



**ADAPTIVE  
ENVIRONMENTAL  
CONSULTING**

# **Limited Post Corrective Action Verification Inspection Report ©**

Prepared for:

**Millbrook School District c/o Mr. Brian Fried: Alden Place Matter 1 & 2**

## **Subject Property**

**Alden Place Elementary School : 41 Alden Pl  
Millbrook, New York**

## **Inspection Results:**

**Satisfactory**

Inspection date: September 10, 2018; September 13, 2018

Report date: September 20, 2018

## **SIGNATORY**

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Site Inspection and Report Produced By: John Evans (NYSMA 000842)

*Report / Peer Review by: M. Chris Gusick (NV IJPM 1494)*

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Client, Client representative and/or Property Owner (collectively, hereinafter “Engaged Party”) is advised upon document acceptance Engaged Party accepts Adaptive Environmental Consulting of New York LLC’s (AEC) services, work products and this document are limited by the terms and conditions stated herein this Statement and herein this document. Further, Engaged Party, and document relying parties, acknowledge Subject Property conditions may change over time with respect to dampness, microbial impact and weather, that hidden conditions not discoverable during the Inspection or within the Inspection’s scope may exist and fall outside readily observable areas or areas included within the Inspection, that latent or concealed defects and deficiencies are excluded from inspection and that the Inspection was limited by time, budget and other applied constraints. Listing of such constraints can be provided at request.

Engaged Party is advised the Subject Property may support not readily accessible or hidden water and microbial conditions that impact the indoor air quality and building materials not identified or sampled by AEC, not addressed by the contractor or that exist outside readily observable areas or areas excluded from the Inspection and sampling and that the completed Inspection and sample collection is not considered sufficient in detail and scope to serve as an all-inclusive evaluation for the identification of all potential water and microbial issues within the Subject Property or to identify all potential conditions of microbial contamination including that via air disbursement. Such a comprehensive survey requires unrestrained intrusive and destructive investigation and sampling of all building products and extensive air quality sampling which AEC opines is not practical under the current engagement, nor was like accordingly engaged by Engaged Party and would result in the Subject Property destruction and given most inspection engagements is cost prohibitive. AEC’s Inspection and sampling was not technically exhaustive and the fee charged is substantially less than that of a technically exhaustive service. AEC did not, unless stated within this document, inspect or sample products or areas that were not visually surface identified.

This document was produced for and at the request of the Engaged Party and as such the Engaged Party and other site parties are advised this document is for the exclusive use of the Engaged Party and was designed to provide information to assist the Engaged Party solely with the determination that completed water damage restoration or mold remediation actions were likely completed in a manner and presented to AEC during the Inspection that aligned to requirements as understood by AEC as published within Institute of Inspection Cleaning and Restoration Certification (IICRC) documents IICRC-ANSI S500 and IICRC S520 and that the decision criteria established by AEC for the opinion that either “No Further Remediation” or “No Further Restoration” actions appear fulfilled absent any supplemental action unless noted within this document. Engaged Party is solely responsible for the use of, and any liability with respect to decisions or recommendations made from this report and AEC shall not have any liability with respect to decisions or recommendations made or actions taken by Engaged Party, their subsidiaries, suppliers, employees, agents, contractors, affiliates or attorneys, based on the findings of this report.

The professional services provided and judgments rendered are represented as meeting current professional standards as stated herein this document and provided by AEC-like qualified Indoor Environmental Professionals (IEPs) in light of Engaged Party agreement, Inspection limitations and/or known Subject Property conditions. No warranty or guarantee concerning services, findings or conclusions beyond that noted above in this document are intended or offered.

AEC assumes no liability, including impact or exposure issues related to such work, for the accuracy or completeness of site action plans, work scopes or “protocols” (collectively hereafter, Plans) that are established by other parties related to the Subject Property or when published by AEC and such Plans require contractor or other third party confirmation or alteration communication actions that is not performed. Improper, inaccurate and/or non-confirmed Plans are the sole liability and responsibility of the contractor performing services, the Plan designer with third-party confirmation and communication is not directed and/or the Engaged Party and application or failure to confirm Plans or adhere to published Plans, and IICRC based standards is at contractor’s or Engaged Party’s sole peril.

