



MOISTURE & MICROBIAL INVESTIGATION

**MULLICA TOWNSHIP SCHOOL
500 ELWOOD ROAD
ELWOOD, PENNSYLVANIA 08037**

Prepared For:

Mr. Andrew Weber
Mullica Township School District
500 Elwood Road
Elwood, New Jersey 08217

Hillmann Project Number: PH-1328

September 19, 2020



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Mr. Andrew Weber
Superintendent
Mullica Township School District
500 Elwood Road
Elwood, New Jersey 08217

RE: Post Water Intrusion Microbial Investigation
Mullica Township School
500 Elwood Road
Elwood, New Jersey 08037
Hillmann Project No.: PH-1328

Dear Mr. Weber,

Hillmann Consulting, LLC, is pleased to provide the findings of our Post Water Intrusion Microbial Investigation of the above referenced location. This service was performed by a trained industrial hygienist using New York City guidelines "Assessment and Remediation of Fungi in Indoor Environments"; the United States Environmental Protection Agency (USEPA) Mold Remediation in Schools and Commercial Buildings; or the Institute of Inspection, Cleaning, and Restoration Certification (IICRC), Standard and Reference Guide for Professional Mold Remediation S520 or the IICRC Standard and Reference Guide for Professional Water Damage Restoration and/or other applicable state or local guidelines as appropriate.

This report is for the exclusive use of the entities named on the front cover, and no other party shall have any right to rely on any service provided by Hillmann Consulting, LLC, without prior written consent.

We appreciate the opportunity to provide environmental consulting services. If you have any questions concerning this report, or if we can assist you in any other matter, please contact the undersigned at (856) 581-9055.

Regards,
HILLMANN CONSULTING, LLC

Rafael L. Torres, III
Director of Operations
Philadelphia Area Regional Office

Jill Asch, MPH, CIH, CSP
Corporate Health and Safety Officer

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1.0 EXECUTIVE SUMMARY

1.1 General

On September 17, 2020, Mr. John Murphy, CMI of Hillmann Consulting, LLC (Hillmann), conducted a Moisture and Microbial Investigation at the Mullica Township School at located at 500 Elwood Road in Elwood, New Jersey. The inspection addressed concerns of suspect surficial microbial growth identified within classrooms and offices throughout the school. According to school district representatives, the microbial growth was first observed on Chromebook covers within the IT office on August 13, 2020.

Hillmann's site investigator performed a visual inspection for conditions that could be reasonably associated with the loss. Parameters for the investigation included a visual inspection, moisture mapping survey, the collection of airborne fungal spore samples, and the collection of temperature and relative humidity readings.

1.2 Summary of Findings

On the day of the inspection, Hillmann was met on site by Mr. Robert Murtin of McBrearty and Associates (McBrearty) and school district representatives, who informed Hillmann that there had been concerns of surficial microbial growth within the school on various surfaces, furniture, and materials. Facility personnel had stated that there have been no recent water intrusions within the subject property. Hillmann was informed that the school had lost power for three days between August 3, 2020 and August 5, 2020 due to a tropical storm which subsequently prevented the HVAC system from adequately conditioning the school and controlling relative humidity levels. According to facility personnel, relative humidity levels within the school reached levels as high as 97% within those three days with no power and remained between 70% and 80% for several weeks afterwards. On the day of the inspection, the following observations were made:

- The interior of the school consisted of a combination of concrete block, wallboard, and plaster walls, a suspended drop tile ceiling, and a combination of carpeted, vinyl tile, and terrazzo flooring. Moisture content readings collected on selected/accessible surfaces throughout the school were below 17% WME and considered to be dry.
- Hillmann observed Classrooms 8, 9, 11, 26, 41 (Band Room), 43 (APR and Stage), Technology Office (Room 61A), and 59, 72/74/76 (Gym, Office, & Storage) to contain greater than 20 square feet of surficial microbial growth within each above area on various surfaces, furniture, and materials.
- Hillmann observed the District Administrative Offices, Curriculum Offices, Admin Conference Rooms 1 & 2, Elementary School Administrative Offices, Middle School Administrative Offices, Middle School Guidance Office, Classroom 1, 2, 3, 4, 6, 7, 10, 12, 13, 14, 15, 16, 17, 19, 20 (Library), 21, 22, 24, 27, 32, 34, 35, 36, 37, 39, 40, 42, 44, 46, 51, 54 & Storage, 55, 56, 57, 60, 61A, 61B, 62, 71, 73, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 91, 92, 93, 94, 95, 96, 97, 98, and 99 to contain minor sporadic areas of microbial growth less than 20 square feet in total within each above area.

- Temperature and relative humidity measured within the school at the time of the investigation ranged from 68.0 to 73.1°F and 59.7% to 87.6%, respectively.
- Airborne fungal spore samples were collected from representative areas within the school. Total and individual indoor fungal spore concentrations in the samples collected were generally elevated compared to the outdoor reference levels.

1.3 Conclusions/Recommendations

Based upon the visual observations, discussions with district representatives, and the laboratory data, the subject spaces do appear to be facilitating microbial growth. Hillmann believes the source of the microbial growth stems from the August power outage that elevated relative humidity in the building to levels that could not be adequately controlled once power was restored. Hillmann recommends the timely remediation of all impacted materials as outlined in Section 3.0.

The remediation of affected building materials supporting visible microbial growth and water damaged building materials should be performed by a qualified and experienced remediation contractor, with employees trained to perform remediation procedures as described in the New York City guidelines "Assessment and Remediation of Fungi in Indoor Environments"; the United States Environmental Protection Agency (USEPA) Mold Remediation in Schools and Commercial Buildings; or the Institute of Inspection, Cleaning, and Restoration Certification (IICRC), Standard and Reference Guide for Professional Mold Remediation S520, and/or other applicable state or local guidelines as appropriate. The qualified contractor shall also provide proof of liability insurance that includes mold remediation activities.

