



# **Targeted Mold (Fungal) Evaluation**

CONDUCTED AT:

**BERLIN BOROUGH COMMUNITY SCHOOL  
215 SOUTH FRANKLIN AVENUE  
BERLIN, NJ 08009**

CONDUCTED ON:

**SEPTEMBER 29, 2017**

CONDUCTED FOR:

**BERLIN BOROUGH BOARD OF EDUCATION  
215 SOUTH FRANKLIN AVENUE  
BERLIN, NJ 08009**

TOM PRUNO  
DIRECTOR OF OPERATIONS

REPORT DATED:  
OCTOBER 11, 2017





## SUMMARY OF FIELD OBSERVATIONS, RESULTS AND RECOMMENDATIONS

### **BACKGROUND:**

*Environmental Design Inc. (EDI)* conducted a targeted mold (fungal) evaluation in designated areas at the Berlin Borough Community Elementary School for the Berlin Borough School District (also referred to in this document as the “Client”). *EDI* was contacted by the Client after the Client received complaints from staff about the possibility of an issue with mold/musty odors in 6 rooms. Those rooms were Room 2, Room 10, Room 18, Room 28, Room 70 and Room 77. The Client’s staff after this discovery, examined all other areas and functional spaces in the school and did not find the same similar conditions. *EDI* therefore focused testing on the 6 rooms listed previously. Since no immediate visible signs of mold were present in these rooms, air samples for a mold screening were collected and submitted for analysis by *EDI* in the 6 rooms along with an outside air sample for control purposes.

### **Initial Inspection for Environmental Concerns:**

*EDI* conducted a general inspection of the room and adjacent areas to determine what the current conditions of the room was and what, if any, subsequent actions were necessary. Upon initial observation of all the potentially affected areas (generally located near the front of the building), no suspect chemical-based environmental conditions such as pungent odors, visible signs of unknown chemicals or other suspect issues were discovered. Temperature and humidity readings were collected for reference and are shown later in this report.

### **Fungal/Mold Testing:**

The results of the mold testing are attached to this report. Only two of the 6 rooms had any issues worthy of note. Room 28 and the Faculty Lounge (Room 70) both had elevated levels of *Aspergillus/Penicillium* spores. Typically, these spore-types are associated with higher moisture levels or water damaged building materials. Our visual assessment did not indicate any signs of water damage in either room and the temperature/humidity levels in the two areas were both within the ideal range, respectively. With respect to the other rooms, no obvious conditions or the presence of physical mold in open and accessible areas inside the rooms were discovered.

Therefore, in *EDI*’s professional opinion:

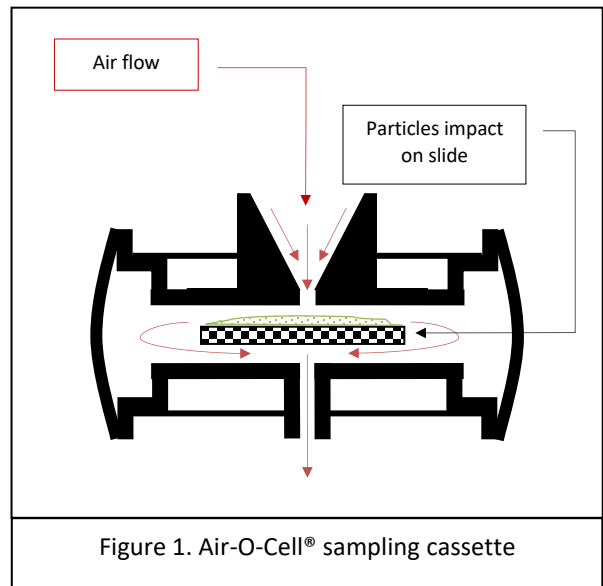
- While there are no obvious signs of water intrusion, the elevated mold levels of mold families that generally exist in water intrusion conditions are present in 2 rooms, 28 and 70. To address this condition, it may be helpful to place a dehumidifier in Room 28 and 70 to aid in drying out the air and with the goal towards reducing the level of the *Aspergillus/Penicillium* spores.
- The maintenance staff should clean/wipe the HVAC vents/grills in each room. Without question, duct work harbors allergens in many instances and if you at least keep the vent grills clean, it makes a difference what enters the air for circulations.
- Based on the above results no serious mold condition is apparent and the rooms may be made available for continued occupancy. As always, occupants who suffer from immunocompromised ailments or other serious pulmonary conditions should present these results and to their personal physician for a more personal evaluation.
- No further testing is necessary unless conditions change or the District makes a request.

