March 31, 2025

Mr. James Politano
Director of Facilities
City of Peabody
50 Farm Ave,
Peabody MA 01960

Ref. Moisture and Mold Air Test
Report on Limited Indoor Air Quality
(Mold) Air Assessment
Center School
19 Irving St, Peabody, Massachusetts

Dear Mr. Politano:

Safety Environmental Consultants (SEC) is pleased to present this report summarizing the testing and hazardous materials survey findings at the **above address.**

SEC understands that the **City of Peabody** requested a mold assessment after identifying several stains in **rooms 3, 7, 8, and 9, the gymnasium, and the hallway**. SEC was requested to conduct a Limited Indoor Air Quality (IAQ) mold clearance assessment of the work areas.

The **SEC** representative visited the subject site on **March 28, 2025**. SEC collected **six (6) indoor** airborne fungal spore samples from the area's interior undergoing remediation activities. Additionally, **one (1) outdoor** fungal spore sample was collected within the same period as the samples collected on the structure's interior to use for comparison purposes.

Air sampling was conducted using Air-O-Cell® "spore-trap" air sampling media. A Zefon Z-lite IAQ pump with a high volume of air sampling was calibrated to **15 liters per minute**. The air sampling duration was **5 minutes** at each of the sample locations. The outdoor samples were collected and used as a reference to determine if indoor levels were unusually elevated or if unusual genera were present or predominant indoors. After collection, the samples were appropriately packaged and submitted to **Asbestos Identification Laboratory, Inc. (AIL)** in Woburn, Massachusetts, for analysis of fungal spores. Proper chain of custody procedures was maintained throughout the sample collection and transportation process. A copy of the chain of custody is included in the attachments.

Based on the inspector's education, training, and experience, several observations and conclusions were made about the work area.

- The areas are dry and clean.
- The small section of the gym roof had minor visible damage.
- Some visible paint chipped in ceiling.
- The ceiling system has stains

Indoor Air Quality Analytical Data Discussion

The lab report identifies the sample locations and summarizes the fungal Genus identified per sample. The area's results are attached.

Under normal conditions, the concentration of spores inside should be approximately equivalent to or lower than that of those captured outside.

Samples:

N	Location	Total Spore Count (spores/m³)	Predominant Genus Identified.
1	Room #3	**2,578**	Aspergillus/Penicillium
2	Room #7	1,601	Miscellaneous/Unidentified
3	Room #8	**2,223**	Aspergillus/Penicillium
4	Room #9	**2,400**	Ascospore
5	Gym	**2,845**	Aspergillus/Penicillium
6	Hallway	**2,045**	Aspergillus/Penicillium Ascospore
7	Exterior Bldg.	**1,245**	Ascospore
8	Field blank	No trace	-

Comment. -
According to laboratory analysis of collected air samples, spore counts in air samples from rooms 3, 8, 9, gym, and the hallway sampled at the time of our visit were higher than those in outdoor air samples. These areas need more ventilation and a new review in the future. Laboratory analytical data and chain of custody records are attached to this report.

Sample #7 was collected outside the building on **March 28, 2025**, to serve as a reference**.**

Qualifications of Report

Our testing protocols and recommendations are based on guidelines outlined in Bioaerosols Assessment and Control, dated 1999, prepared by the American Conference of Governmental Industrial Hygienists as well as the Institute of Inspection, Cleaning and Restoration (IICRC), IICRC S520, Standard and Reference Guide for Professional Mold Remediation. Please note that fungal spores are living organisms that require a source of water and carbon/cellulose-based materials for growth. The most permanent long-term solution to prevent microbial recurrence is to eliminate and control water infiltration (moisture, excessive humidity, plumbing leaks, condensation, etc.) and to dry areas immediately (within 24 hours of occurrence) if water infiltration is detected or evident.

A reasonable effort was made to identify fungal spores, bacteria, and water-impacted areas; however, this does not guarantee that all possible reservoirs (growth or airborne) were identified because walls, flooring, partitions, etc., may hide fungal spores or water-impacted building materials.

In addition, fungal spore growth may be present and amplified due to water-damaged building materials. During the remedial activities, if the impact was grossly underestimated, the SEC should be contacted to verify the scope of work.

Indoor Comfort Parameters

Temperature - Moisture and Humidity Mapping Results

Date: 3-28-25 Warm / 45 F / Inspection time 08:05 AM – 09:10 AM

The **rooms # 3, 7, 8, 9, gym and hallway** were mapped for room temperature, humidity, surface temperatures, and moisture content. Approximately **30 different readings** were taken and documented on field notes. Only several of the **30 readings** are documented in this diagnostics report. All surface moisture mapping was conducted using a moisture-testing gauge and an infrared laser.

