LEW CORPORATION
The Environmental Company℠
Like us Follow us @LEWCorporation

181 US Hwy 46
Mine Hill, NJ 07803
(908) 654-8068
(800) 783-0567
Fax 908-654-8069

MICROBIAL INVESTIGATION REPORT

Performed At:
Patrick McGaheran School
63 Allerton Road
Lebanon, NJ 08833

Performed For:
Clinton Township Schools
P.O. Box 6
Annandale, NJ 08801

Prepared By:
LEW Corporation
181 US Hwy 46
Mine Hill, NJ 07803

(908) 654-8068 Phone
(908) 654-8069 Fax

Date of Inspection: 9/19/2018
Project Number: 181000

TABLE OF CONTENTS

CONTACT INFORMATION

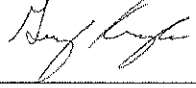
Site:

Name	Patrick McGaheran School
Street Address:	63 Allerton Road Lebanon, NJ 08833
Date Inspected	9/19/2018

Owner:

Name:	Clinton Township Schools
Street:	P.O. Box 6 Annandale, NJ 08801
Phone Number:	(908) 236-7235

Microbial Consultant:

Consultant Name:	Greg Krueger
Signature:	
Date:	9/24/2018
Email:	gkrueger@lewcorp.com

Consultant Information:

Organization:	LEW Corporation
Street:	181 US Hwy 46
City, State & Zip:	Mine Hill, NJ 07803
Phone number:	908-654-8068
Web address:	www.LEWCorp.com

Laboratory Information:

Organization:	Environmental Hazards Services, LLC
Street:	7469 White Pine Rd.
City, State & Zip:	Richmond, VA 23237
Phone number:	800-347-4010
AIHA Lab ID #:	100420

INTRODUCTION TO FUNGI

Background Information About Fungi

Fungi can be found almost anywhere; they can grow on virtually any organic substance, as long as moisture and oxygen are present. There are fungi that can grow on wood, paper, carpet, foods, and insulation. When excessive moisture accumulates in buildings or on building materials, fungal growth will often occur, particularly if the moisture problem remains undiscovered or unaddressed. It is impossible to eliminate all fungi and fungal spores in the indoor environment. However, fungi growth can be controlled indoors by controlling moisture indoors.

Fungi reproduce by making spores that usually cannot be seen without magnification. Spores waft through the indoor and outdoor air continually. When fungal spores land on a damp spot indoors, they may begin growing and digesting whatever they are growing on in order to survive. Fungi gradually destroy the things they grow on. Many types of fungi exist. All fungi have the potential to cause health effects. Fungi can produce allergens that can trigger allergic reactions or even asthma attacks in people allergic to fungi. Some Genius of fungi are known to produce potent toxins and/or irritants. Potential health concerns are an important reason to prevent fungal growth and to remediate/clean up any existing indoor fungal growth.

Since fungi require water to grow, it is important to prevent moisture problems in buildings. Moisture problems can have many causes, including uncontrolled humidity. Some moisture problems in buildings have been linked to changes in building construction practices during the 1970s, 80s, and 90s. Some of these changes have resulted in buildings that are tightly sealed, but may lack adequate ventilation, potentially leading to moisture buildup. Building materials, such as drywall, may not allow moisture to escape easily. Moisture problems may include roof leaks, landscaping or gutters that direct water into or under the building, and poorly vented combustion appliances. Delayed maintenance or insufficient maintenance is also associated with moisture problems.

When fungal growth occurs in buildings, some building occupants, particularly those with allergies or respiratory problems, may report adverse health problems. Remediators should avoid exposing themselves and others to fungal-laden dusts as they conduct their cleanup activities. Caution should be used to prevent fungi and fungal spores from being dispersed throughout the air where building occupants can inhale them.

Fungi Prevention Tips

- Fix leaky plumbing and leaks in the building envelope as soon as possible.
- Watch for condensation and wet spots. Fix source(s) of moisture problem(s) as soon as possible.

- Prevent moisture due to condensation by increasing surface temperature or reducing the moisture level in air (humidity). To increase surface temperature, insulate or increase air circulation. To reduce the moisture level in air, repair leaks, increase ventilation (if outside air is cold and dry), or dehumidify (if outdoor air is warm and humid).
- Keep heating, ventilation, and air conditioning (HVAC) drip pans clean, flowing properly, and unobstructed.
- Vent moisture-generating appliances, such as dryers, to the outside where possible.
- Maintain low indoor humidity, below 60% relative humidity (RH), ideally 30-50%, if possible.
- Perform regular building/HVAC inspections and maintenance as scheduled.
- Clean and dry wet or damp spots within 24 - 48 hours.
- Don't let foundations stay wet. Provide drainage and slope the ground away from the foundation.