## AIRBORNE MICROBIAL TESTING

Airborne mold and fungi are commonly found both outdoors and indoors, however, their presence indoors does not necessarily indicate a problem with air quality. While the majority of microorganisms do not cause adverse health effects in humans, knowing what microbes are present in the indoor environment can help diagnosis health symptoms and also assess the effectiveness of mechanical building systems.

Those systems could include heating, air conditioning and air circulating systems. Samples of indoor air can be analyzed to determine what families of mold and fungi spores are present. When visible microbial growth is observed on indoor surfaces a physical swab sample can be collected to identify the specific type of organism. Determination of the specific microbial families present in the indoor environment is important for assessing potential health risks to occupants and for developing potential remediation strategies.

All airborne microbial samples were collected utilizing a Zefon Air-O-Cell<sup>®</sup> sampling system which consists of an Air-O-Cell<sup>®</sup> sample cassette and a portable, Bio-Pump<sup>®</sup> sampling pump calibrated at 15 liters per minute. The Air-O-Cell<sup>®</sup> sampling system is specifically engineered for the collection of airborne mold and fungal spores.



The Air-O-Cell<sup>®</sup> cassette collects both viable and non-viable specimens providing a broad overview of potential airborne contaminants. The Air-O-Cell<sup>®</sup> cassette functions on the principle of inertial impaction. Air is accelerated as it is drawn through the tapered inlet and directed towards the collection media. The entrained particles impact on the collection media while the air flow continues out the exit orifice (See Figure 1.).

The adhesive nature of the collection media traps the particles in the cassette and eliminates sample loss during transportation and analytical preparation. While air testing was the predominant test, surface sampling of carpets by swab and dust were also conducted.

Physical swab sampling is used to test any visible mold or suspected microbial material. The sampling method calls for the use of a sealed, sterile cotton swab to lift a portion of the suspect material onto the head of the cotton tip. Each swab is placed back inside its original plastic case and resealed. Each swab case is placed inside an individual plastic bag to prevent cross-contamination.

Airborne samples collected via the Air-O-Cell<sup>®</sup> sampling system is analyzed according to EMSL method 05-TP-003. Physical swab samples are analyzed per EMSL method M041.



## TEMPERATURE AND HUMIDITY

Occupant concerns over temperature or humidity levels should be viewed as an indication of potential problems with the HVAC system. Additionally, certain medical conditions can be aggravated when temperature and humidity levels vary too far from the norm. Condensation from dripping un-insulated pipes, steam from showers, and water infiltration along exterior walls or from below the slab can promote microbial infestations. Maintaining consistent indoor temperature and humidity levels are cornerstones to maintaining a healthy indoor environment.

The American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) have defined a Comfort Range for indoor temperature and humidity that 80% of the public will find acceptable (i.e. an ideal range). *EDI* applies the industry standard ASHRAE Comfort Range when evaluating temperature and relative humidity levels within a building. The ASHRAE Comfort Range for relative humidity is between 30% and 60%. The ASHRAE Comfort Range for temperature during the summer months is 73°F - 79°F; for the winter months, the range is 68°F - 75°F.

<b>Sample Locations within the School 9/29/17</b>	<b>Temperature (° F)</b>	<b>Humidity (%)</b>
Room 2	73.2	45.0
Room 10	74.1	43.3
Room 18	74.7	39.5
Room 28	75.1	42.6
Room 70	76.3	36.9
Room 77	77.3	36.0
Outside Control	74.8°F	49.5%

The temperature measurements were all within the Comfort Range except for outside air which of course the Client cannot control. The humidity ranges were slightly wetter than recommended by ASHRAE (less than 65% with the optimal range of 30%-50% if humidity controls on the mechanical unit exist. Such dry air can be irritating to some occupants. However, the levels are such that they would not be concerns for prompt action by industry tolerances. These current levels are subsequent to the more recent levels during the past few weeks of much higher outside humidity levels.