2.0 INTRODUCTION

2.1 General

On September 17, 2020, Mr. John Murphy, CMI of Hillmann Consulting, LLC (Hillmann), conducted a Moisture and Microbial Investigation at the Mullica Township School at located at 500 Elwood Road in Elwood, New Jersey. The inspection addressed concerns of suspect surficial microbial growth identified within classrooms and offices throughout the school. According to school district representatives, the microbial growth was first observed on Chromebook covers within the IT office on August 13, 2020.

Hillmann's site investigator performed a visual inspection for conditions that could be reasonably associated with the loss. Parameters for the investigation included a visual inspection, moisture mapping survey, the collection of airborne fungal spore samples, and the collection of temperature and relative humidity readings.

2.2 List of Abbreviations

Hillmann may use the following abbreviations and acronyms for common terminology described in our report. Not all abbreviations or acronyms may be applicable to this report:

ABIH	American Board of Industrial Hygiene
ACGIH	American Conference of Governmental Industrial Hygienists
AIHA	American Industrial Hygiene Association
ANSI	American National Standards Institute
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
CDC	Centers for Disease Control
CHMM	Certified Hazardous Materials Manager
CIH	Certified Industrial Hygienist
CFU/m ³	Colony Forming Units per cubic meter of air
CSP	Certified Safety Professional
EMPAT	Environmental Microbiology Proficiency Analytical Testing Program
F/cc	Fibrous dust per cubic centimeter of air
FF & E	Fixtures, Furniture and Equipment
HEPA	High Efficiency Particulate Air
HVAC	Heating, Ventilation & Air Conditioning
IICRC	Institute of Inspection, Cleaning and Restoration Certification
mg/m ³	Milligrams per cubic meter of air
NAAQS	National Ambient Air Quality Standard
NIOSH	National Institute for Occupational Safety and Health
OSHA	Occupational Safety and Health Administration
OVAG	Organic Vapor Acid Gas
PEL	Permissible Exposure Limit
ppb	Parts per billion
ppm	Parts per million
TLV	Threshold Limit Value
TWA	Time Weighted Average
USEPA	United States Environmental Protection Agency

2.3 Purpose/Scope of Work

Hillmann's site investigator performed a visual inspection for conditions that could be reasonably associated with the loss. Parameters for the investigation included a visual inspection, moisture mapping survey, the collection of temperature and relative humidity readings, and the collection of airborne fungal spore samples.

The inspection and sampling, where applicable, were performed by a trained industrial hygienist using United States Environmental Protection Agency (USEPA) and National Institute for Occupational Safety and Health (NIOSH) sampling techniques. Samples, if collected, were analyzed at an AIHA EMPAT accredited laboratory. These samples, representative of a narrow time frame, are for screening purposes only and are not intended to represent definitive exposure levels.

The observations noted in this report are indicative of the conditions on-site at the time of the investigation. Hillmann does not warranty or certify that the conditions represented in this investigation will not change significantly over time. In this report, Hillmann may have included information provided to us by other sources, such as, but not limited to, interviews with the occupants, prior reports, etc. Hillmann merely reports the information provided; we are not responsible for accuracy or validity of the information.

2.4 Sampling Parameters and Methodology

Hillmann selected the following sampling parameters based on consultations with the client, the laboratories performing the analysis, and our in-house experts. Parameters for the investigation included a visual inspection, moisture mapping survey, the collection of temperature and relative humidity readings, and the collection of airborne fungal spore samples. The inspection is a general screening to identify if microbial amplification exists within the residence.

- Visual Inspections of accessible areas were conducted by an experienced industrial hygienist.
- Relative surface moisture content was measured using a direct read Survey Master Protimeter® moisture meter. The moisture detector operates in two distinct modes: Search Mode (REL) and Measure Mode - Pin (WME). In the search mode it measures the relative moisture level up to 3/4" beneath the surface of a building material in a range of 70 to 999 (REL). In the measure mode the unit uses electrical conductance principles to measure the moisture level of the material between the two electrodes and displays the reading in percent Wood Moisture Equivalent (%WME) ranging 7.9% to 99%. Measure mode readings are precise and specific to the area of contact between the electrode tips. In typical building materials encountered, elevated moisture content exists when readings of 170 - 200 REL or 17.0% - 20% WME are exceeded, or if moisture readings differ by more than 10% from background readings of unimpacted associated building materials.
- Airborne fungal spores were collected by drawing air through an Air-O-Cell® cassette utilizing a Zefon BioPump. Samples were collected for a time period of five (5) minutes at a calibrated flow rate of 15 L/min yielding a total sample volume of 75 liters. These cassettes were then

sent to an AIHA EMLAP accredited laboratory where fungal spores were identified by genera and concentration. Fungal spores are present in normal indoor settings. If found in excess amounts, these spores can produce allergy-like symptoms as well as asthmatic reactions in those who are sensitive to them. If the indoor samples are found to have a greater diversity of genera, and/or higher amounts of fungal spores than outdoor samples, it can be determined that the subject space may be facilitating microbial growth.

- Temperature and Relative Humidity readings were measured using a direct read Extech Hygro-Thermometer Pen® Model 445580. The 445580 can measure Relative Humidity from 10% to 90% and Temperature from 14°F to 122°F. A High Precision thin-film capacitance type sensor is utilized to measure Relative Humidity.