Nomenclature or abbreviations for all field data below

T=temperature Fahrenheit
ST= Surface temperature by infrared surface laser thermos gauge

Location	Room T	Humidity	ST North	ST West	ST South	ST East	ST Ceiling	ST Floor
Room #3	65	**52%**	67	65.2	60.2	67.3	65.3	67.2
Room #7	65	**14%**	64	66.3	66.3	68.4	65.2	64.3
Room #8	65	**51%**	65	65.2	65.3	65.3	69.3	65.2
Room #9	66	**53%**	66	66.3	66.3	67.2	67.3	66.3
Gym	68	**41%**	74	73.2	73.3	74.2	74.2	74.3
Hallway	66	**45%**	65	65.3	66.2	66.3	66.2	66.2

The temperature, relative humidity, and carbon dioxide levels measured during our assessment were generally acceptable. According to NIOSH, the ANSI/ASHRAE Standard 55-2013: Thermal Environmental Conditions for Human Occupancy specifies the combinations of indoor environmental and personal factors that create acceptable thermal conditions for most occupants within a space [ANSI/ASHRAE 2013b]. Assuming slow air movement (less than 40 feet per minute) and 50% indoor relative humidity, the operative temperatures recommended by ASHRAE range from 68.5°F to 75°F in the winter and from 75°F to 80.5°F in the summer. The difference in temperature ranges between the seasons is mainly due to clothing selection. ANSI/ASHRAE 62 also recommends that indoor carbon dioxide (CO2) levels not exceed 700 parts per million (ppm) above the outdoor concentrations. ASHRAE advises maintaining indoor relative humidity at or below 65% [ANSI/ASHRAE 2013b]. The USEPA recommends keeping indoor relative humidity between 30% and 60% to minimize mold growth [EPA 2012].

Requirements For Maintaining Acceptable Indoor Air Quality

The key to preventing microbial contamination is moisture control. Below is a list of preventative measures to control moisture and maintain acceptable indoor air quality:

- Periodically perform O&M on the HVAC unit, including changing filters, cleaning coils, etc., according to the manufacturer's recommendations.
- Operate the HVAC within the manufacturer's recommended guidelines.
- Respond to moisture intrusion events as soon as they are discovered.
- Identify and correct all moisture intrusion issues for the building.
- Confirm that exterior moisture intrusion concerns have been addressed.

Limitations

Our observations and conclusions regarding the environmental conditions at the subject site are necessarily limited to what was observed and/or the materials reviewed during this study. SEC has not completed or employed any predetermined language for reporting the findings of this work, and it is our understanding that SEC will not be required to do so in any way.

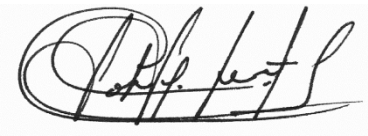
The information contained herein is based on data available and collected by SEC throughout this project. Conclusions and recommendations regarding the environmental conditions at the property are limited to those observed and sampled at the time this study was conducted.

This survey is not intended to examine every potential hazard or condition exhaustively. It does not claim to reflect indoor conditions or events that may arise after the survey. The sampling results represent only the locations at the time and date of collection. SEC is not liable for discovering or eliminating hazards that may cause damage, accidents, injury, or disease. The conclusions and recommendations in this report are based on a reasonable level of evaluation within the recognized bounds and standards of professional practice for assessments of this nature. The recommendations have no bearing on insurance coverage. This document is not a legal directive and should be considered a guideline only. No warranty, expressed or implied, is made regarding the conclusions and recommendations presented in this report. This report is provided solely for the use of the addressee. The scope of services performed in conducting this evaluation may not meet the needs of others. This report is not intended for use or reliance in connection with other projects or by unidentified third parties. Any use of this report, or its findings, conclusions, or recommendations, by an undesignated third party will be at that party's sole risk, and SEC disclaims liability for any such third party's use or reliance.

Laboratory results are attached for your review.

Please call me directly with any questions at 1-978-590-3956.

Very truly yours,



Johnnie M. Lituma
Services Manager.

Johnnie M. Lituma
Safety Environmental Consultants
P.O. Box 733
Methuen, MA 01844

Project Information
Center School
19 Irving St,
Peabody MA

Method: Based on ASTM D7391-09 Standard Test Method for Categorization and Quantification of Airborne Fungal Structures.