## LIMITATIONS AND SERVICE CONSTRAINTS

*Environmental Design Inc. (EDI)* has presented professional opinions in this report based on information provided to us by the Client and gathered by *EDI* personnel on site. Conditions described in this report are as found at the time of the survey, unless stated otherwise. The Client selected the date and time of our evaluation.

*EDI* has done nothing to create or contribute to the presence of any hazardous waste, pollutants, chemicals, or other hazardous materials at the Client's facility. A full and complete determination as to whether a certain property is or is not free from environmental hazards cannot be made with 100% certainty. The Client retained *EDI* for the sole purpose of assisting them in evaluating conditions that might be associated with mold. *EDI* is only responsible for a limited evaluation of specific areas of the facility that the Client's representatives requested *EDI* to assess. Our limited services are described in our proposal for this project. *EDI* will not be held liable for any disclosures, notifications, or reports that may be required to be made to third parties, including the appropriate governmental agencies.

The inspection conducted by *EDI* was a non-destructive inspection (i.e. walls were not broken open, drop ceilings were not removed, etc.) to complete our evaluation of the selected areas. *EDI* did not evaluate nor are we qualified to assess the operational effectiveness of the mechanical systems providing heating and air conditioning to the affected areas covered by our evaluation. Mechanical systems that are not operating properly or that do not adequately provide sufficient fresh air or air exchanges can be a significant contributing factor in any indoor quality problem.

*EDI* receives no remuneration for any products suggested for use in cleaning or remediation. The tests *EDI* conducted were based on the problem described to us by the Client and site conditions at the time of our evaluation. These tests may not be the only testing methodologies available for this type of evaluation.

*EDI*

## **LAB REPORTS**

CERTIFICATE OF ANALYSIS

Client: Environmental Design Inc. - EDI  
5434 King Ave, Suite 101  
Pennsauken NJ 08109

Report Date: 10/2/2017  
Report No.: 548684 - Mold Air Rev #2, 10/2/2017  
Project: Berlin Community School  
Project No.: PR-170928-1142

Client: ENV340

INDOOR AIR QUALITY SAMPLE ANALYSIS SUMMARY


Lab No.: 6354250  
Client No.: 13-0929-01  
Volume (L): 75  
Filter Type: Zefon Air-O-Cell  
Location: Room 10


Debris Level: 1  
Mold Counts Total: 44  
Mold Spores/mm<sup>2</sup>: 1.5  
Mold Spores/M<sup>3</sup>: 590

Pollen Count: NA  
Pollen Spores/mm<sup>2</sup>: NA  
Pollen Spores/M<sup>3</sup>: NA

	Raw Counts	Spores/M <sup>3</sup>		Raw Counts	Spores/M <sup>3</sup>
Ascospores:	0	0	Alternaria:	0	0
Chaetomium:	0	0	Pithomyces:	0	0
Leptosphaeria-types:	0	0	Polythrincium:	0	0
Leptosphaerulina:	0	0	Stachybotrys:	0	0
Basidiospores:	0	0	Stemphylium:	0	0
Coprinus:	0	0	Scopulariopsis:	0	0
Ganoderma:	0	0	Torula:	0	0
Penicillium / Aspergillus:	0	0	Ulocladium:	0	0
Cercospora:	0	0	Drechslera:	0	0
Cladosporium:	4	213	Xylaria-types:	0	0
Curvularia:	0	0	Hyalines:	0	0
Epicoccum:	0	0	Inocybe:	0	0
Fusarium:	0	0	Mitospores:	0	0
Nigrospora:	0	0	Peronospora:	0	0
Oidium / Erysiphe:	0	0	Spegazzinia:	0	0
Periconia:	0	0	Taeniolla:	0	0
Ascobolus:	0	0	Tetraploa:	0	0
Diatypella-types:	0	0	Trichothecium:	0	0
Paraphaeosphaeria:	0	0	Unidentified Fungi:	0	0
Pleospora:	0	0	Rizopus / Mucor:	0	0
Sporormiella:	0	0	Rust / Urediniospores:	0	0
			Smuts / Myxomycetes:	7	373

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 9/29/2017  
Date Analyzed: 10/02/2017  
Signature:   
Analyst: Ben Reich