SCOPE OF WORK

LEW Corporation performed air sampling at Patrick McHaheran School, 63 Allerton Road, Lebanon, NJ 08833 to determine the effectiveness of the remediation efforts. Specifically, LEW Corporation investigated rooms 7, 8, 35, library, gym and main office conference room. LEW Corporation will have the samples analyzed and based on all the data collected provide a written report discussing the results and recommendations.

PROCEDURES

General

The inspection protocols were based on the guidelines of the EPA "Building Air Quality Guide for Building Owners and Facility Managers", ISBN-0-16-035919-8, published in December 1991, *Bioaerosols: Assessment and Control*, published by the American Conference of Governmental Industrial Hygienists in 1999 and Recognition, Evaluation and Control of Indoor Mold, published by the American Industrial Hygiene Association in 2008. These guides describe a process of building inspection and evaluation, information exchange and problem solving to enhance occupant health, comfort and productivity. The process involves the assessment of numerous air quality issues, including thermal comfort, emission sources, biological contamination, fresh air ventilation, and energy management.

Airborne Fungi

Air sampling for non-viable fungi (spores) is conducted with Air-O-Cell cassettes manufactured by Zefon Analytical Accessories of Ocala, Florida. These cassettes are also known as spore traps. A high-volume sampling pump is connected to the cassette and at least fifteen liters of air per minute are pulled through the cassette. The sampling time

varies from two minutes to ten minutes depending upon the site conditions and the investigator's best judgment. The goal is to not overload the cassette.

INSPECTION

LEW Corporation was requested to perform air sampling of the auditorium. Spore trap air samples were collected from two locations in the auditorium and one from the stage. One comparison sample was collected from the exterior front of the building.

The laboratory results of the air sample collected from Room 35 (181000-2) did not indicate the presence of significantly amplified concentrations of airborne mold spores when compared to the outdoor air sample.

The laboratory results of the air sample collected from Room 7 (181000-3) did not indicate the presence of significantly amplified concentrations of airborne mold spores when compared to the outdoor air sample.

The laboratory results of the air sample collected from Room 8 (181000-4) did not indicate the presence of significantly amplified concentrations of airborne mold spores when compared to the outdoor air sample.

The laboratory results of the air sample collected from the main office conference room (181000-5) did not indicate the presence of significantly amplified concentrations of airborne mold spores when compared to the outdoor air sample.

The laboratory results of the air sample collected from the library (181000-6) did not indicate the presence of significantly amplified concentrations of airborne mold spores when compared to the outdoor air sample.

The laboratory results of the air sample collected from south side of the gym (181000-7) did not indicate the presence of significantly amplified concentrations of airborne mold spores when compared to the outdoor air sample.

The laboratory results of the air sample collected from north side of the gym (181000-8) did not indicate the presence of significantly amplified concentrations of airborne mold spores when compared to the outdoor air sample.

Please see Appendix A for Laboratory Results

DISCUSSION AND RECOMMENDATIONS

The laboratory results from all the samples did not indicate the presence of significantly elevated airborne mold spore concentrations. Based on this information, it is LEW Corporation's opinion that the air quality of Rooms 7, 8, 35, library, gym and main office

conference room at the Patrick McGaheran was not being negatively impacted by mold growth at the time of the sampling.