AEC assesses Subject Property areas based on readily exposed and observed surfaces within defined Inspection areas. Areas obfuscated from view, sealed behind plastic or other barriers, including though not limited to within building cavity areas, under flooring systems, behind surface coating, areas that are considered interspatial areas such, though not limited to, areas between framing members, between lightweight or floor products and underlying sub-floor or slab systems, and spaces that are not otherwise “touchable” by AEC in the sole determination of AEC personnel area specifically outside Inspection and sampling review and consideration. Engaged Party is advised such non-inspected areas may present water and microbial issues that support potential exposure issues within Inspection areas or other Subject Property areas. If Engaged Party has concerns about such excluded Inspection areas AEC is to be contacted for supplemental post corrective verification action prior to report reliance or distribution.

Engaged Party is advised AEC’s services consist of professional opinions and absent current federal or when operating in states absent state mandated standards associated with elevated moisture and potential microbial growth AEC’s Inspection and this report was completed in accordance with select industry or AEC established principles and practices. As such, AEC work product may incorporate, though not limited to, AEC personnel or other third party experience and analysis, prior investigation documentation, related Subject Property party interviews or inclusion of potential non-standard industry practices, procedures or opinions to evaluate

and opine about the potential presence of readily observable damp indoor environments, associated microbial growth, or the conditions conducive to microbial contamination.

AEC considers information provided by Engaged Party and third parties truthful and accurate for work product purposes. AEC is not responsible to independently verify any information provided and may rely on information absent actual knowledge to the contrary and to the extent that the information appears reasonable to AEC personnel. AEC understands accuracy and completeness of information may vary among sources and as such information not provided within this report was not considered in work product opinions, conclusions and site actions plans. If site parties believe additional information should be considered or if provided information may be inaccurate or incomplete AEC is to be contacted prior to any report reliance as work product opinions, conclusions and site action plans may alter or become invalid.

AEC is not responsible for consequences or conditions intentionally or unintentionally concealed or withheld from AEC, overlooked or not evaluated by AEC or not fully disclosed to AEC at any time prior to, during or after the conducted inspection. AEC considers information provided by any party truthful and accurate for work product purposes and as such AEC is not responsible to independently verify any such information and AEC may rely on information for service and document purposes.

AEC's Inspection is not intended to reduce the risk that potential moisture conditions may pose to the Subject Property or its occupants. AEC's inspection and this report are for the exclusive use of Client and was designed to provide information to assist the Client solely with the determination that listed inspected areas as observed by AEC, either likely exhibit readily detectable conditions of elevated moisture, readily observable areas of potential prior elevated moisture and conditions supporting, conducive to or potentially supporting microbial contamination with regards to fungal growth (aka mold) and bacteria as related to current or past elevated moisture conditions, or that the Subject Property likely does not likely exhibit such conditions. Client is solely responsible for the use of, and any liability with respect to decisions or recommendations made from this report and AEC shall not have any liability with respect to decisions or recommendations made or actions taken by Client, their subsidiaries, suppliers, employees, agents, contractors, affiliates or attorneys, based on the findings of this report.

AEC hereby expressly disclaims any and all representations and warranties of any kind or nature, whether expressed, implied or statutory, related to services and the findings stated in this document including that of any express or implied warranty or guarantee regarding the Inspection or methodology used by the inspector performing the inspection or the accuracy of any information provided. In no event will AEC be liable for special, indirect, incidental, punitive, or consequential damages of any kind regardless of the form of action whether in contract, tort, (including negligence), strict product liability or otherwise, arising from or related to the inspection or this document. AEC accepts no responsibility or liability to any person or organization for any claim for loss or damage, including attorney's fees, caused, or believed to be caused, directly or indirectly by conditions not identified by AEC, revealed by the laboratory analysis performed, that were misreported by the laboratory, detectable under other chemical analyses or through alternative test methods or by failure to locate, install or perform additional sample points or suggest additional sample locations.