Approved By:   
Frank E. Ehrenfeld, III  
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Environmental Design Inc. - EDI  
5434 King Ave, Suite 101  
Pennsauken NJ 08109

Report Date: 10/2/2017  
Report No.: 548684 - Mold Air Rev #2, 10/2/2017  
Project: Berlin Community School  
Project No.: PR-170928-1142

Client: ENV340

INDOOR AIR QUALITY SAMPLE ANALYSIS SUMMARY


Lab No.: 6354251  
Client No.: 13-0929-02  
Volume (L): 75  
Filter Type: Zefon Air-O-Cell  
Location: Room 2


Debris Level: 1  
Mold Counts Total: 72  
Mold Spores/mm<sup>2</sup>: 2.5  
Mold Spores/M<sup>3</sup>: 960

Pollen Count: NA  
Pollen Spores/mm<sup>2</sup>: NA  
Pollen Spores/M<sup>3</sup>: NA

	Raw Counts	Spores/M <sup>3</sup>		Raw Counts	Spores/M <sup>3</sup>
Ascospores:	0	0	Alternaria:	0	0
Chaetomium:	0	0	Pithomyces:	0	0
Leptosphaeria-types:	0	0	Polythrincium:	0	0
Leptosphaerulina:	0	0	Stachybotrys:	0	0
Basidiospores:	0	0	Stemphylium:	0	0
Coprinus:	0	0	Scopulariopsis:	0	0
Ganoderma:	0	0	Torula:	0	0
Penicillium / Aspergillus:	3	160	Ulocladium:	0	0
Cercospora:	0	0	Drechslera:	0	0
Cladosporium:	4	213	Xylaria-types:	0	0
Curvularia:	0	0	Hyalines:	0	0
Epicoccum:	0	0	Inocybe:	0	0
Fusarium:	0	0	Mitospores:	0	0
Nigrospora:	0	0	Peronospora:	0	0
Oidium / Erysiphe:	0	0	Spegazzinia:	0	0
Periconia:	0	0	Taeniolla:	0	0
Ascobolus:	0	0	Tetraploa:	0	0
Diatypella-types:	0	0	Trichothecium:	0	0
Paraphaeosphaeria:	0	0	Unidentified Fungi:	0	0
Pleospora:	0	0	Rizopus / Mucor:	0	0
Sporormiella:	0	0	Rust / Urediniospores:	0	0
			Smuts / Myxomycetes:	11	587

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 9/29/2017  
Date Analyzed: 10/02/2017  
Signature:   
Analyst: Ben Reich

Approved By:   
Frank E. Ehrenfeld, III  
Laboratory Director



CERTIFICATE OF ANALYSIS

Client: Environmental Design Inc. - EDI  
5434 King Ave, Suite 101  
Pennsauken NJ 08109

Report Date: 10/2/2017  
Report No.: 548684 - Mold Air Rev #2, 10/2/2017  
Project: Berlin Community School  
Project No.: PR-170928-1142

Client: ENV340

INDOOR AIR QUALITY SAMPLE ANALYSIS SUMMARY


Lab No.: 6354252  
Client No.: 13-0929-03  
Volume (L): 75  
Filter Type: Zefon Air-O-Cell  
Location: Room 18


Debris Level: 1  
Mold Counts Total: 68  
Mold Spores/mm<sup>2</sup>: 2.4  
Mold Spores/M<sup>3</sup>: 910

Pollen Count: NA  
Pollen Spores/mm<sup>2</sup>: NA  
Pollen Spores/M<sup>3</sup>: NA

