

CRYSTAL LAKE SCHOOL DISTRICT 47
RICHARD BERNOTAS MIDDLE SCHOOL
CRYSTAL LAKE, IL 60014
MOLD INDOOR AIR QUALITY STUDY
ROOMS 23, B-3 & B-4

PREPARED FOR:

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PREPARED ON: MARCH 25, 2025

PREPARED BY:

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1. INTRODUCTION

Pepper Environmental Technologies, Inc. (PET) is pleased to provide you with this letter summarizing the laboratory results from the indoor air quality testing for mold/fungus spores at Richard Bernotas Middle School, located at 170 N Oak St, Crystal Lake, Illinois 60014.

This study was performed on Wednesday March 19, 2025. The building was occupied during the time of the study, which was prior to and during the arrival of students. Mold air samples were collected in Rooms 23, B-3 and B-4.

2. SAMPLING

The mold air sampling was conducted using a Calibrated High Volume Air Sampling Pump (Zefon Bio Pump Plus) and Air-O-Cell cassettes. Both indoor and outdoor samples were collected. All samples were collected at a flow rate of 15 liters per minute at a rate of 5 minutes each. Samples were hand delivered under a chain of custody to Sterling Laboratories in Des Plaines, Illinois, for laboratory analysis. The laboratory results can be found in Attachment A.

The primary purpose of the sampling was to determine mold spore concentrations within Rooms 23, B-3 and B-4. Mold spores are like microscopic seeds. Virtually all molds produce spores. Each species of mold produces spores that are unique to its species. This morphology is used to identify the mold specie types and quantities that may be present. Mold spores are found both indoors and outdoors.

Currently there are no federal, state, or local standards regulating exposure to molds. Mold air sample results from this study can be found on the following pages and in the attached laboratory report.

3. FINDINGS / AIR-O-CELL TEST RESULTS

AREA / ROOM SAMPLED	TOTAL FUNGAL SPORES RAW COUNTS	SPORE COUNTS PER CUBIC METER OF AIR	IDENTIFICATIONS
1 Room 23	1	13	<i>Cladosporium</i>
2 Room B-3	5	67	<i>Ascospores, Cladosporium,</i>

AREA / ROOM SAMPLED	TOTAL FUNGAL SPORES RAW COUNTS	SPORE COUNTS PER CUBIC METER OF AIR	IDENTIFICATIONS
3 Room B-4	4	53	<i>Aspergillus/Penicillium, Smuts/Myxomycetes</i>
4 Outdoors, Main Entrance Side of Building	17	227	<i>Ascospores, Aspergillus/Penicillium, Cladosporium, Smuts/Myxomycetes, Spegazzinia-Like</i>
5 Outdoors, Back Side of the Building	3	40	<i>Aspergillus/Penicillium, Cladosporium, Smuts/Myxomycetes</i>

4. METHODOLOGIES / SUMMARY OF RESULTS

Currently, there are no governmental standards for acceptable levels of mold spores. In lieu of any standard, mold air samples are usually evaluated in one of two ways. The first is by comparing the total airborne concentration of spores found inside the building to those found outside the building. Typically, inside concentrations are less than outdoor concentrations. If the opposite occurs, it may be an indication of a concern. The second method is to evaluate the genus/species of the mold spores identified. In general, airborne mold specie-types identified inside a building should be similar to those found outside the building. If significant variations are observed, it may also be an indication of a potential concern.

Mold concentrations found indoors during this study ranged from 13 to 67 spores per cubic meter of air (sp/m³). The outdoor comparison samples ranged from 40 to 227 sp/m³.

The mold specie-types found on the indoor samples during this study are similar to those found on the outdoor samples. According to the Centers for Disease Control (CDC), the most common indoor molds specie-types are *Cladosporium* and *Aspergillus/Penicillium*. These specie-types can also be found outdoors. The National Institute of Health reports the *Aspergillus* species is a ubiquitous mold which can be found in many structures. Some literature suggests that airborne spores generally should be less than 1,500 sp/m³ and suggests that *Aspergillus/Penicillium* spores be on average less than 700 sp./m³. *Ascospore* concentrations of over 5,000 sp/m³ may be of a concern to susceptible populations.