APPENDIX A
Laboratory Results

EHS Laboratories

Non-Viable Spore Trap Analysis Report

Environmental Hazards Services, L.L.C.
7469 Whitepine Rd
Richmond, VA 23237

Telephone: 800.347.4010

Client: LEW Corp
181 US Hwy 46
Mine Hill, NJ 07803

Report Number: 18-09-02573

Received Date: 09/20/2018
Analyzed Date: 09/20/2018
Reported Date: 09/20/2018

Project/Test Address: 63 Allerton Road; Clinton, NJ

Client Number:
201327

Laboratory Results

Fax Number:
Ext 18

Lab # :	18-09-02573-001		18-09-02573-002		18-09-02573-003		18-09-02573-004		18-09-02573-005	
Client Sample ID :	181000-1		181000-2		181000-3		181000-4		181000-5	
Date Collected :	9/19/2018		9/19/2018		9/19/2018		9/19/2018		9/19/2018	
Collection Location :	OUTDOOR WEST		ROOM 35		ROOM 7		ROOM 8		CONFERENCE ROOM	
Sampling Media :	Air-O-Cell		Air-O-Cell		Air-O-Cell		Air-O-Cell		Air-O-Cell	
Analytical Sensitivity (spores/m3) :	13.3		13.3		13.3		13.3		13.3	
Volume (L) :	75		75		75		75		75	
Spore ID	Raw Count	Results (Spores/m3)	Raw Count	Results (Spores/m3)	Raw Count	Results (Spores/m3)	Raw Count	Results (Spores/m3)	Raw Count	Results (Spores/m3)
Cladosporium spores	226	3000	1	13	12	160	25	330	4	53
Peronospora/Oidium spores	4	53								
Penicillium/Aspergillus group spores	12	160	3	40	7	93	43	570	4	53
Alternaria spores	5	67								
Torula spores	1	13								
Pithomyces spores	2	27								
Epicoccum spores	2	27							1	13
Cercospora spores	6	80								
smuts, Periconia, myxomycetes			2	27	8	110			6	80
ascospores	255	3400			2	27	15	200		
basidiospores	284	3800	3	40	12	160	21	280	1	13
TOTAL SPORES(Spores/m3)		11000		120		550		1400		210
Analyst:	Araceli Enzler		Araceli Enzler		Araceli Enzler		Araceli Enzler		Araceli Enzler	

EHS Laboratories

Non-Viable Spore Trap Analysis Report

Environmental Hazards Services, L.L.C.
7469 Whitepine Rd
Richmond, VA 23237
Telephone: 800.347.4010

Client: LEW Corp
181 US Hwy 46
Mine Hill, NJ 07803

Report Number: 18-09-02573

Received Date: 09/20/2018
Analyzed Date: 09/20/2018
Reported Date: 09/20/2018

Project/Test Address: 63 Allerton Road; Clinton, NJ

Client Number: 201327

Fax Number: Ext 18

Laboratory Results

Lab # :	18-09-02573-006		18-09-02573-007		18-09-02573-008		18-09-02573-009			
Client Sample ID :	181000-6		181000-7		181000-8		181000-9			
Date Collected :	9/19/2018		9/19/2018		9/19/2018		9/19/2018			
Collection Location :	LIBRARY		GYM 1		GYM 2		OUTDOOR EAST			
Sampling Media :	Air-O-Cell		Air-O-Cell		Air-O-Cell		Air-O-Cell			
Analytical Sensitivity (spores/m3) :	13.3		13.3		13.3		13.3			
Volume (L) :	75		75		75		75			
Spore ID	Raw Count	Results (Spores/m3)	Raw Count	Results (Spores/m3)	Raw Count	Results (Spores/m3)	Raw Count	Results (Spores/m3)	Raw Count	Results (Spores/m3)
Cladosporium spores	5	67	32	430	23	310	182	2400		
Peronospora/Oidium spores							4	53		
Penicillium/Aspergillus group spores	7	93	21	280	25	330	63	840		
Alternaria spores							1	13		
Arthrinium spores							2	27		
Pyricularia spores							3	40		
Curvularia spores					2	27				
Torula spores					1	13	1	13		
Pithomyces spores	1	13	2	27	1	13				
Epicoccum spores							1	13		
Cercospora spores							9	120		
Fusarium spores							3	40		
smuts, Periconia, myxomycetes					37	490	39	520		
ascospores	4	53	8	110	21	280	53	710		
basidiospores	11	150	18	240	42	560	184	2500		

Environmental Hazards Services, L.L.C

Client Number: 201327

Report Number: 18-09-02573

Project/Test Address: 63 Allerton Road; Clinton, NJ

Lab # :	18-09-02573-006		18-09-02573-007		18-09-02573-008		18-09-02573-009			
Spore ID	Raw Count	Results (Spores/m3)	Raw Count	Results (Spores/m3)	Raw Count	Results (Spores/m3)	Raw Count	Results (Spores/m3)	Raw Count	Results (Spores/m3)
TOTAL SPORES(Spores/m3)		370		1100		2000		7300		
Analyst:		Araceli Enzler		Araceli Enzler		Araceli Enzler		Felicia Butler		

Method: Non-Culturable Spore Trap Examination

Reviewed By Authorized Signatory: Tasha Eaddy

Tasha Eaddy
QA/QC Clerk

The condition of the samples analyzed was acceptable upon receipt per laboratory protocol unless otherwise noted on this report. Results represent the analysis of samples submitted by the client. Sample location, description, volume, etc., was provided by the client. The Client is hereby notified that due to the subjective nature of fungal analysis and the growth process of fungal infestation, laboratory samples can and do change over time relative to the originally sampled material. This report shall not be reproduced except in full, without the written consent of Environmental Hazards Services, L.L.C.