	Raw Counts	Spores/M <sup>3</sup>		Raw Counts	Spores/M <sup>3</sup>
Ascospores:	0	0	Alternaria:	0	0
Chaetomium:	0	0	Pithomyces:	1	53.3
Leptosphaeria-types:	0	0	Polythrincium:	0	0
Leptosphaerulina:	0	0	Stachybotrys:	0	0
Basidiospores:	0	0	Stemphylium:	0	0
Coprinus:	0	0	Scopulariopsis:	0	0
Ganoderma:	0	0	Torula:	0	0
Penicillium / Aspergillus:	8	427	Ulocladium:	0	0
Cercospora:	0	0	Drechslera:	0	0
Cladosporium:	0	0	Xylaria-types:	0	0
Curvularia:	1	53.3	Hyalines:	0	0
Epicoccum:	0	0	Inocybe:	0	0
Fusarium:	0	0	Mitospores:	0	0
Nigrospora:	0	0	Peronospora:	0	0
Oidium / Erysiphe:	0	0	Spegazzinia:	0	0
Periconia:	0	0	Taeniolla:	0	0
Ascobolus:	0	0	Tetraploa:	0	0
Diatypella-types:	0	0	Trichothecium:	0	0
Paraphaeosphaeria:	0	0	Unidentified Fungi:	0	0
Pleospora:	0	0	Rizopus / Mucor:	0	0
Sporormiella:	0	0	Rust / Urediniospores:	0	0
			Smuts / Myxomycetes:	7	373

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 9/29/2017  
Date Analyzed: 10/02/2017  
Signature:   
Analyst: Ben Reich

Approved By:   
Frank E. Ehrenfeld, III  
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Environmental Design Inc. - EDI  
5434 King Ave, Suite 101  
Pennsauken NJ 08109

Report Date: 10/2/2017  
Report No.: 548684 - Mold Air Rev #2, 10/2/2017  
Project: Berlin Community School  
Project No.: PR-170928-1142

Client: ENV340

INDOOR AIR QUALITY SAMPLE ANALYSIS SUMMARY


Lab No.: 6354253  
Client No.: 13-0929-04  
Volume (L): 75  
Filter Type: Zefon Air-O-Cell  
Location: Room 28


Debris Level: 1  
Mold Counts Total: 168  
Mold Spores/mm<sup>2</sup>: 5.9  
Mold Spores/M<sup>3</sup>: 2200

Pollen Count: NA  
Pollen Spores/mm<sup>2</sup>: NA  
Pollen Spores/M<sup>3</sup>: NA

	Raw Counts	Spores/M <sup>3</sup>		Raw Counts	Spores/M <sup>3</sup>
Ascospores:	0	0	Alternaria:	0	0
Chaetomium:	0	0	Pithomyces:	0	0
Leptosphaeria-types:	0	0	Polythrincium:	0	0
Leptosphaerulina:	0	0	Stachybotrys:	0	0
Basidiospores:	0	0	Stemphylium:	0	0
Coprinus:	0	0	Scopulariopsis:	0	0
Ganoderma:	1	53.3	Torula:	0	0
Penicillium / Aspergillus:	29	1550	Ulocladium:	0	0
Cercospora:	0	0	Drechslera:	0	0
Cladosporium:	7	373	Xylaria-types:	0	0
Curvularia:	0	0	Hyalines:	0	0
Epicoccum:	0	0	Inocybe:	0	0
Fusarium:	0	0	Mitospores:	0	0
Nigrospora:	0	0	Peronospora:	0	0
Oidium / Erysiphe:	0	0	Spegazzinia:	0	0
Periconia:	0	0	Taeniolla:	0	0
Ascobolus:	0	0	Tetraploa:	0	0
Diatypella-types:	0	0	Trichothecium:	0	0
Paraphaeosphaeria:	0	0	Unidentified Fungi:	0	0
Pleospora:	0	0	Rizopus / Mucor:	0	0
Sporormiella:	0	0	Rust / Urediniospores:	0	0
			Smuts / Myxomycetes:	5	267

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 9/29/2017  
Date Analyzed: 10/02/2017  
Signature:   
Analyst: Ben Reich

Approved By:   
Frank E. Ehrenfeld, III  
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Environmental Design Inc. - EDI  
5434 King Ave, Suite 101  
Pennsauken NJ 08109

Report Date: 10/2/2017  
Report No.: 548684 - Mold Air Rev #2, 10/2/2017  
Project: Berlin Community School  
Project No.: PR-170928-1142

Client: ENV340

INDOOR AIR QUALITY SAMPLE ANALYSIS SUMMARY


Lab No.: 6354254  
Client No.: 13-0929-05  
Volume (L): 75  
Filter Type: Zefon Air-O-Cell  
Location: Room 70 (Faculty)


Debris Level: 1  
Mold Counts Total: 56  
Mold Spores/mm<sup>2</sup>: 2.0  
Mold Spores/M<sup>3</sup>: 750