During this study, the above-referenced specie-types were below their associated theoretical thresholds. *Cladosporium* concentrations found indoors ranged from 13 to 53 sp/m³, which is

lower than the highest outdoor control concentration of 107 sp/m³. *Aspergillus/Penicillium* concentrations were found on one indoor sample (#3 Room B-4) at a concentration of 40 sp/m³, which is similar to the concentrations found outdoors at the Main Entrance side of the building. *Ascospores* concentrations were found on one indoor sample (#2 Room B-3) at a concentration of 13 sp/m³, which is lower than to those found outdoors at the Main Entrance side of the building (#4).

5. CONCLUSION

At the time of air testing, no musty or damp odors and no standing water were noted in the locations tested. Indoor air samples collected at Richard Bernotas Middle School during this study showed average indoor spore concentrations of 44.33 sp/m³, which is lower than the outdoor average concentrations of 133.50 sp/m³. The mold specie types found inside the building during this study were similarly present in the specie types found outdoors, which is a normal finding. Please find the attached Laboratory Report (Attachment A), and Sample Location Maps (Attachment B) outlining the mold air sampling results and sampling locations, respectively. PET's Environmental Credentials can be found in Attachment C.

PET appreciates the opportunity to perform this study for Crystal Lake Elementary School District 47. If you have any questions or concerns, please do not hesitate to contact us.

Sincerely,

PEPPER ENVIRONMENTAL TECHNOLOGIES, INC.



Steve Soloma, PM-ASP
Senior Project Manager



Michael J. Grant, CIEC, CMI
Vice President

Attachment A, Analytical Laboratory Results
Attachment B, Sampling Locations
Attachment C, Environmental Credentials

ATTACHMENT A

ANALYTICAL LABORATORY RESULTS



2242 West Harrison St., Suite 200, Chicago, IL 60612-3766
Tel: (312) 733-0551 Fax: (312) 733-2386 Info@TheSterlingLab.com

March 24, 2025

Pepper Environmental Technologies
411 Lake Zurich Road
Barrington, IL 60610
Telephone: (847) 304-1326
Fax: (847) 304-0121

Analytical Report for Work Order: 25030189 Revision 0
RE: 2400913 GGG, D47 Bernotas IAQ, Crystal Lake, IL

Dear Pepper Environmental Technologies:

Sterling Labs received 5 samples for the referenced project on 3/19/2025 3:53:00 PM. The analytical results are presented in the following report.

Enclosed are the analytical results for the above referenced project. The samples were analyzed as per the enclosed chain of custody.

All analyses were performed in accordance with established microbiology methodology. All Quality Control criteria as specified in the methods have been met. QA/QC documentation and raw data will remain on file for future reference. Sample acceptance criteria has been met unless noted in the Case Narrative or Sample Receipt Checklist. If required, an estimate of uncertainty for the analyses can be provided.

Thank you for the opportunity to serve you and I look forward to working with you in the future. If you have any questions about the enclosed materials, please contact me at (312) 733-0551.

Sincerely,

A solid black rectangular box redacting the signature of Daniel Mikos.

Daniel Mikos
Microscopist

The information contained in this report and any attachments is confidential information intended only for the use of the individual or entities named above. The results of this report relate only to the samples as received and tested. Sterling Labs is not responsible for customer provided information found in the report that is used to calculate final results. If you have received this report in error, please notify us immediately by phone. This report shall not be reproduced, except in its entirety, unless written approval has been obtained from the laboratory. This analytical report shall become property of the Customer upon payment in full. Otherwise, Sterling Labs will be under no obligation to support, defend or discuss the analytical report.



Analytical Report for Microbiological Analysis - Fungal Spores in Air

Client: Pepper Environmental Technologies
 Project ID: 2400913 GGG, D47 Bernotas IAQ, Crystal Lake, IL
 STAT Project No.: 25030189

Date/Time Received: 3/20/25 9:34
 Date Analyzed: 3/24/2025
 Analyzed By: DM
 QC By: ZN