2.5 Site Observations

On the day of the inspection, Hillmann was met on site by Mr. Robert Murtin of McBrearty and Associates (McBrearty) and school district representatives, who informed Hillmann that there had been concerns of surficial microbial growth within the school on various surfaces, furniture, and materials. Facility personnel had stated that there have been no recent water intrusions within the subject property. Hillmann was informed that the school had lost power for three days between August 3, 2020, and August 5, 2020, due to a tropical storm which subsequently prevented the HVAC system from adequately conditioning the school and controlling relative humidity levels. According to facility personnel, relative humidity levels within the school reached levels as high as 97% within those three days with no power and remained between 70% and 80% for several weeks afterwards. On the day of the inspection, the following observations were made:

- The interior of the school consisted of a combination of concrete block, wallboard, and plaster walls, a suspended drop tile ceiling, and a combination of carpeted, vinyl tile, and terrazzo flooring. Moisture content readings collected on selected/accessible surfaces throughout the school were below 17% WME and considered to be dry.
- Hillmann observed Classrooms 8, 9, 11, 26, 41 (Band Room), 43 (APR and Stage), Technology Office (Room 61A), and 59, 72/74/76 (Gym, Office, & Storage) to contain greater than 20 square feet of surficial microbial growth within each above area on various surfaces, furniture, and materials.
- Hillmann observed the District Administrative Offices, Curriculum Offices, Admin Conference Rooms 1 & 2, Elementary School Administrative Offices, Middle School Administrative Offices, Middle School Guidance Office, Classroom 1, 2, 3, 4, 6, 7, 10, 12, 13, 14, 15, 16, 17, 19, 20 (Library), 21, 22, 24, 27, 32, 34, 35, 36, 37, 39, 40, 42, 44, 46, 51, 54 & Storage, 55, 56, 57, 60, 61A, 61B, 62, 71, 73, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 91, 92, 93, 94, 95, 96, 97, 98, and 99 to contain minor sporadic areas of microbial growth less than 20 square feet in total within each above area.
- Temperature and relative humidity measured within the school at the time of the investigation ranged from 68.0 to 73.1°F and 59.7% to 87.6%, respectively.

- Airborne fungal spore samples were collected from representative areas within the school. Total and individual indoor fungal spore concentrations in the samples collected were generally elevated compared to the outdoor reference levels.

3.0 RECOMMENDED SCOPE OF WORK

Recommendations Summary Table: Hillmann recommends that remediation of the following suspect visual surficial microbial growth in the school be performed without delay.

Contents exhibiting surficial apparent mold growth:

- Porous contents, such as fabrics, upholsteries, cushions, etc., should be appropriately cleaned or discarded.
- Semi-porous contents, such as unfinished wood, should be HEPA vacuumed and wiped clean with a broad-spectrum biocide if deemed cost-effective.
- Non-porous contents, such as metal and finished wood, should be HEPA vacuumed and wiped clean with a broad spectrum.

Contents not exhibiting surficial apparent mold growth:

- Porous contents, such as fabrics, upholsteries, cushions, etc., should be HEPA vacuumed and laundered if the composition of the material allows.
- Semi-porous contents, such as unfinished wood, should be HEPA vacuumed and wiped clean with a broad-spectrum biocide if deemed cost-effective.
- Non-porous contents, such as metal and finished wood, should be HEPA vacuumed and wiped clean with a broad spectrum. Removal all stained/dirty ceiling tiles

Based on the site observations, Hillmann proposes rooms observed to present with greater than twenty (20) square feet of visible mold growth be remediated utilizing a professional remediation contractor. Hillmann believes other areas of the school can be successfully cleaned utilizing district staff.

Area	Level of Cleaning
Rooms 8, 9, 11, 26, 41 (Band Room), 43 (APR and Stage), Technology Room (Room 61A) and 59, 72/74/76 (Gym, Office, & Storage)	Professional Remediation
The District Administrative Offices, Curriculum Offices, Admin Conference Rooms 1 & 2, Elementary School Administrative Offices, Middle School Administrative Offices, Middle School Guidance Office, Classroom 1, 2, 3, 4, 6, 7, 10, 12, 13, 14, 15, 16, 17, 19, 20 (Library), 21, 22, 24, 27, 32, 34, 35, 36, 37, 39, 40, 42, 44, 46, 51, 54 & Storage, 55, 56, 57, 60, 61A, 61B, 62, 71, 73, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 91, 92, 93, 94, 95, 96, 97, 98, and 99	In House Remediation

Location	Materials	Action
Rooms 8, 9, 11, 26, 41 (Music Room), 43 (APR and Stage), 59, 72/74/76 (Gym, Office, & Storage) The District Administrative Offices, Curriculum Offices, Admin Conference Rooms 1 & 2, Elementary School Administrative Offices, Middle School Administrative Offices, Middle School Guidance Office, Classroom 1, 2, 3, 4, 6, 7, 10, 12, 13, 14, 15, 16, 17, 19, 20 (Library), 21, 22, 24, 27, 32, 34, 35, 36, 37, 39, 40, 42, 44, 46, 51, 54 & Storage, 55, 56, 57, 60, 61A, 61B, 62, 71, 73, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 91, 92, 93, 94, 95, 96, 97, 98, and 99	All Surfaces In Work Areas (Vertical and Horizontal) Air Filtration Devices (AFDs) Additional Removal Miscellaneous Contents Relative Humidity Levels HVAC Univent Units in Classrooms Containments Carpeting	HEPA vacuum, clean and treat with an appropriate antimicrobial agent. Air Filtering Devices (AFD's) should be utilized during the remediation and for a minimum period of 48 hours following completion of all cleaning activities. Additional removal may be warranted if additional microbial contamination is discovered during remediation. Clean and/or discard miscellaneous contents exhibiting microbial growth, including corkboards. Humidity levels should be maintained below 65% to inhibit amplification of microbial growth. Inspect for microbial growth; if discovered HEPA vacuum, clean and treat with an appropriate antimicrobial agent. An established containment utilizing poly sheeting should be constructed to separate work areas from remainder of the residence. HEPA vacuum, clean and treat with an appropriate antimicrobial agent.