Pollen Count: NA  
Pollen Spores/mm<sup>2</sup>: NA  
Pollen Spores/M<sup>3</sup>: NA

	Raw Counts	Spores/M <sup>3</sup>		Raw Counts	Spores/M <sup>3</sup>
Ascospores:	0	0	Alternaria:	0	0
Chaetomium:	0	0	Pithomyces:	0	0
Leptosphaeria-types:	0	0	Polythrincium:	0	0
Leptosphaerulina:	0	0	Stachybotrys:	0	0
Basidiospores:	0	0	Stemphylium:	0	0
Coprinus:	0	0	Scopulariopsis:	0	0
Ganoderma:	0	0	Torula:	0	0
Penicillium / Aspergillus:	5	267	Ulocladium:	0	0
Cercospora:	0	0	Drechslera:	0	0
Cladosporium:	9	480	Xylaria-types:	0	0
Curvularia:	0	0	Hyalines:	0	0
Epicoccum:	0	0	Inocybe:	0	0
Fusarium:	0	0	Mitospores:	0	0
Nigrospora:	0	0	Peronospora:	0	0
Oidium / Erysiphe:	0	0	Spegazzinia:	0	0
Periconia:	0	0	Taeniolla:	0	0
Ascobolus:	0	0	Tetraploa:	0	0
Diatypella-types:	0	0	Trichothecium:	0	0
Paraphaeosphaeria:	0	0	Unidentified Fungi:	0	0
Pleospora:	0	0	Rizopus / Mucor:	0	0
Sporormiella:	0	0	Rust / Urediniospores:	0	0
			Smuts / Myxomycetes:	0	0

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 9/29/2017  
Date Analyzed: 10/02/2017  
Signature:   
Analyst: Ben Reich

Approved By:   
Frank E. Ehrenfeld, III  
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Environmental Design Inc. - EDI  
5434 King Ave, Suite 101  
Pennsauken NJ 08109

Report Date: 10/2/2017  
Report No.: 548684 - Mold Air Rev #2, 10/2/2017  
Project: Berlin Community School  
Project No.: PR-170928-1142

Client: ENV340

INDOOR AIR QUALITY SAMPLE ANALYSIS SUMMARY


Lab No.: 6354255  
Client No.: 13-0929-06  
Volume (L): 75  
Filter Type: Zefon Air-O-Cell  
Location: Room 77


Debris Level: 1  
Mold Counts Total: 16  
Mold Spores/mm<sup>2</sup>: 0.56  
Mold Spores/M<sup>3</sup>: 210

Pollen Count: NA  
Pollen Spores/mm<sup>2</sup>: NA  
Pollen Spores/M<sup>3</sup>: NA

	Raw Counts	Spores/M <sup>3</sup>		Raw Counts	Spores/M <sup>3</sup>
Ascospores:	0	0	Alternaria:	0	0
Chaetomium:	0	0	Pithomyces:	0	0
Leptosphaeria-types:	0	0	Polythrincium:	0	0
Leptosphaerulina:	0	0	Stachybotrys:	0	0
Basidiospores:	0	0	Stemphylium:	0	0
Coprinus:	0	0	Scopulariopsis:	0	0
Ganoderma:	0	0	Torula:	0	0
Penicillium / Aspergillus:	1	53.3	Ulocladium:	0	0
Cercospora:	0	0	Drechslera:	0	0
Cladosporium:	2	107	Xylaria-types:	0	0
Curvularia:	0	0	Hyalines:	0	0
Epicoccum:	0	0	Inocybe:	0	0
Fusarium:	0	0	Mitospores:	0	0
Nigrospora:	0	0	Peronospora:	0	0
Oidium / Erysiphe:	0	0	Spegazzinia:	0	0
Periconia:	0	0	Taeniolla:	0	0
Ascobolus:	0	0	Tetraploa:	0	0
Diatypella-types:	0	0	Trichothecium:	0	0
Paraphaeosphaeria:	0	0	Unidentified Fungi:	0	0
Pleospora:	0	0	Rizopus / Mucor:	0	0
Sporormiella:	0	0	Rust / Urediniospores:	1	53.3
			Smuts / Myxomycetes:	0	0

