels of various species must be subtracted (i.e. outside and/or inside control sample) as a background level. In addition, individual species such as Aspergillus (pathogenic) and Penicillium (may be allergenic) must be considered on a qualitative basis.

Mold Count	Assessed Risk
0-1,000 fungal structures/m^3 above background*	No-low mold amplification
1,000-10,000 fungal structures/m^3 above background*	Moderate amplification
>10,000 fungal structures/m^3 above background*	Potential high amplification
**high degree of regional and seasonal variability is associated with spore trap method*	

2.4 Summary of Mold Sampling & Analysis Results *(9/23/21)*:

SUMMARY OF MOLD AIR DATA					
Sample ID	**Sampling Location**	**Sample Type**	**Mold/Fungi**		
			Total Conc. (structures/m³ or CFU/m³)	**Predominant Species**	**Mold Conc. (Indoor-Outdoor)**
1	Redwood Residence Hall Room 501	Spore Trap	420	Ascospores	-1,680
2	Redwood Residence Hall Room 502	Spore Trap	630	Ascospores	-1,470
3	Redwood Residence Hall Room 514	Spore Trap	160	Ascospores	-1,940
4	Redwood Residence Hall Room 521	Spore Trap	420	Ascospores	-1,680
5	Redwood Residence Hall Room 523	Spore Trap	160	Ascospores	-1,940
6	Redwood Residence Hall Room 323	Spore Trap	52	Ascospores	-2,048
7	Redwood Residence Hall Room 221	Spore Trap	1,700	Ascospores	-400
8	Redwood Residence Hall TV Lounge Room 110	Spore Trap	730	Ascospores	-1,370
9	Redwood Residence Hall Meeting Room 120	Spore Trap	730	Ascospores	-1,370
10	Redwood Residence Hall Meeting Room 130	Spore Trap	3,200	Ascospores	+1,100
11	Laurel Residence Hall Room 309B	Spore Trap	260	Ascospores	-1,840
12	York Hall Room 320	Spore Trap	160	Ascospores	-1,940
13	Outside Control	Spore Trap	2,100	Ascospores	N/A

2.5 Field Notes

- No elevated moisture readings were recorded in/on building materials.
- No mold-like staining noted in the locations inspected.
- Large amounts of clothing on the floor were noted in Room 221 of Redwood Hall.

- Sections of the drywall were removed in Room 120 on the day of the inspection.
- In Redwood Hall Room 130, an NJIT staff member utilized a vacuum while the sample was being collected.

2.6 Mold Data Interpretation

Low-moderate indoor air mold counts were reported throughout except for two (2) testing locations with suspect testing interference:

- (Redwood Room 221) – Elevated mold count reported below seasonally elevated outdoor air control sample, dust interference from contents accumulation likely.
- (Redwood Meeting Room 130) – Elevated mold count above seasonally elevated outdoor air control sample, dust interference from vacuum use likely increased mold count.

2.7 Recommendations

NJIT should consider performing additional cleaning in Redwood Hall Room 221 to ensure the housekeeping issues do not adversely impact the indoor air quality moving forward.

Appendix A:

Laboratory Results

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Analytical Test Report

Client: Omega Environmental Services, 280 Huyler St, South Hackensack, NJ 07606
Client Project/Name: 21-1247
Sample date: 9-23-2021
Submittal date: 9-27-2021
Samples submitted by: Kadeem Hill
Date analysis completed: September 30, 2021
Prestige Report number: 210928-01

Microscopic Method (P001): Analysis of Allergenco Samples for Total Fungal Structures by Optical Microscopy

Prestige # Client sample ID Location	Air vol. (m^3)	% read	Presumptive fungal ID	Counts of fungal structures	Fungal structures/m^3	Percentage	Background rating
210928-01-001 01 501 Redwood	0.075	25.5	basidiospores *Cercospora* *Cladosporium* Pen/Asp-like *Pithomyces* rusts	3 1 1 1 1 1	160 52 52 52 52 52 Total 420	38% 13% 13% 13% 13% 13%	2
210928-01-002 02 502 Redwood	0.075	25.5	ascospores basidiospores *Cladosporium* hyphal fragments *Pithomyces* rusts	1 7 1 1 1 1	52 370 52 52 52 52 Total 630	8% 58% 8% 8% 8% 8%	1
210928-01-003 03 514 Redwood	0.075	25.5	basidiospores *Cladosporium* Pen/Asp-like	1 1 1	52 52 52 Total 160	33% 33% 33%	3
210928-01-004 04 521 Redwood	0.075	25.5	*Alternaria* basidiospores *Cladosporium* Pen/Asp-like	1 1 3 3	52 52 160 160 Total 420	13% 13% 38% 38%	2
210928-01-005 05 523 Redwood	0.075	25.5	ascospores myxomycetes *Pithomyces*	1 1 1	52 52 52 Total 160	33% 33% 33%	2
210928-01-006 06 323 Redwood	0.075	25.5	basidiospores	1	52 Total 52	100%	2
210928-01-007 07 221 Redwood	0.075	25.5	Pen/Asp-like	33	1,700 Total 1,700	100%	3