EHS Laboratories
Environmental Hazards Services, LLC

Mold Chain-of-Custody Form

SHIP TO: 7469 Whitepine Rd. Richmond, VA 23237
Phone: (800) 347-4010 FAX: (804) 275-4907
ONLINE CLIENT PORTAL AVAILABLE FOR ANALYSIS RESULTS AT:
www.leadlab.com

18-09-02573

Due Date:
09/20/2018
(Thursday)
AE

Company Name: Lew Corporation Account Number: 201327
Address: 181 US Highway 46 City/State/Zip: Mine Hill NJ 07803
Phone: (908) 654-8068 Email: labresults@lewcorp.com Fax: P.O. #: 181000
Testing Address: 63 Alleaton Road City/State (Required): Clinton, NJ
Collection Date: 9/14/18 Time Collected: 3:15 AM / PM Collected by: Greg Krueger
Outside Air Temperature: 84 °F Indoor Air Temperature: °F Was There any Precipitation (Rain, Sleet, or Snow) 2 Hours or Less Before Taking the Samples? ☐ Yes ☑ No

TURN AROUND TIME: IF NO TAT IS SPECIFIED, SAMPLE(S) WILL BE PROCESSES AND CHARGED AS 3 DAY TAT.

	1 Day		2 Day		3 Day
9	Same Day		* Weekend - Must Call Ahead		

Sample Type Codes

Air/Non Viable	Spore Trap	Swab Sample Surface
Bulk = B	Air-O-Cell = AOC	Non-Porous = NP
Swab = S	Cyclex D = C	Semi-Porous = SP
WallCheck = W	BioSIS = B	Porous = P
Bio Tape = T	MicroS=MS	

Sample No.	Sample Type	Sample Location	Air Samples: Spore Trap Type	Air Samples: Air Volume (Total Liters)	Swab Samples: Surface Type (NP/SP/P)	Swab Samples: Area of Mold (In Square Feet - ft²)	Qualitative Particulate Analysis (Additional $10.00 per sample)	Comment
181000-1	Air	Outdoor West	AOC	75				
-2		Room 35						
-3		Room 7						
-4		Room 8						
-5		Conference Room						
-6		Library						
-7		Gym 1						
-8		Gym 2						

Released by: Greg Krueger Signature: Date/Time: 9/19/18 1600
Received by: T.M.S Signature: Date/Time: 9/20/18 10:45

EHS Laboratories™
Environmental Hazards Services, LLC

Mold Chain-of-Custody Form

SHIP TO: 7469 Whitepine Rd. Richmond, VA 23237
Phone: (800) 347-4010 FAX: (804) 275-4907
ONLINE CLIENT PORTAL AVAILABLE FOR ANALYSIS RESULTS AT:
www.leadlab.com

~For Lab Use Only ~

Company Name: Lew Corporation Account Number: 201327
Address: 181 US Highway 46 City/State/Zip: Mine Hill NJ 07803
Phone: (908) 654-8068 Email: labresults@lewcorp.com Fax: P.O. #: 18lcee
Testing Address: 63 Alterdon Road City/State (Required): Clinton, NJ
Collection Date: 9/19/18 Time Collected: 3:45 AM (PM) Collected by: Greg Krueger
Outside Air Temperature: 84 °F Indoor Air Temperature: °F Was There any Precipitation (Rain, Sleet, or Snow) 2 Hours or Less Before Taking the Samples? ☐ Yes ☒ No

TURN AROUND TIME: IF NO TAT IS SPECIFIED, SAMPLE(S) WILL BE PROCESSES AND CHARGED AS 3 DAY TAT.

	1-Day		2-Day		3-Day
✓	Same Day		Weekend – Must Call Ahead		

Sample Type Codes

Air/Non Viable	Spore Trap	Swab Sample Surface
Bulk = B	Air-O-Cell = AOC	Non-Porous = NP
Swab = S	Cyclex D = C	Semi-Porous = SP
WallCheck = W	BioSIS = B	Porous = P
Bio Tape = T	Micro5=M5	

Sample No.	Sample Type	Sample Location	Air Samples		Swab Samples		Qualitative Particulate Analysis (Additional $10.00 per sample)	Comment
			Spore Trap Type	Air Volume (Total Liters)	Surface Type (NP/SP/P)	Area of Mold (In Square Feet - ft²)		
18lcee-9	Air	Outdoor East	AOC	75				

Released by:		Signature:	Date/Time:
Received by:	T. Mh	Signature:	Date/Time: 9/20/18 10:45