- Recommendations were made based on visual observations and limited access. Additional removal may be warranted based on intrusive investigation of contractors.
- Areas that may need to be addressed, that are not part of this covered loss, should be specifically addressed with the Owner.
- Additional material removal may be warranted upon discovery of additional contamination by the remediation firm.
- Contractors must constantly and continually observe and note moisture conditions of the affected materials and determine the efficacy of the drying efforts during the drying process. Contractors should advise the Owner and the Industrial Hygienist of any change in growth on the materials, or any signs of new water release unrelated to the current loss.
- To Hillmann's knowledge, no sampling for asbestos-containing materials or lead based paint has been conducted in the property. Therefore, we assume the affected materials may be asbestos and/or lead containing and the remediation contractor should comply with all local, state and federal regulations.
- Anti-Microbial Treatment of Surfaces-The use of anti-microbial treatment is not a standard remediation technique; its use is limited to areas or items that cannot be reasonably addressed under normal procedures, i.e., removal. If directed by the industrial hygienist and requested as part of this SOW, treatment shall entail the application of a single coat of an anti-microbial agent to the subject surfaces following all required cleaning and surface preparation. This agent shall be an USEPA registered anti-microbial product with a coloring agent added to allow verification of complete coverage. The purpose of this treatment shall be to reduce the probability of future growth due to conditions created by the covered loss and not to enhance the properties of the existing materials beyond that which existed prior to the loss. Encapsulation and sealing are not required for clearance.

3.1 Overview

3.1.1 While performing the work of this project, the contractor shall be subject to on-site inspection by the client's authorized representative who may be assisted by safety and health personnel. If the work is found to be in violation of specification requirements, the client's authorized representative will issue a stop work order to be effective immediately and until the violation is resolved. Standby time and expenses required to resolve the violation shall be at the contractor's expense.

3.1.2 Contractor's Use of Premises

General: The contractor shall restrict its use of the premises to those areas undergoing renovation. The contractor shall be allowed enough usage of the space so as to allow for the timely completion of the project and to allow the client occupancy by the required time.

Use of the site: The contractor shall keep existing entrances serving the premises clear and available to the client and his employees at all times. The contractor will not use these areas for storage of materials. At no time should any stairwell be blocked so as to deny access or constitute violation of local fire regulations.

The contractor must not unreasonably encumber the site with materials or equipment. The contractor shall confine stockpiling of materials to areas approved for use by the client. If additional storage is necessary, the contractor must obtain and pay for such storage off site.

Contractor's use of the existing property(s): The remainder of the property shall remain unoccupied throughout the abatement process. The contractor shall:

- Maintain existing property(s) in a safe and weather tight condition throughout the construction period.
- Repair damage caused by remediation/abatement operations, if not directly involved in the remediation project.
- Take all precautions necessary to protect the property, remediated/abated floors, and occupants during the construction period.
- Keep hallways, stairs and toilet rooms free from accumulation of waste, rubbish or construction debris.

3.1.3 Contractor shall be knowledgeable of the details and specs of the project before remediation activities are initiated. During the remediation, contractors are to contact and address the Industrial Hygienist and owner of any additions or changes to the scope of work. The contractor shall be responsible for any additional labor time, use of equipment, sampling and consultation from the Industrial Hygienist, or any further remedial efforts after the initial clearance inspection is performed. The contractor should guarantee and is held accountable for ensuring the subject space has been satisfactorily remediated and is suitable for reconstruction.

3.2 Scope of Work and General Items

- 3.2.1** The contractor should verify quantities during the job walk.
- 3.2.2** The contractor will supply an experienced work crew and project manager to conduct this remediation.
- 3.2.3** The contractor shall state in writing their understanding of the scope of work including quantities where applicable.
- 3.2.4** The contractor will provide, in their bid, per square foot costs to remove additional microbial impacted materials found during the remediation.
- 3.2.5** The contractor is responsible for supplying all electrical and plumbing equipment and tying into the existing property electrical and plumbing systems. The client is responsible for paying all utility charges. Licensed/certified craftsmen shall perform activities that may impact live electrical circuits or alter the current plumbing system.

3.3 Remediation Methods

3.3.1 Pre-Cleaning Methods/Work Area Preparation

Installed Fixtures: The contractor will thoroughly clean any non-removable non-porous equipment or installations inside the work areas. Allow the installations to dry and HEPA Vacuum.

Furniture, Fixtures and Equipment (FF&E) that will be disposed of as part of the abatement shall be covered and removed from the work area and disposed of in accordance with 3.3.2.3.

FF&E which will be salvaged shall be HEPA vacuumed and manually cleaned, covered and moved to a predetermined area.

The use of dehumidification units is required at the completion of removal activities, but is not recommended during remediation activities. In order to maintain dust levels as low as possible, the prudent use of water or amended water is recommended on all surfaces that will be impacted.

3.3.2 Removal Methods

3.3.2.1 If at any point during the remediation, additional contamination is discovered, the contractor must notify the on-site industrial hygienist and/or the owner immediately.

3.3.2.2 Disposal Preparations: The contractor shall place the removed materials in a 6-mil poly bag, or wrap the materials in 6-mil poly sheeting (hereafter both methods are

referred to as ‘bags’). The contractor will then seal the bag and remove the bags through the decontamination unit. To decontaminate, the contractor will wet wipe or spray the bags, allow them to dry and HEPA vacuum the bags. Then the contractor will place the bags into a covered bin and transport them to a dumpster outside.

3.3.2.3 Visual Preparations: Once the contractor feels that the remediation is complete, the contractor must request a visual inspection from the Industrial Hygienist. If the Industrial Hygienist identifies any areas to be remediated or cleaned further, the contractor must do so immediately, in conformance with Section 3. The contractor will request another inspection once any deficiencies have been addressed.