210928-01-008 08 TV Lounge Rm 110	0.075	25.5	basidiospores Pen/Asp-like *Pithomyces*	3 10 1	160 520 52 Total 730	21% 71% 7%	2
210928-01-009 09 Meeting Room 120	0.075	25.5	basidiospores *Cladosporium* Pen/Asp-like rusts	1 5 7 1	52 260 370 52 Total 730	7% 36% 50% 7%	1
210928-01-010 10 Meeting Room 130	0.075	25.5	*Cladosporium* *Curvularia* Pen/Asp-like	12 1 48	630 52 2,500 Total 3,200	20% 2% 79%	2
210928-01-011 11 309B Laural	0.075	25.5	ascospores basidiospores *Cladosporium* Pen/Asp-like rusts	1 1 1 1 1	52 52 52 52 52 Total 260	20% 20% 20% 20% 20%	4
210928-01-012 12 York 320	0.075	25.5	ascospores *Cladosporium* *Periconia*	1 1 1	52 52 52 Total 160	33% 33% 33%	2
210928-01-013 13 Outside Control	0.075	25.5	ascospores basidiospores *Cladosporium* *Curvularia* *Fusarium* hyphal fragments Pen/Asp-like *Pithomyces* rusts	16 5 14 1 1 1 1 1 1	840 260 730 52 52 52 52 52 52 Total 2,100	39% 12% 34% 2% 2% 2% 2% 2% 2%	2

Report approved: Theresa Lehman

Theresa Lehman, MPH, Lab Director

Technical Manager: _____

Chin S Yang, Ph.D.Analyst: Theresa Lehman

1. The samples in this report were received in good, acceptable conditions. Prestige EnviroMicrobiology has not performed sample collection for the sample items listed in this report. Results relate only to the items tested.
2. Spore trap samples are first scanned at 200x and then analyzed at 600x magnification.
3. Concentrations and percentages are rounded. Total percentage may not add up to 100% due to rounding. Percentage is for each group in total population.
4. Background rating 1-5 (1 being the lowest and 5 the highest) indicates density of sample deposit. The higher the sample deposit is, the more likely some fungal structures are obscured. A "0" background indicates no trace was observed.
5. The detection limit of this analysis is one fungal colony, one bacterial colony or one fungal structure. The analytical sensitivities vary from analysis to analysis or by air volume. For calculation of your analytical sensitivities, please visit our webpage http://prestige-em.com/index-tech.htm or contact us by calling 856-767-8300 or by email info@Prestige-em.com.
6. For technical information on result interpretation, please visit www.Prestige-EM.com.

Appendix B:

Laboratory Results

Glossary Terms: Common Mold Genus & Species

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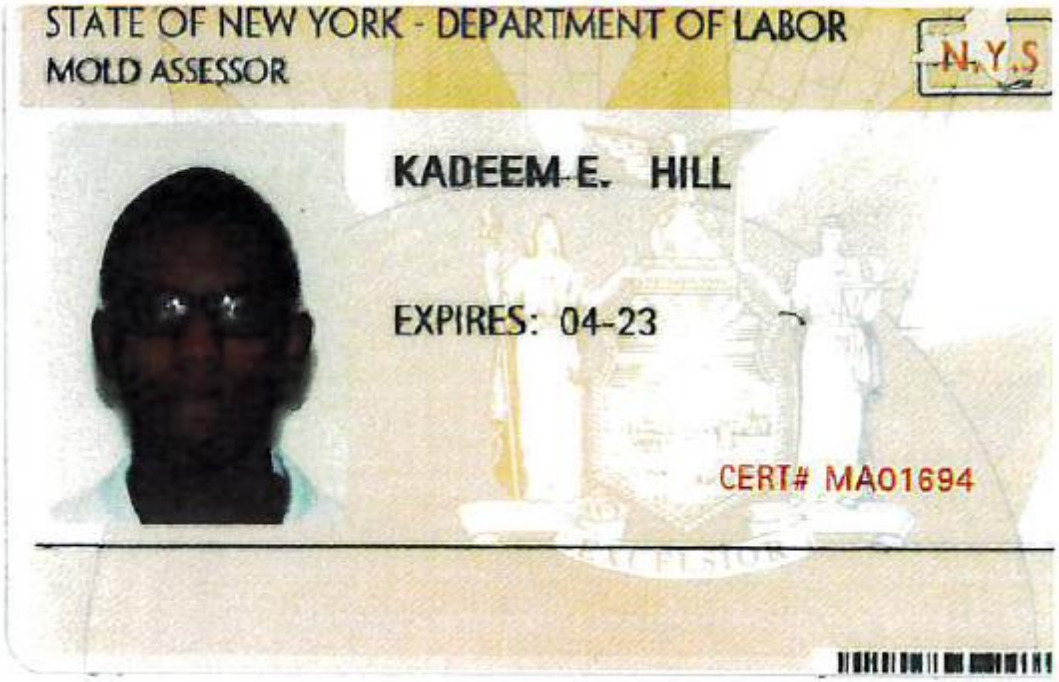
Acremonium spp.	Many species of this genus are opportunistic human pathogens, particularly in 11emedi-compromised patients such as bone marrow transplant recipients.
Alternaria alternata	Common outdoor mold that can cause upper respiratory tract infections and asthma in people with sensitivity.
Ascospores	Ubiquitous with more than 3000 genera. Saprophytes and plant pathogens. Found everywhere in nature. Spores are predominantly forcibly discharged during periods of high humidity or rain. The vast majority do not cause disease.
Aspergillus fumigatus	Species is one of the most common *Aspergillus* species to cause disease in individuals with an immunodeficiency disease.
Aspergillus glaucus	Mycotoxins are also produced and there are occasional reports of hypersensitivity pneumonitis and cutaneous disease.
Aspergillus niger	A black mold (not to be confused with Stachybotrys) often associated with vegetable decay. This species is reportedly less likely to cause human disease than other Aspergillus species.
Aspergillus restrictus	Potential opportunistic pathogenic species. This species is reportedly less likely to cause human disease than other Aspergillus species.
Aspergillus spp.	Common species that is ubiquitously found outdoors; of the 185 documented species, 20 species may cause disease in individuals with immunodeficiency.
Aspergillus ustus	*S*pecies is one of the more rare *Aspergillus* species to cause disease in individuals with an immunodeficiency disease.
Aspergillus versicolor	It is a highly ubiquitous species commonly isolated from soil, plant debris, marine environments, and indoor air environments. Aspergillus versicolor is an opportunistic pathogen and is considered to be an important causative agent of aspergillosis. It produces the mycotoxin sterigmatocystin, which can act as immunosuppressant and may be a carcinogen.
Aureobasidium pullulans	Yeast-like fungus that can be found in different environments (soil, water, air and limestone). Chronic human exposure via humidifiers or air conditioners can lead to hypersensitivity pneumonitis (humidifier lung).
Basidiomycetes (11emediators 11s)	*C*ommon in outdoor molds, often associated with mushrooms. Although the phylum includes common edible mushrooms and tree mushrooms, some species (such as *Cryptococcus neoformans*) may be human pathogens for 11emedi-compromised patients.
Beauveria bassiana	*F*ungus that grows naturally in soils and is presently being used as an insecticide.
Botrytis spp.	*Botrytis spp.* – Common plant molds