Client Sample No.:	1				2				3				4			
Sample Description:	Classroom 23				Classroom B-3				Classroom B-4				Outdoors, Main Ent. Side of Bldg			
Date Sampled:	3/19/2025				3/19/2025				3/19/2025				3/19/2025			
STAT Sample No.:	25030189-001				25030189-002				25030189-003				25030189-004			
Volume (m ³):	0.075				0.075				0.075				0.075			
	Total Count	Count/m ³	DL	%	Total Count	Count/m ³	DL	%	Total Count	Count/m ³	DL	%	Total Count	Count/m ³	DL	%
Total Fungal Spores:	1	13	13	100	5	67	13	100	4	53	13	100	17	227	13	100
<i>Alternaria</i>																
<i>Ascospores</i>					1	13		20.0					4	53		23.5
<i>Aspergillus/Penicillium</i>									3	40		75.0	3	40		17.6
<i>Basidiospores</i>																
<i>Botrytis</i>																
<i>Cercospora</i>																
<i>Chaetomium</i>																
<i>Cladosporium</i>	1	13		100.0	4	53		80.0					8	107		47.1
<i>Curvularia</i>																
<i>Drechslera/Bipolaris</i>																
<i>Epicoccum</i>																
<i>Fusarium</i>																
<i>Nigrospora</i>																
<i>Oidium/Erysiphe</i>																
<i>Periconia</i>																
<i>Phoma</i>																
<i>Pithomyces</i>																
<i>Pleospora</i>																
<i>Polythrincium</i>																
<i>Rhizopus/Mucor</i>																
<i>Rusts</i>																
<i>Smuts/Myxomycetes</i>									1	13		25.0	1	13		5.9
<i>Stachybotrys</i>																
<i>Stemphylium</i>																
<i>Torula</i>																
<i>Ulocladium</i>																
Unidentified Fungi																
Other																
Spiegazzinia Like													1	13		5.9
Mycelial Fragments																
Debris Level	Moderate				Moderate				Moderate				Moderate			
Organic Material	Present				Present				Present				Present			



Analytical Report for Microbiological Analysis - Fungal Spores in Air

Client: Pepper Environmental Technologies
 Project ID: 2400913 GGG, D47 Bernotas IAQ, Crystal Lake, IL
 STAT Project No.: 25030189

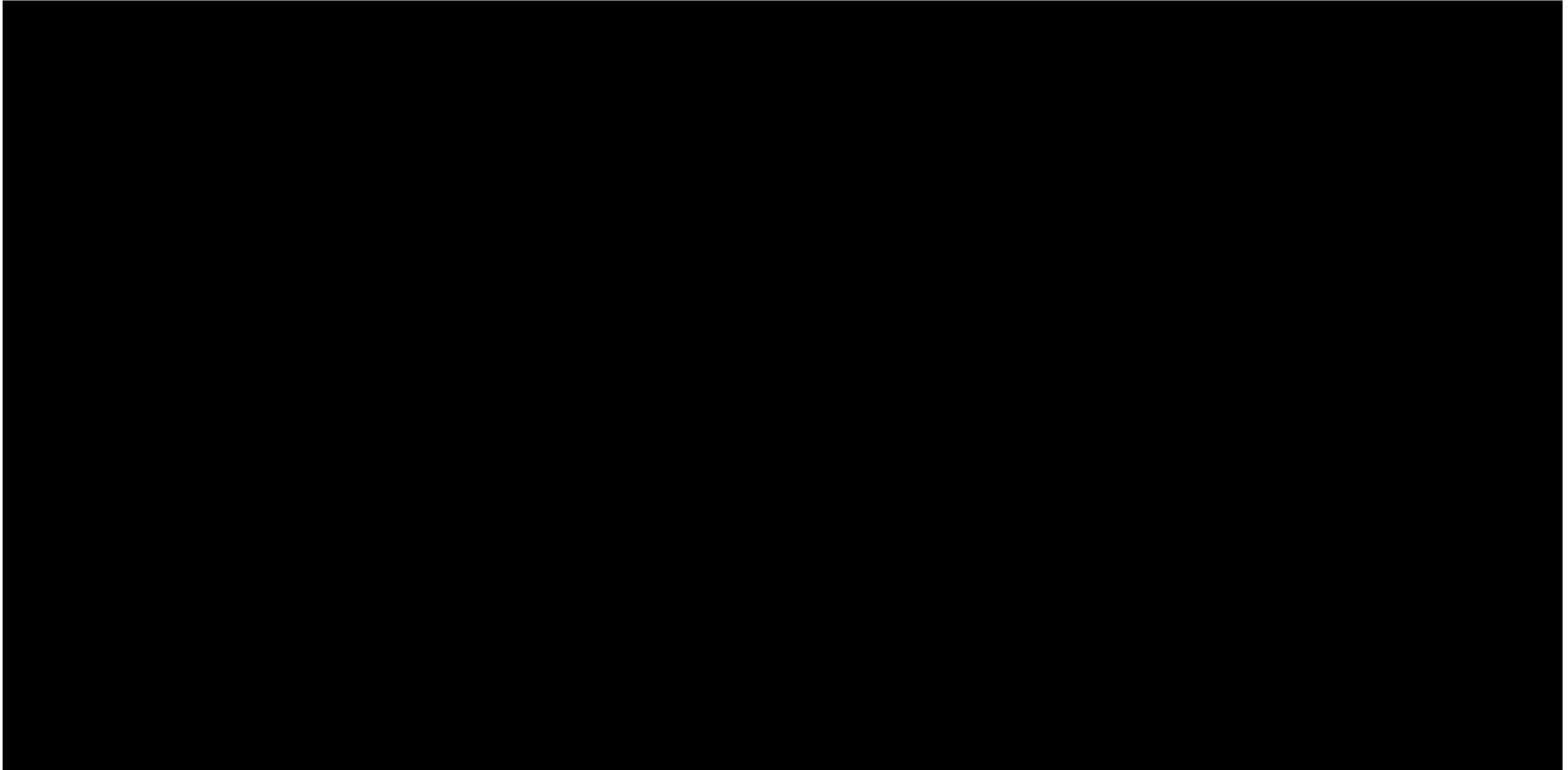
Date/Time Received: 3/20/25 9:34
 Date Analyzed: 3/24/2025
 Analyzed By: DM
 QC By: ZN