3.3.3 The contractor will clean up any debris and treat as stated in the scope of work. The contractor shall HEPA vacuum all surfaces, including all remaining building materials, as well as any remaining covered equipment (electrical equipment, etc.).

The contractor shall HEPA vacuum, sand, and treat any remaining lumber (such as wall studs) that have been identified as contaminated.

Once the contractor feels that the remediation is complete, the contractor must request a visual inspection from the Industrial Hygienist. If the Industrial Hygienist identifies any areas to be remediated or cleaned further, the contractor must do so immediately. The contractor will request another inspection once any deficiencies have been addressed.

Before clearance by the Industrial Hygienist, the contractor will damp-wipe and HEPA vacuum all surfaces in the area.

The Industrial Hygienist will visually clear the area. See Section 3.5 for Clearance Criteria.

Dehumidification equipment will be used until the ambient relative humidity is below 60% at normal room temperatures.

3.4 Personal Protective Equipment (PPE)

All persons present during the remediation/demolition in the space are required to wear the following levels of protection:

- Head Protection – Standard Hard Hat, ANSI Z89.1 Compliant
- Clothing – Full body disposable coveralls with moisture resistant coating
- Foot Protection – Construction Safety Shoes with disposable rubber over boots
- Gloves – Disposable work gloves over durable latex or Nitrile gloves
- Respiratory Protection – Half face, negative pressure, dual cartridge respirators with OVAG/HEPA filters as well as goggles, or a full-face respirator meeting the same standards as the half-face respirator.
- Eye Protection-standard safety glasses.

3.5 Clearance Criteria

3.5.1 Clearance activities will be conducted by the overseeing Industrial Hygienist, and directed by a Board-Certified Industrial Hygienist (CIH). Analysis will be performed by an AIHA accredited laboratory.

3.5.2 Visual inspection shall be the primary method of clearance. All projects must satisfy a final visual inspection by the overseeing Industrial Hygienist.

3.5.2.1 The visual inspection shall insure that:

3.5.2.1.1 The mitigation contractor has completed the Scope of Work.

3.5.2.1.2 The area is free of tools and equipment.

3.5.2.1.3 The area is free of visible dust and debris.

3.5.2.1.4 There are no signs of visible microbial growth

3.5.2.1.5 There are no residual odors associated with microbial contamination.

3.5.2.1.6 There are no building materials with signs of moisture impact or materials with moisture content in excess of 20% on a relative scale (e.g. Tramax® Moisture Encounter™ or similar) or more than 10% greater than similar surrounding unaffected materials

3.5.3 Airborne fungal spores will be collected to verify adequate cleaning of the work area unless conditions exist that would inhibit the logical interpretation of the data.

3.5.3.1 Conditions such as significant preexisting microbial growth not associated with the covered loss and not addressed as part of this mitigation; (the presence of outdoor conditions that will impact reference samples such as recent rain, extreme cold, snow covering, etc.), adjacent construction activities, abnormal area occupation; etc.) will prohibit the use of airborne fungal spores as a clearance criteria.

The directing Certified Industrial Hygienist shall determine the appropriateness of airborne clearance activities and establish alternative activities to insure adequate job completion.

3.5.3.2 “In the absence of health-based federal standards, Hillmann has adopted industry standard practice and recommended practices by the ACGIH to compare indoor/outdoor fungal concentrations. Samples are deemed “comparable” or “acceptable” when the following criteria are met:

- Overall indoor/outdoor fungal genera identified are similar on the day of sampling. Raw spore counts less than ten (10) do not represent a statistically

significant number. Therefore, the presence of one (1) spore of certain indicator genera (i.e. *Stachybotrys*) will not be grounds for failure.

- Common outdoor genera identified indoors are similar to or less than outdoor concentrations
- Common water intrusion indicator genera including but not limited to: *Penicillium/Aspergillus* group, *Chaetomium*, etc. are similar to outdoor concentrations and/or within one order of magnitude (10 times difference). Exceptions will be made depending on conditions, fungal genera identified, and outlying factors.
- Hillmann also recommends that common water intrusion indicator genera be below a level of 1,000 CFU/m³ of air. Exceptions will be made depending on conditions, fungal genera identified, and outlying factors.

3.5.3.3 Areas of suspected residual microbial growth will be confirmed with tape lift samples. Registers and air ducts will also be sampled by tape lift. Findings of “High” or “Medium” shall indicate the need for additional cleaning. High or Medium shall be determined by the analytical laboratory using a semi quantitative scale of none-trace-light-moderate-heavy defined as follows:

None: No signs of active growth, no mycelial fragments, 0 spores

Rare: No signs of active growth, no mycelial fragments, 0-10 spores

Low: Possible active growth, some mycelial fragments, 11-100 spores

Medium: Probable active growth, mycelial fragments throughout, 101-1000 spores

High: Significant active growth, mycelial fragments throughout, >1000 spores

3.6 Contractor's Agreement and Scope of Work Recognition

3.6.1 Contractor shall be knowledgeable of the details and specifications of the project, including all aspects of the Scope of Work as enumerated in Section 3, before remediation activities are initiated. During the remediation, contractors are to advise the Industrial Hygienist and owner of any additions or changes to the scope of work. The contractor shall be responsible for any additional labor time, use of equipment, sampling and consultation from the Industrial Hygienist, or any further remedial efforts after the initial clearance inspection is performed. The contractor should guarantee and shall be held accountable for ensuring the subject space has been satisfactorily remediated and is suitable for reconstruction.

3.6.2 Acceptance of Scope of Work

The conditions and specifications as stated within this Scope of Work are satisfactory, and are hereby accepted by the contractor. This agreement must be signed and handed to the insurance company prior to full authorization of remediation work to begin.