FieldID	1	Volume (L)	Debris Rating	Detection Limit	Outdoor Control
LabID	15312	75	4	89	
Location	Room 7				

Fungal Spore Type	RawCount	Count/M3	%
Alternaria			
Chaetomium			
Stachybotrys			
Ulocladium			
Aspergillus/Penicillium	3	267	17
Cladosporium	1	89	6
Ascospore	4	356	23
Basidiospores	2	178	12
Curvularia			
Drechslera/Bipolaris			
Hyphal Structure	1	89	6
Miscellaneous/Unidentified	7	623	39
Smuts/Myxomycetes			
Total	**18**	**1601**	**100**

FieldID	2	Volume (L)	Debris Rating	Detection Limit	Outdoor Control
LabID	15313	75	4	89	
Location	Hallway				

Fungal Spore Type	RawCount	Count/M3	%
Alternaria			
Chaetomium			
Stachybotrys			
Ulocladium			
Aspergillus/Penicillium	8	712	35
Cladosporium			
Ascospore	8	712	35
Basidiospores	4	356	18
Curvularia			
Drechslera/Bipolaris			
Hyphal Structure	2	178	9
Miscellaneous/Unidentified	1	89	5
Smuts/Myxomycetes			
Total	**23**	**2045**	**100**

FieldID	3	Volume (L)	Debris Rating	Detection Limit	Outdoor Control
LabID	15314	75	5	89	
Location	Room 8				

Fungal Spore Type	RawCount	Count/M3	%
Alternaria			
Chaetomium			
Stachybotrys			
Ulocladium			
Aspergillus/Penicillium	10	889	40
Cladosporium	2	178	8
Ascospore	3	267	12
Basidiospores	2	178	8
Curvularia	1	89	4
Drechslera/Bipolaris			
Hyphal Structure	2	178	8
Miscellaneous/Unidentified	4	356	16
Smuts/Myxomycetes	1	89	4
Total	**25**	**2223**	**100**

FieldID	4	Volume (L)	Debris Rating	Detection Limit	Outdoor Control
LabID	15315	75	4	89	
Location	Room 9				

Fungal Spore Type	RawCount	Count/M3	%
Alternaria			
Chaetomium			
Stachybotrys			
Ulocladium			
Aspergillus/Penicillium	7	623	26
Cladosporium	3	267	12
Ascospore	8	712	30
Basidiospores	1	89	4
Curvularia			
Drechslera/Bipolaris			
Hyphal Structure	1	89	4
Miscellaneous/Unidentified	7	623	26
Smuts/Myxomycetes			
Total	**27**	**2400**	**100**

Sampled: March 28, 2025 **Received:** March 28, 2025 **Analyzed:** March 31, 2025

Monday 31 March 2025

Analyzed by: Erik Gorgas **Batch:** 132971

Johnnie M. Lituma
Safety Environmental Consultants
P.O. Box 733
Methuen, MA 01844

Project Information
Center School
19 Irving St,
Peabody MA

Method: Based on ASTM D7391-09 Standard Test Method for Categorization and Quantification of Airborne Fungal Structures.

FieldID	5	Volume (L)	Debris Rating	Detection Limit	Outdoor Control
LabID	15316	75	4	89	
Location	Room 3				

Fungal Spore Type	RawCount	Count/M3	%
Alternaria			
Chaetomium			
Stachybotrys			
Ulocladium			
Aspergillus/Penicillium	10	889	35
Cladosporium			
Ascospore	3	267	11
Basidiospores	4	356	14
Curvularia			
Drechslera/Bipolaris			
Hyphal Structure	4	356	14
Miscellaneous/Unidentified	8	712	28
Smuts/Myxomycetes			
Total	**29**	**2578**	**100**

FieldID	6	Volume (L)	Debris Rating	Detection Limit	Outdoor Control
LabID	15317	75	4	89	
Location	Gym				

Fungal Spore Type	RawCount	Count/M3	%
Alternaria			
Chaetomium	1	89	4
Stachybotrys			
Ulocladium			
Aspergillus/Penicillium	11	978	35
Cladosporium			
Ascospore	9	800	29
Basidiospores	7	623	22
Curvularia			
Drechslera/Bipolaris			
Hyphal Structure	1	89	4
Miscellaneous/Unidentified	3	267	10
Smuts/Myxomycetes			
Total	**32**	**2845**	**100**

FieldID	7	Volume (L)	Debris Rating	Detection Limit	Outdoor Control
LabID	15318	75	2	89	X
Location	Ex- Court Yard				

Fungal Spore Type	RawCount	Count/M3	%
Alternaria			
Chaetomium			
Stachybotrys			
Ulocladium			
Aspergillus/Penicillium	1	89	8
Cladosporium			
Ascospore	7	623	50
Basidiospores	5	445	36
Curvularia			
Drechslera/Bipolaris			
Hyphal Structure			
Miscellaneous/Unidentified	1	89	8
Smuts/Myxomycetes			
Total	**14**	**1245**	**100**