Client Sample No.:	5															
Sample Description:	Outdoors, Back Side of Bldg															
Date Sampled:	3/19/2025															
STAT Sample No.:	25030189-005															
Volume (m ³):	0.075															
	Total Count	Count/m ³	DL	%	Total Count	Count/m ³	DL	%	Total Count	Count/m ³	DL	%	Total Count	Count/m ³	DL	%
Total Fungal Spores:	3	40	13	100												
<i>Alternaria</i>																
<i>Ascospores</i>																
<i>Aspergillus/Penicillium</i>	1	13		33.3												
<i>Basidiospores</i>																
<i>Botrytis</i>																
<i>Cercospora</i>																
<i>Chaetomium</i>																
<i>Cladosporium</i>	1	13		33.3												
<i>Curvularia</i>																
<i>Drechslera/Bipolaris</i>																
<i>Epicoccum</i>																
<i>Fusarium</i>																
<i>Nigrospora</i>																
<i>Oidium/Erysiphe</i>																
<i>Periconia</i>																
<i>Phoma</i>																
<i>Pithomyces</i>																
<i>Pleospora</i>																
<i>Polythrincium</i>																
<i>Rhizopus/Mucor</i>																
<i>Rusts</i>																
<i>Smuts/Myxomycetes</i>	1	13		33.3												
<i>Stachybotrys</i>																
<i>Stemphylium</i>																
<i>Torula</i>																
<i>Ulocladium</i>																
Unidentified Fungi																
Other																
Mycelial Fragments																
Debris Level	Moderate															
Organic Material	Present															