Signature: _____
(Authorized Representative's Signature and Title on Contractor)

Name: (Print or type): _____

Title: (Print or type): _____

Date: (Print or type): _____

Contractor must sign both sheets. One copy shall be handed to the insurance company and one copy shall be kept for the contractor's records.

3.6 Contractor's Agreement and Scope of Work Recognition

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(Authorized Representative's Signature and Title on Contractor)

Name: (Print or type): _____

Title: (Print or type): _____

Date: (Print or type): _____

Contractor must sign both sheets. One copy shall be handed to the insurance company and one copy shall be kept for the contractor's records.

- Contractor's Copy -

4.0 REFERENCES

- American Conference of Governmental Industrial Hygienists, Bioaerosols Assessment and Control, Cincinnati, Ohio 1999.
- IICRC S500, Standard and Reference Guide for Professional Water Damage Restoration, Third Edition, Vancouver, Washington 2015
- IICRC S520, Standard and Reference Guide for Professional Mold Remediation, First Edition, Vancouver, Washington 2015
- USEPA, 402-K-01-001 Mold Remediation in Schools and Commercial Buildings, Washington D.C., 2008
- ASTM, Designation: E2418-06, Standard Guide for Readily Observable Mold and Conditions Conducive to Mold in Commercial Buildings: Baseline Survey Process, 2006
- Committee on Industrial Ventilation; Industrial Ventilation 22nd; Edition; "A Manual of Recommended Practice"; American Conference of Governmental Industrial Hygienists, Inc.; 1995.
- Air-O-Cell Bioaerosol Sampling Cassette User Manual, St. Petersburg, FL, Version 5, 2009
- Guidelines on Assessment and Remediation of Fungi in Indoor Environments, New York City Department of Health and Mental Hygiene, November 2008
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- American Industrial Hygiene Association, Field Guide for the Determination of Biological Contaminants in Environmental Samples, Second Edition, 2005
- American Industrial Hygiene Association, Assessment, Remediation and Post-Remediation Verification of Mold in Buildings, AIHA Guideline 3—2004
- American Industrial Hygiene Association, Recognition, Evaluation, and Control of Indoor Mold, Second Edition, AIHA 2020
- NIOSH, Preventing Occupational Respiratory Disease from Exposures Caused by Dampness in Office Buildings, Schools, and other Nonindustrial Buildings, November, 2012

5.0 PHOTO ATTACHMENT



**Typical View of Surficial Microbial Growth on Student Chair
(Classroom 9)**



**Typical View of Microbial Growth in HVAC Univent within Classrooms
(Classroom 11)**



**View of Microbial Growth on Metal Door Frame
(Band Room 41)**



**Typical View of Surficial Microbial Growth on Student Chair
(Band Room 41)**



**Typical View of Surficial Microbial Growth on Computers
(Technology Room – Room 61A)**



**Typical View of Ceiling Tiles “Curling” and Grid Rusting Indicative of Historically Humid
Conditions
(Classroom 85)**



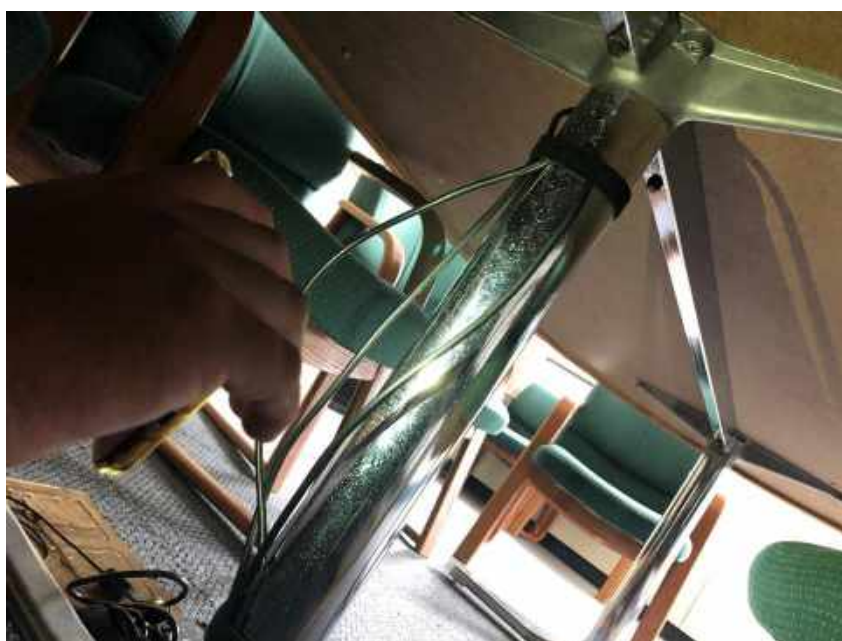
**Typical View of Microbial Growth on Cork Strips Throughout Classrooms
(Classroom 82)**



**Typical View of Surficial Microbial Growth on Wooden Chair
(Library)**



**Typical View of Sporadic Minor Growth underneath Tables
(Library Computer Lab)**



**Typical View of Surficial Microbial Growth on Conference Table Metal Leg
(Conference Room 1)**

APPENDIX A

AIRBORNE MOLD SPORE LABORATORY REPORT



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077
Tel/Fax: (800) 220-3675 / (856) 786-0262
<http://www.EMSL.com> / cinnmicrolab@emsl.com

EMSL Order: 372015302
Customer ID: HILL50
Customer PO: PH-1528
Project ID:

Attention: John Murphy
Hillmann Consulting, LLC
1600 Route 22 East
Union, NJ 07083

Phone: (908) 268-3419
Fax:
Collected Date: 09/17/2020
Received Date: 09/17/2020 03:15 PM
Analyzed Date: 09/18/2020

Project: McBrearily / 500 Elwood Rd. Elwood NJ

Test Report: Air-O-Cell™ Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods MICRO-SOP-201, ASTM D7391)