Engaged Party is solely responsible for the use of and any liability with respect to decisions or recommendations made from this document and AEC shall not have any liability with respect to decisions or recommendations made or actions taken by the Engaged Party, or any party, based on AEC's findings as stated in this document.

AEC makes no warranty whatsoever with respect to any condition for areas outside the limited Inspection Area(s) and based on engagement potential pollutants (i.e. lead, asbestos, mold, bacteria, other microbial impact issues, etc.) may not have been characterized. Subject Property work completed absent such other pollutant evaluation or AEC knowledge of such potential contaminants is done so at Engaged Party's or acting party's sole peril and liability. AEC is not required to make other such potential pollutant survey recommendations.

Regulatory standards and industry standards or guidelines referenced in this document are based on AEC's knowledge of applicable documents in effect at the time work was performed and per AEC personnel's understanding of such documents. AEC cannot anticipate potential future changes or interpretation adjustments to regulatory standards.

The invalidity or unenforceability, in whole or in part, of any provision, statement, term or condition herein this statement or this report shall not invalidate or otherwise affect the enforceability of the remainder of these provisions, statements, terms and conditions.

## 1.0 - GENERAL BACKGROUND

### **1.1 Inspection Introduction**

Millbrook School District c/o Mr. Brian Fried: Alden Place Matter 1 & 2 (Client) engaged and directed Adaptive Environmental Consulting of New York LLC (AEC) to conduct a Limited Post Corrective Action Verification Inspection (Inspection) at Alden Place Elementary School : 41 Alden Pl Millbrook, New York (Subject Property). The Inspection areas as defined and limited by Client consisted of readily observable and readily accessible areas at the Subject Property as identified below:

- Client Defined Areas as Listed: Client directed AEC to inspect only the following limited areas for report, documentation and corrective action verification purposes: Work Areas 1-4; The Main Office, The Art Room.

Client is advised no opinion is being rendered within this report or by AEC about any areas other than the above listed Inspection areas or about any area within the above listed Inspection areas not considered by AEC personnel to be readily visible or accessible either through report definition or AEC personnel opinion.

The Inspection was performed in accordance to the agreed upon Service Payment Statement, Copyright and Intellectual Property Statement, and Limited Post Corrective Action Verification Inspection Report Reliance and Warranty Statement incorporated into pages two and three of this document and when available a separate work authorization and/or service agreement.

The Inspection was performed on September 10, 2018 by AEC Field Consultant, John Evans (NYSMA 000842) (Inspector).

AEC was requested to perform the engaged services at the direction of Client. In the event the requesting party is other than Client, it is understood by AEC that services are at Client's request and that communications, including establishment of engagement scope and associated sampling parameters, have been at Client directives and approved by Client by way of requesting party. In the event the scope of services varies to that of Client directives, or that additional services are requested by AEC, including that of supplemental sampling, Client is to contact AEC prior to report reliance or distribution.

### **1.2 Inspection Objective and Inspection Methodology**

AEC's Inspection was completed in an attempt to identify if areas of water damage restoration and/or microbial remediation where "satisfactory" completed to address prior identified issues in accordance to ANSI-IICRC S500, IICRC S520 or other preliminary established restoration and/or microbial remediation requirements or potential standard deviations as agreed upon by Client and work performing parties. Based on engagement AEC was retained to perform the following post corrective action verification inspection:

- **Post Microbial Remediation Verification Inspection**

The engaged Inspection included the following services only as engaged by Client:

- Level 1A: Inspection area assessment though visual inspection and air sample collection utilizing spore trap collection (non-disturbed).
- ATP samples were also collected.