Chrysonilia sitophila	*Chrysonilia sitophila* – a genus of fungi commonly associated with rotting food, like bread and coffee grounds, which can cause asthma in humans.
Cladosporium	The most common in indoor and outdoor mold, commonly found on living and dead plant material. Cladosporium species are rarely pathogenic to humans, but have been reported to cause infections. Highly mold sensitive individuals can be negatively impacted by higher indoor spore counts.
Curvularia geniculuata	*Curvularia geniculuata*- is normally found in soil and decaying vegetation.
Curvularia lunata	*Curvularia lunata* – a common outdoor mold species that is the causative agents of phaeohyphomycosis
Epicoccum nigrum	*Epicoccum nigrum* – a common mold found on dead plant materials and soils. It may cause inhalation health risks to persons with weak immune systems.
Gliocladium	*Gliocladium* – a genus of fungi most common in soil and decaying vegetation and has not been reported as a pathogen in humans.
Hyalodendron	*Hyalodendron*- No information is available regarding health effects or toxicity, but morphologically related to *Cladosporium*.
Neosartorya fischeri	Invasive fungal infections are a complication of allogeneic BMT. We report the first case of a Neosartorya fischeri fungal infection in a patient following allogeneic BMT. Neosartorya fischeri is related to Aspergillus fumigatus, but it is a distinct fungal species. Despite granulocytic engraftment and aggressive anti-fungal therapy with amphotericin B, the patient died of overwhelming fungal infection on day 60 post-BMT. Neosartorya fischeri is a pathogen that grows slowly in culture which can delay or confuse identification. This case further supports the need for more effective prophylaxis and treatment of non-Candida fungal infections in the allogeneic BMT population. *–Lonial S, Williams L, Carrum G, Ostrowski M, McCarthy P Jr. 1997. "Neosartorya fischeri: an invasive fungal pathogen in an allogeneic bone marrow transplant patient." Bone Marrow Transplantation . 4/1/97, Vol. 19 Issue 7, p753. 3p. Abstract from "Neosartorya fischeri: an invasive fungal pathogen in an allogeneic bone marrow transplant patient."*
Non-sporulating fungi	*Non-sporulating fungi* – fungi that has not produced spores yet.
Paecilomyces variotii	This fungus species may be considered to be an opportunistic pathogen, particularly in 12emedi-compromised individuals. It may also cause wound infections following tissue transplant.† This species produces the mycotoxin, viriditoxin.†††-Samson, R. A.; J. Houbraken, R. C. Summerbell, B. Flannigan, and J. D. Miller. (2001). "Common and important species of fungi and actinomycetes in indoor environment". Microorganisms in home and indoor work environments: 287–474. ††-Lam, D. S; A. P. Koehler, D. S. Fan, W. Cheuk, A. T. Leung, and J. S. Ng. (1999). "Endogenous fungal endophthalmitis caused by Paecilomyces variotii.". Eye 13: 113–116. Paecilomyces species can cause various infections in humans which are referred to as paecilomycosis. The infection ranges from corneal ulcer to keratitis, and to endophthalmitis which is due to the growth of Paecilomyces following an extended contact lens use or ocular

	surgery. Additionally, Paecilomyces is among the emerging causative agents of opportunistic mycoses in 13emedi-compromised hosts wherein direct cutaneous inoculation may lead to these infections and may involve almost any organ or system of human body. Mold.ph/paecilomyces.htm
Paecilomyces marquandii	*Paecilomyces marquandii*- is emerging as causative agents of mycotic keratitis and of hyalohyphomycosis in the immunocompromised patient.
Penicillium	Common Fungi with 200+ species that is ubiquitously found outdoors, which may be considered an allergenic mold for sensitive individuals. Commonly found in house dust. Grows in water damaged buildings on wallpaper, wallpaper glue, decaying fabrics, moist chipboards, and rotting food.
Phoma	*Phoma* – Common plant mold
Pithomyces chartarum	*Pithomyces chartarum* – Commonly found on litter and soil, this species is often involved with facial eczema of sheep, a pathogen to wheat.
Rhizopus stolonifer	*Rhizopus stolonifer*- black bread mold
Rhodotorula mucilaginosa	*Rhodotorula mucilaginosa* – a pigmented yeast; common environmental inhabitant. Characterized by the salmon-pink to coral-red color of its colonies, Rhodotorula mucilaginosa can disseminate and cause significant disease. Rhodotorula mucilaginosa can be a significant, recalcitrant pathogen in immunocompromised patients
Scedosporium	*Scedosporium* – an opportunistic human pathogenic fungi that may cause various diseases similar to Aspirgillus in 13emedi-compromised people.
Sporothrix	*Sporothrix* – is a species of fungi that is the causative agent of sporotrichosis (aka "Rose Handler's Disease"). Sporotrichosis is a subcutaneous infection with a common chronic and a rare progressive course.
Stachybotrys	*Stachybotrys - Stachybotrys* produces slimy spores. They do not become airborne quite easily. Therefore, its detection in any air sample should be considered significant. Their dissemination may be carried out by water, rodents, insects, or occasionally by air in buildings. *Stachybotrys chartarum* is well known as a mycotoxin producer and has been implicated in many indoor air quality related problems. Clinical syndromes related to exposure to *Stachybotrys chartarum* have been documented. However, health effects of this fungus are not well known to most health care professionals. *Stachybotrys chartarum* sensu lato (in a broader sense) is considered a complex, not a well-defined species. A new species, *S. chlorohalonata*, was recently named. Several other minor species of Stachybotrys have been identified from indoor environments (Li and Yang, 2004 & 2005).
Yeasts	*Yeasts* – species of fungi, which are usually harmless to humans, but a few species are opportunistic pathogens that can cause infection in people with compromised immune systems.
Source: http://www.emlab.com/app/fungi/Fungi.po (except where cited)	



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