Lab Sample Number:	372015302-0001			372015302-0002			372015302-0003		
Client Sample ID:	JM01			JM02			JM03		
Volume (L):	75			75			75		
Sample Location:	Classroom 9			Classroom 11			Café		
Spore Types	Raw Count	Count/M³	% of Total	Raw Count	Count/M³	% of Total	Raw Count	Count/M³	% of Total
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	1	40	0.9	-	-	-
Aspergillus/Penicillium	52	2300	98.3	103	4500	97.2	7	300	23.8
Basidiospores	1	40	1.7	2	90	1.9	2	90	7.1
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	-	-	-	19	830	65.9
Curvularia	-	-	-	-	-	-	1	40	3.2
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Cercospora++	-	-	-	-	-	-	-	-	-
Pestalotia/Pestalotiopsis	-	-	-	-	-	-	-	-	-
Total Fungi	53	2340	100	106	4630	100	29	1260	100
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	1	40	-
Analyt. Sensitivity 600x	-	44	-	-	44	-	-	44	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	1	-	-	1	-	-	1	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	1	-	-	1	-	-	1	-

++ Includes other spores with similar morphology; see EMSL's fungal glossary for each specific category.

Vincent Iuzzolino, M.S., Laboratory Manager
or other Approved Signatory

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Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ AIHA-LAP, LLC--EMLAP Lab 100194

Initial report from: 09/18/2020 03:54 PM

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200 Route 130 North Cinnaminson, NJ 08077
Tel/Fax: (800) 220-3675 / (856) 786-0262
<http://www.EMSL.com> / cinmicrolab@emsl.com

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Analyzed Date: 09/18/2020

Project: McBrearily / 500 Elwood Rd. Elwood NJ

Test Report: Air-O-Cell™ Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods MICRO-SOP-201, ASTM D7391)

Lab Sample Number: Client Sample ID: Volume (L): Sample Location:	372015302-0004 JM04 75 Band Room			372015302-0005 JM05 75 IT Main Office			372015302-0006 JM06 75 Classroom 99			
	Spore Types	Raw Count	Count/M³	% of Total	Raw Count	Count/M³	% of Total	Raw Count	Count/M³	% of Total
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	1	40	0.8	-	-	-	-
Aspergillus/Penicillium	22	960	52.5	75	3300	66.9	6	300	100	
Basidiospores	-	-	-	2	90	1.8	-	-	-	-
Bipolaris++	-	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-	-
Cladosporium	20	870	47.5	33	1400	28.4	-	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	2	90	1.8	-	-	-	-
Pithomyces++	-	-	-	1*	10*	0.2	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-	-
Cercospora++	-	-	-	-	-	-	-	-	-	-
Pestalotia/Pestalotiopsis	-	-	-	-	-	-	-	-	-	-
Total Fungi	42	1830	100	114	4930	100	6	300	100	
Hyphal Fragment	-	-	-	1*	10*	-	1	40	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	44	-	-	44	-	-	44	-	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-	-
Skin Fragments (1-4)	-	1	-	-	1	-	-	2	-	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-	-
Background (1-5)	-	1	-	-	2	-	-	1	-	-

++ Includes other spores with similar morphology; see EMSL's fungal glossary for each specific category.

Vincent Iuzzolino, M.S., Laboratory Manager
or other Approved Signatory

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Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ AIHA-LAP, LLC--EMLAP Lab 100194

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Project: McBrearily / 500 Elwood Rd. Elwood NJ

Test Report: Air-O-Cell™ Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods MICRO-SOP-201, ASTM D7391)

Lab Sample Number: Client Sample ID: Volume (L): Sample Location:	372015302-0007			372015302-0008			372015302-0009		
	Raw Count	Count/M³	% of Total	Raw Count	Count/M³	% of Total	Raw Count	Count/M³	% of Total
JM07 75 Classroom 80	JM08 75 Library	JM09 75 Classroom 59							
Spore Types									
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	-	-	-	-	-	-
Aspergillus/Penicillium	76	3300	86.8	52	2300	85.8	392	17100	98.6
Basidiospores	4	200	5.3	4	200	7.5	-	-	-
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	6	300	7.9	2	90	3.4	5	200	1.2
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	2	90	3.4	1	40	0.2
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Cercospora++	-	-	-	-	-	-	-	-	-
Pestalotia/Pestalotiopsis	-	-	-	-	-	-	-	-	-
Total Fungi	86	3800	100	60	2680	100	398	17340	100
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	44	-	-	44	-	-	44	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	2	-	-	1	-	-	2	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	1	-	-	2	-	-	1	-

++ Includes other spores with similar morphology; see EMSL's fungal glossary for each specific category.

Vincent Iuzzolino, M.S., Laboratory Manager
or other Approved Signatory

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Project: McBrearily / 500 Elwood Rd. Elwood NJ

Test Report: Air-O-Cell™ Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods MICRO-SOP-201, ASTM D7391)