AEC performed air sampling within Inspection areas for post Inspection purposes though sampling was not completed to AEC recommended NIOSH 0800, or other like recognized standard to allow potential statistical significance considerations. All sampling to a lesser degree is completed only at Client or site parties' directions, or through engagement, with Client or site party assuming all associated liability for data failure, or the lack of scientific certainty within sample collection and analysis. When air sampling has been recommended and not completed, such decision to exclude sampling was based on Client or Client representative directives.

The engaged Inspection service was performed in a manner, based on decision criteria, to prove the following hypothesis or hypotheses:

- IICRC S520 C3/C2: Microbial remediation actions were performed by site parties to address prior readily observable IICRC S520 Condition 3 (visible mold) and IICRC S520 Condition 2 (settle spore) issues within readily observable and readily accessible Inspection areas as defined within this work product.

Testing of the above, or conclusion section stated, hypothesis is completed to show the hypothesis statement is "true" (or likely "true") and permit AEC to issue the opinion that work as completed by the site contracting party in a manner that is "Satisfactory" to believe that "No Further Action" is required and the Subject Property can undergo restoration the Subject Property to a pre-loss or pre-action condition within the Inspection Areas.

Decision criteria to test the hypothesis is based on a visual inspection and when appropriately engaged surface cleanliness sampling and/or air based particle sampling, to confirm general compliance the below criteria items at the time of the Inspection to determine the “Satisfactory” dry-down and cleaning of exposed surfaces to published industry guidelines as referenced in this document and to support visual observations of AEC perceived “cleanliness”. In the event the below decision criteria is not met, the presented hypothesis is deemed “false” (or likely “false”) in which case the work completed is deemed “Not Satisfactory” indicating “Further Action” is required. The applied decision criteria used in this Inspection for document conclusions were, at a minimum, as follows:

- The Inspection area is to be prepared in a manner to allow visual observation, documenting and when required sampling.
- The Inspection area is to display adherence to ANSI-IICRC S500 and IICRC S520 standards at the time of the Inspection based on completed work actions.
- The Inspection area is to comply with AEC's or other established party's directed actions and supplemental guidelines when provided.
- The Inspection area is to be free of readily visible mold growth and potential bacteria concerns based on completed work actions.
- The Inspection area is to be free of readily exposed insulative product.
- The Inspection area is to be free of readily observed dust or debris.
- The Inspection area exposed and measurable surfaces are to maintain building material moisture below dry standard or accepted percentages, wood <15%; drywall <0.5.
- The Inspection area exposed surfaces, presented as "clean" by site work party or through engagement, conform to ATP collected surface samples in a manner to support displayed surfaces are relatively free of detectable organic material, <50 relative light units (RLU).
- The Inspection area air samples present "satisfactory" comparisons with regards to mold colony fragments to that of collected exterior control and/or interior reference samples or like comparison to historical collected area or state reference samples provided statistical significance considerations and that of sample considerations. Evaluation samples with variances at or greater than .5 magnitude are considered "not satisfactory". Evaluation samples with variances less than .5 magnitude are assessed based on fragment type and distribution as are evaluation samples that are presented to be "like" or less than the comparative samples. Additional sample evaluation considerations are available at request.
- The Inspection area laser particle samples present "satisfactory" comparisons with regards to identified in-air particulate to that of collected exterior control and/or interior reference samples. Evaluation samples with variances at or greater than .5 magnitude are considered "not satisfactory". Evaluation samples with variances less than .5 magnitude are assessed based on fragment type and distribution as are evaluation samples that are presented to be "like" or less than the comparative samples. Additional sample evaluation considerations are available at request.

When the above decision criteria is fulfilled, AEC opines the stated hypothesis has been proven “true” based on the criteria listed and the work completed by the contractor within the Inspection Area was performed in a “Satisfactory” manner to address prior identified and Inspection area engaged review issues.