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 9/29/2017  
Date Analyzed: 10/02/2017  
Signature:   
Analyst: Ben Reich

Approved By:   
Frank E. Ehrenfeld, III  
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Environmental Design Inc. - EDI  
5434 King Ave, Suite 101  
Pennsauken NJ 08109

Report Date: 10/2/2017  
Report No.: 548684 - Mold Air Rev #2, 10/2/2017  
Project: Berlin Community School  
Project No.: PR-170928-1142

Client: ENV340

INDOOR AIR QUALITY SAMPLE ANALYSIS SUMMARY


Lab No.: 6354256  
Client No.: 13-0929-07  
Volume (L): 75  
Filter Type: Zefon Air-O-Cell  
Location: Outdoors-Courtyard


Debris Level: 2  
Mold Counts Total: 14768  
Mold Spores/mm<sup>2</sup>: 520  
Mold Spores/M<sup>3</sup>: 200000

Pollen Count: NA  
Pollen Spores/mm<sup>2</sup>: NA  
Pollen Spores/M<sup>3</sup>: NA

	Raw Counts	Spores/M <sup>3</sup>		Raw Counts	Spores/M <sup>3</sup>
Ascospores:	0	0	Alternaria:	2	107
Chaetomium:	0	0	Pithomyces:	16	853
Leptosphaeria-types:	0	0	Polythrincium:	0	0
Leptosphaerulina:	0	0	Stachybotrys:	0	0
Basidiospores:	0	0	Stemphylium:	0	0
Coprinus:	1	53.3	Scopulariopsis:	0	0
Ganoderma:	1	53.3	Torula:	0	0
Penicillium / Aspergillus:	0	0	Ulocladium:	0	0
Cercospora:	0	0	Drechslera:	0	0
Cladosporium:	3590	191000	Xylaria-types:	0	0
Curvularia:	0	0	Hyalines:	0	0
Epicoccum:	5	267	Inocybe:	0	0
Fusarium:	0	0	Mitospores:	0	0
Nigrospora:	0	0	Peronospora:	0	0
Oidium / Erysiphe:	0	0	Spegazzinia:	0	0
Periconia:	0	0	Taeniolla:	0	0
Ascobolus:	0	0	Tetraploa:	0	0
Diatypella-types:	0	0	Trichothecium:	0	0
Paraphaeosphaeria:	0	0	Unidentified Fungi:	0	0
Pleospora:	0	0	Rizopus / Mucor:	0	0
Sporormiella:	0	0	Rust / Urediniospores:	28	1490
			Smuts / Myxomycetes:	49	2610

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 9/29/2017  
Date Analyzed: 10/02/2017  
Signature:   
Analyst: Ben Reich

Approved By:   
Frank E. Ehrenfeld, III  
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Environmental Design Inc. - EDI  
5434 King Ave, Suite 101  
Pennsauken NJ 08109

Report Date: 10/2/2017  
Report No.: 548684 - Mold Air Rev #2, 10/2/2017  
Project: Berlin Community School  
Project No.: PR-170928-1142

Client: ENV340

INDOOR AIR QUALITY SAMPLE ANALYSIS SUMMARY


Lab No.: 6354257  
Client No.: 13-0929-08  
Volume (L): Blank  
Filter Type: Zefon Air-O-Cell  
Location: Blank


Debris Level: 0  
Mold Counts Total: None Detected  
Mold Spores/mm<sup>2</sup>: None Detected  
Mold Spores/M<sup>3</sup>: NA

Pollen Count: NA  
Pollen Spores/mm<sup>2</sup>: NA  
Pollen Spores/M<sup>3</sup>: NA