Lab Sample Number: Client Sample ID: Volume (L): Sample Location:	372015302-0010 JM10 75 Classroom 93			372015302-0011 JM11 75 Classroom 14			372015302-0012 JM12 75 Outside			
	Spore Types	Raw Count	Count/M³	% of Total	Raw Count	Count/M³	% of Total	Raw Count	Count/M³	% of Total
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	-	-	-	2	90	2.3	
Aspergillus/Penicillium	480	20900	98.9	110	4800	96.6	10	440	11.3	
Basidiospores	-	-	-	2	90	1.8	72	3100	79.3	
Bipolaris++	-	-	-	-	-	-	-	-	-	
Chaetomium	-	-	-	-	-	-	-	-	-	
Cladosporium	4	200	0.9	1	40	0.8	4	200	5.1	
Curvularia	-	-	-	-	-	-	-	-	-	
Epicoccum	-	-	-	-	-	-	-	-	-	
Fusarium	-	-	-	-	-	-	-	-	-	
Ganoderma	-	-	-	-	-	-	1	40	1	
Myxomycetes++	1	40	0.2	1	40	0.8	-	-	-	
Pithomyces++	-	-	-	-	-	-	-	-	-	
Rust	-	-	-	-	-	-	-	-	-	
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-	
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-	
Unidentifiable Spores	-	-	-	-	-	-	-	-	-	
Zygomycetes	-	-	-	-	-	-	-	-	-	
Cercospora++	-	-	-	-	-	-	1	40	1	
Pestalotia/Pestalotiopsis	-	-	-	-	-	-	-	-	-	
Total Fungi	485	21140	100	114	4970	100	90	3910	100	
Hyphal Fragment	-	-	-	1*	10*	-	-	-	-	
Insect Fragment	-	-	-	-	-	-	-	-	-	
Pollen	-	-	-	1*	10*	-	-	-	-	
Analyt. Sensitivity 600x	-	44	-	-	44	-	-	44	-	
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-	
Skin Fragments (1-4)	-	1	-	-	2	-	-	1	-	
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-	
Background (1-5)	-	1	-	-	1	-	-	1	-	

++ Includes other spores with similar morphology; see EMSL's fungal glossary for each specific category.

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Project: McBrearily / 500 Elwood Rd. Elwood NJ

Test Report: Air-O-Cell™ Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods MICRO-SOP-201, ASTM D7391)

Lab Sample Number:	372015302-0013		
Client Sample ID:	JM13		
Volume (L):	75		
Sample Location:	Outside		
Spore Types	Raw Count	Count/M ³	% of Total
Alternaria (Ulocladium)	-	-	-
Ascospores	4	200	5.2
Aspergillus/Penicillium	29	1300	33.5
Basidiospores	51	2200	56.7
Bipolaris++	-	-	-
Chaetomium	-	-	-
Cladosporium	1	40	1
Curvularia	-	-	-
Epicoccum	-	-	-
Fusarium	-	-	-
Ganoderma	2	90	2.3
Myxomycetes++	2*	30*	0.8
Pithomyces++	1*	10*	0.3
Rust	-	-	-
Scopulariopsis/Microascus	-	-	-
Stachybotrys/Memnoniella	-	-	-
Unidentifiable Spores	-	-	-
Zygomycetes	-	-	-
Cercospora++	-	-	-
Pestalotia/Pestalotiopsis	1*	10*	0.3
Total Fungi	91	3880	100
Hyphal Fragment	1	40	-
Insect Fragment	-	-	-
Pollen	1	40	-
Analyt. Sensitivity 600x	-	44	-
Analyt. Sensitivity 300x	-	13*	-
Skin Fragments (1-4)	-	1	-
Fibrous Particulate (1-4)	-	1	-
Background (1-5)	-	1	-

++ Includes other spores with similar morphology; see EMSL's fungal glossary for each specific category.

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HILLMANN CONSULTING

ENVIRONMENTAL CONSULTING, LAB SERVICES
 1600 ROUTE 22 EAST
 P.O. BOX 1597
 UNION, NEW JERSEY 07083-1597
 (908) 688-7800
 FAX (908) 688-2441
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372015302

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 CINNAMINSON, NJ

20 SEP 17 PM 3:14

Job #: 14-1228
 Order #:

Date of Sampling: 11/1/14
 Date of Sample Receipt: McKeary
 Client: 500 Elmwood Rly Elwood NJ
 Field Hygienist: John Murphy

Sample ID Lab ID	Sample Type (Air, Bulk, Tape)	Air-Flow Time		Air-Flow Rate		Air Volumes (L) or Area (ft ²)	Sample Location Description	Turnaround Time							Comments	
		Start	End	Start	End			3-hr	6-hr	12-hr	24-hr	48-hr	72-hr	9-7 day		
5201	AN	1240	1245	1520	1520	75L	Classroom 9		X							moat
5202		1245	1250				Class room 11		X							
5203		1250	1255				Cafe		X							
5204		1258	1300				Base Room		X							
5205		1300	1305				IT Misc Office		X							
5206		1305	1310				Classroom 99		X							
5207		1310	1315				Classroom 80		X							
5208		1315	1320				Library		X							
5209		1320	1325				Classroom 59		X							
5210		1325	1330				classroom 93		X							

Sampled By:	Transported By:	Received By:	Prepared By:	Analyzed By:
John Murphy	Drop-off	Charles DB	9/17/20 3:15	
Signature:				
Date:				

1390

Job #: PH-132A
 Order #: 372015302
 RECEIVED
 EMSL
 CTNHAMINSON NJ 2
 20 SEP 17 PM 3:14

HILLMANN CONSULTING
 ENVIRONMENTAL CONSULTING, LAB SERVICES
 1600 ROUTE 22 EAST
 P.O. BOX 1597
 UNION, NEW JERSEY 07083-1597
 (908) 688-7800
 FAX (908) 688-2441
 www.hillmanngroup.com

Date of Sampling: 9/17/20
 Date of Sample Receipt: 11/11
 Client: Sun Army
 Location: Sun Army
 Field Hygienist: Sun Army

Sample ID Lab ID	Sample Type (Air, Bulk, Tape)	Air-Flow Time		Air-Flow Rate		Air Volume(L) or Area (m ²)	Sample Location Description	Turnaround Time			Comments
		Start	End	Start	End			3-6hr	8-12hr	24hr	
SA11	Air	1330	1335	150pm	150pm	75L	class room 14	X			cool
SA12	Air	1335	1340				outside	X			
SA13	Air	1340	1345					X			

Sampled By: Sun Army
 Name: Sun Army
 Signature: [Signature]
 Date: 9/17/20

Transported By: drop-off

Received By: _____

Prepared By: _____

Analyzed By: _____