Client is advised indoor environments can contain a complex mixture of live (viable) and dead (non-viable) microorganisms, fragments thereof, toxins, allergens, microbial volatile organic compounds (MVOCs), volatile organic compounds (VOCs) and other chemicals. It is not the function of AEC's Inspection, this report or any kind of limited sampling performed by AEC to take the place of a comprehensive indoor air quality investigation within the Subject Property or to determine the potential impact the Subject Property or Client defined areas may or may not have on surrounding areas, properties, contents or Subject Property occupants.

As a general practice AEC attempts to align the Inspection with the following documents when document components are available to AEC and inclusion is permitted under engagement to AEC at time of Inspection:

- ANSI-IICRC S500: Standard for Professional Water Damage Restoration
- ANSI-IICRC S520: Standard and Reference Guide for Professional Mold Remediation
- Post-Remediation Testing and Verification for Mold and Bacteria, Risk Based Levels of Cleanliness Assurance, 4<sup>th</sup> Edition (OEHCS, Brandys, 2011)
- ACGIH: Guidelines for the Assessment of Bioaerosols in the Indoor Environment and Bioaerosols: Assessment and Control
- ASTM D7338-10: Standard Guide for Assessment Of Fungal Growth in Buildings
- ASTM E2418-06: Standard Guide for Readily Observable Mold and Conditions Conducive to Mold in Commercial Buildings, Baseline Inspection Process

It is possible provided site conditions or engagement AEC may use a blend of these documents, or documents independently, as well as AEC personnel experience and may incorporate other industry reference documents, including though not limited to those published by US Environmental Protection Agency, Occupational Safety and Health Administration, National Institute for Occupational Safety and Health, National Institute of Health, ASHRAE, US Department of Defense (UFGS 02 85 00.02), various

state or municipality documents such as those released by California, City of New York, Texas as well as other industry documents supported by American Industrial Hygiene Association, Institute of Inspection Cleaning and Restoration Certification, Restoration Industry Association, Occupational and Environmental Health Consulting Services, National Air Ducts Cleaners Association and other references and documents so stated within the above work products. Other potential industry reference documents not referenced within this report though relied upon herein or by way of AEC experience are available upon request.

In the event any form of sampling is requested and not noted within this report, including though not limited to air sampling for mold colony fragments, mold surface sampling for mold or bacteria type identification, asbestos sampling and/or lead based paint sampling please contact AEC to perform such sampling prior to any report reliance or distribution. The decisions and conclusions herein have been promulgated absent all non-report listed sampling. Additional Inspection sampling may alter report findings and conclusions and impact the site action plan. AEC can provide supplemental sampling services at request and for an additional service fee.

Additional Inspection sampling may alter report findings and conclusions and impact the site action plan. Requested supplemental inspection, site visit and/or sampling services are considered separate engaged actions are subject to additional service fees.

### **1.3 Inspection General Information**

Additional Subject Property information provided to AEC and considered during the Inspection and in the production of this document was as follows:

- No Additional Information: Additional Inspection information outside that noted in this report was not provided to AEC nor considered by AEC during the Inspection or in the production of this report, its conclusions, opinions or suggestive actions.
- The contractor engaged by the district neglected to fully clean and disinfect the kiln room off of the art room, prior to the inspection by AEC. AEC directed the contractor to re-clean this area. This area was re-cleaned and re-inspected by AEC.

Information not presented in Section 1.3 was not considered by AEC during the Inspection or production of this report. If additional information is to be considered, please contact AEC prior to any Subject Property actions or document reliance as considerations and conclusions may alter negating document reported findings.

## **2.0 - CONCLUSIONS**

### **2.1 Conclusion Statement**

Provided AEC's observed Subject Property findings on September 10, 2018 AEC opines the following:

- **True: The hypothesis or hypotheses stated within this work product (Section 1.2) have been deemed "true" provided presented decision criteria and as such AEC opines site actions completed are "satisfactory" subject to the limitations and supplemental requirements stated within this work product. Please refer to Section 3.0 for additional site action requirements.**

### **2.3 Additional Inspection Conclusion Statements**

Additionally, AEC opines the following with respect to the completed Inspection and the Subject Property findings:

- Duct cleaning is required.
- No Additional Conclusions: AEC is not rendering additional Inspection opinions or Inspection conclusions outside those presented within this report at this time.