	Raw Counts	Spores/M <sup>3</sup>		Raw Counts	Spores/M <sup>3</sup>
Ascospores:	0		Alternaria:	0	
Chaetomium:	0		Pithomyces:	0	
Leptosphaeria-types:	0		Polythrincium:	0	
Leptosphaerulina:	0		Stachybotrys:	0	
Basidiospores:	0		Stemphylium:	0	
Coprinus:	0		Scopulariopsis:	0	
Ganoderma:	0		Torula:	0	
Penicillium / Aspergillus:	0		Ulocladium:	0	
Cercospora:	0		Drechslera:	0	
Cladosporium:	0		Xylaria-types:	0	
Curvularia:	0		Hyalines:	0	
Epicoccum:	0		Inocybe:	0	
Fusarium:	0		Mitospores:	0	
Nigrospora:	0		Peronospora:	0	
Oidium / Erysiphe:	0		Spegazzinia:	0	
Periconia:	0		Taeniolla:	0	
Ascobolus:	0		Tetraploa:	0	
Diatypella-types:	0		Trichothecium:	0	
Paraphaeosphaeria:	0		Unidentified Fungi:	0	
Pleospora:	0		Rizopus / Mucor:	0	
Sporormiella:	0		Rust / Urediniospores:	0	
			Smuts / Myxomycetes:	0	

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 9/29/2017  
Date Analyzed: 10/02/2017  
Signature:   
Analyst: Ben Reich

Approved By:   
Frank E. Ehrenfeld, III  
Laboratory Director

---

CERTIFICATE OF ANALYSIS

---

Client: Environmental Design Inc. - EDI  
5434 King Ave, Suite 101  
Pennsauken NJ 08109

Report Date: 10/2/2017  
Report No.: 548684 - Mold Air  
Project: Berlin Community School  
Project No.: PR-170928-1142

Client: ENV340

## Appendix to Analytical Report:

**Customer Contact:** Jay Murray

**Analysis:** ASTM D7391

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

**iATL Customer Service:** customerservice@iatl.com

**iATL Office Manager:** cdavis@iatl.com

**iATL Account Representative:** Shirley Clark

**Sample Matrix:**

**Exceptions Noted:** See Following Pages

### General Terms, Warrants, Limits, Qualifiers:

General information about iATL capabilities and client/laboratory relationships and responsibilities are spelled out in iATL policies that are listed at [www.iATL.com](http://www.iATL.com) and in our Quality Assurance Manual per ISO 17025 standard requirements. The information therein is a representation of iATL definitions and policies for turnaround times, sample submittal, collection media, blank definitions, quantification issues and limit of detection, analytical methods and procedures, sub-contracting policies, results reporting options, fees, terms, and discounts, confidentiality, sample archival and disposal, and data interpretation.

iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP, AIHA LAP LLC, or any agency of local, state or province governments nor of any agency of the U.S. government.

This report shall not be reproduced except in full, without written approval of the laboratory.

### Information Pertinent to this Report:

Analysis by ASTM D7391

Certification: EMLAP AIHA-LAP, LLC No. 100188

Total Counts = Raw Count multiplied by the Counting Factor (4) associated with this filter type.

Debris loading indicates a level of unidentified background particulate.

Levels range from 0 to 5, where a level of 0 is consistent with a blank sample and a level of 5 is an overloaded sample. Loading levels of 2, 3, or 4 may cause a negative bias in counting due to interfering particulate.

A 'void' concentration means that the sample has been overloaded with particulate matter and could not be reliably analyzed.

Although not officially mandated, the submittal of blanks is a scientifically sound practice.

All results are based on the samples as received at the lab. iATL assumes that appropriate sampling methods have been used and that all the data upon which these results are based have been accurately supplied by the client.

Results are calculated from the total number of identified mold spores. Interpretation is left to the company / person who sampled or inspected the facility tested. All biological samples have inherent variability and the presence of a few taxus in a small number should be considered normal.

iATL utilizes 1000X magnification (oil) to perform qualitative analysis.

Analytical Sensitivity based upon a Method Detection Limit of 1 spore, Counting Factor of 4, and Sampling Volume of 75L is 53 spores / M<sup>3</sup>.

### Disclaimers / Qualifiers:

There may be some samples in this project that have a "NOTE:" associated with a sample result. We use added disclaimers or qualifiers to inform the client about

---

CERTIFICATE OF ANALYSIS

---

Client: Environmental Design Inc. - EDI  
5434 King Ave,Suite 101  
Pennsauken NJ 08109

Report Date: 10/2/2017  
Report No.: 548684 - Mold Air  
Project: Berlin Community School  
Project No.: PR-170928-1142

Client: ENV340

something that requires further explanation. Here is a complete list with highlighted disclaimers pertinent to this project. For a full explanation of these and other disclaimers, please inquire at [customerservice@iatl.com](mailto:customerservice@iatl.com).