FieldID	8	Volume (L)	Debris Rating	Detection Limit	Outdoor Control
LabID	15319	75	0	89	
Location	Field Blank				

Fungal Spore Type	RawCount	Count/M3	%
Alternaria			
Chaetomium			
Stachybotrys			
Ulocladium			
Aspergillus/Penicillium			
Cladosporium			
Ascospore			
Basidiospores			
Curvularia			
Drechslera/Bipolaris			
Hyphal Structure			
Miscellaneous/Unidentified			
Smuts/Myxomycetes			
Total			

Sampled: March 28, 2025 **Received:** March 28, 2025 **Analyzed:** March 31, 2025

Monday 31 March 2025

Analyzed by: Erik Gorgas **Batch:** 132971

Characteristics of Mold Growth and Behavior

Mold spores have been shown to produce allergic reactions in people susceptible to them Spores may affect the respiratory system, producing sinusitis, Type I allergies (hay fever, asthma) and/or Type III hypersensitivity pneumonitis. Topical reactions may include rashes, irritation, and dermatitis. Species associated with the production of mycotoxins are specifically noted below.

Although most species of mold require high moisture levels for active growth, the reduction of moisture levels will not kill mold. Most species will go dormant at low moisture levels. There are some species that can continue active growth and spore production even at low moisture levels, particularly certain species of Aspergillus. Following is a description of mold.

Basidiospores are a group of spores produced by over 1200 different types of fungi, including many mushrooms. They are common in cosmopolitan areas, and often associated with gardens and forests. In indoor environments, Basidiospores are typically found on wood or cellulitis material. Certain species of Basidiospores have been attributed to wood rot. The presence of Basidiospores in this sample does not prove the existence of these species. Additional testing would be necessary to determine if the species which produce wood rot are present at the subject property.

Cladosporium is common in indoor environments. This group of molds is the most common worldwide and is found naturally throughout Southern California. In outdoor environments, Cladosporium is associated with many types of soil, plant litter, and plant pathogens. In indoor environments, Cladosporium is typically found on moist windowsills, textiles, and wood.

Penicillium and Aspergillus are included as one group due to similarities in the appearance of their spores and growth patterns. They are often associated with house dust, but may also be found growing on cellulitic materials, such as sheetrock, and wood. This group of molds is often the first to colonize an area and is marked by rapid spore production and colony growth.

Stachybotrys Chartarum is found on very moist cellulitic materials, such as gypsum board, paint, wallboard, etc. This species requires prolonged exposure to elevated moisture levels for growth. Although it is typically not the first species to colonize an area and does not grow as rapidly as molds such as Penicillium, Stachybotrys Chartarum may become dominant given enough time.

This species is associated with the production of mycotoxins that are potentially harmful to human health.

How Moisture Infiltrates into Dwellings

Moisture can cause serious damage to the structure of your home. Moisture causes more than $1 billion in damage to homes annually, from minor damage like peeling paint, to major damage, such as rotting, crumbling structural floor joists.
You can greatly reduce the cost of moisture damage in your home and eliminate the risk of structural loss if you learn how to control for moisture. It is important to control all sources of moisture that enters homes. Most moisture that is generally known to cause problems in homes is roof leaks, basement leaks, and plumbing leaks. These three types of leaks are the most obvious.

Most common causes of roof leaks:

• Improper flashing, sealing or worn through flashing around projections through the roof such as, plumbing stacks (vent pipes), chimneys, skylights, antennas, dormers, etc.
• Missing, broken or pierced shingles caused by stones, hail, broken branches or walking on a roof.
• Tears or deterioration in valleys, caused by expansion and contraction or someone walking in the valley. In addition, debris can build up in a valley and block its run-off process causing rain and snow to build up and cause excessive damage.
• Exposed nails, nails in the wrong places, or nails not set flush with the underlying shingles.
• Wind driven rain may enter through the chimney, brick, mortar or under shingles. In addition, through the siding and behind the step flashing, where a lower roof joins the vertical side of the main house.
• Ice dams, which prevent water run-off, force standing water behind the ice dam, to backup under your roof shingles.
• Improperly hung gutters or drip edge.
• Improperly installed roofing, or a roofing type, which is incorrect for the slope of the roof involved.
• Cracking and blistering of roof mastic on rolled asphalt or on built up roofing.
• Ponds of water created when flat or low-sloped roofs begin to sag.
• Clogged roof and gutter drains.

MOISTURE CAN ENTER THE HOME THROUGH THE FOLLOWING METHODS:

1. Rainwater
2. Groundwater
3. Capillary suction below grade
4. Capillary suction above grade
5. Air movements
6. Air pressure
7. Vapor diffusion