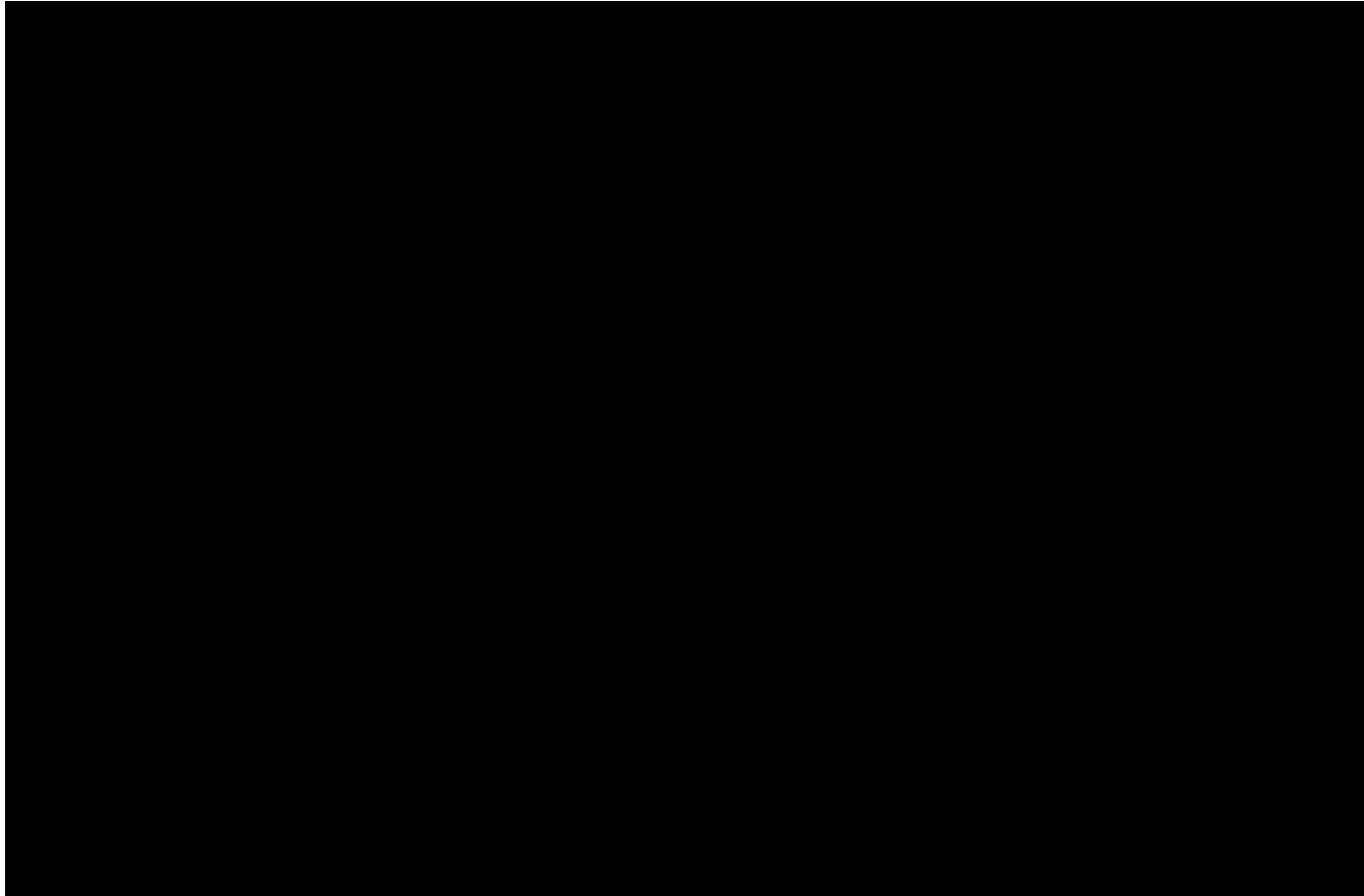
ATTACHMENT B

SAMPLE LOCATIONS

MOLD INDOOR AIR QUALITY SAMPLING LOCATIONS FIRST FLOOR



MOLD INDOOR AIR QUALITY SAMPLING LOCATIONS LOWER LEVEL



ATTACHMENT C

ENVIRONMENTAL CREDENTIALS



American Council for Accredited Certification

hereby certifies that

Michael J. Grant

has met all the specific standards and qualifications of the re-certification process,
including continued professional development, and is hereby re-certified as a

CIEC

**Council-certified
Indoor Environmental Consultant**

This certificate expires on August 31, 2025



Charles F. Wiles, Executive Director

1108018

Certificate Number

This certificate remains the property of the American Council for Accredited Certification.

CERTIFICATE OF COMPLETION

THIS CERTIFICATE DEMONSTRATES THAT

MICHAEL GRANT

COMPLETED THE FOLLOWING COURSE TAUGHT BY INDOOR SCIENCES INC.:

CERTIFIED MICROBIAL INVESTIGATOR (CMI)

THE COURSE WAS ATTENDED ON **AUGUST 20 – 21, 2012** AND
INCLUDED **16 HOURS** OF INDOOR AIR QUALITY TRAINING.



IndoorSciences



IAN CULL, PE, CIEC
PRESIDENT
INDOOR SCIENCES, INC.

8/22/2012
DATE