**In the event site parties have questions or concerns about inspection conclusions, recommendations, guidelines or the lack of any conclusions, recommendations or guidelines AEC should be contacted prior to any corrective work onset, report reliance or report distribution.**

## **3.0 - LIMITED POST INSPECTION CORRECTIVE ACTION REQUIREMENTS**

### **3.1 Site Specific Post Inspection Requirements**

Provided Inspection findings, within Client defined Inspection areas, AEC opines the following:

- Professional Duct Cleaning by an NADCA member is required within 30 days.

### **3.3 General Post Inspection Recommendations**

In addition to completing any Section 3.1 requirements the following items are to be completed provided completed site actions and observed Inspection conditions:

Containment barrier: After "satisfactory" post verification survey it is advised containment barriers remain in-place to contain dusts generated by reconstruction. HEPA exhaust filtering and decontamination chamber systems do not to remain in-place unless health sensitive occupancy is identified.

Source action: Confirm microbial contaminant source or water source has been identified, evaluated and corrected by qualified party.

Contaminant address: Confirm all building products presenting mold and bacterial issues were identified and corrected throughout the Subject Property.

HVAC clean: Professionally clean using a National Air Duct Cleaners Association (NADCA) certified or like-qualified company all heating and air conditioning (HVAC) system components, including duct system, blower system, all forced air unit (FAU) components and return system components to ACR 2010 requirements.

Content action: Content items (personal property) previously located within work areas may require professional cleaning to address water and microbial contamination issues. Cleaning practices are noted within ANSI-IICRC S500 and IICRC S520 standards as well as other industry documents. AEC advises parties all contents located in work areas prior to work action or during work action should be appropriately cleaned before containment removal or content restore to work area. Failure to clean content items can result in contamination of work areas and may void report findings and Subject Property collected data. AEC was not engaged, unless noted in this report, to address or provide cleaning and restoration actions associated with content items and as such AEC assumes no liability related to or stemming from content cleaning or lack of content cleaning.

Failure to complete items listed within Section 3.1 or Section 3.2 can result in a return of microbial conditions Inspection Areas, or other Subject Property areas, may create exposure issues related to Subject Property occupancy and voids all AEC services and findings reported herein this document releasing of any Subject Property liability as related to AEC work product regardless of cause or impact condition when potentially related to non-completed directed actions.

**Document Submission: AEC requires submission of above completion documentation to AEC for file documentation purposes and AEC review prior to Subject Property re-occupancy or final determination of "satisfactory" work action completion.**

## 4.0 – COLLECTED SURVEY DATA

### 4.1 Survey Collected Sample Data

Provided Subject Property conditions and Client engagement AEC collected the following microbial, laser particle and/or general air quality sample data during the Inspection:

#### 4.1.1 Collected Microbial Sample Data

"Satisfactory" deemed microbial sample data was collected. The sample data, as collected by AEC, supports that at the time of sampling, within the areas of sample collection, the sample data was deemed "satisfactory" or "comparable" to control, reference and/or historical sample data. This does not mean in the presence of readily observable microbial growth or in the absence of data to the contrary that the Subject Property and more specifically the sample areas are free of potential microbial exposure issues. Sampling analysis is related to the date, time and conditions of the sample collection. Please refer to report or attachments for specific sample data.

Sample ID	Sample location	Sample type	Sample results
A1-A100	Within School Work Areas	ATP	Acceptable <101 RLU

ATP Data Analysis. ATP data is reported based on three levels of detection: Satisfactory <50 RLU; Acceptable <100 RLU; and Not Satisfactory >101 RLU. Samples listed as "Not Satisfactory" will usually require re-testing whereas samples deemed "Acceptable" will be subject to re-test at AEC discretion.

EmLab Comparative Data Statement: AEC when evaluating air samples for determination of "satisfactory" or "not satisfactory" potential conditions related to indoor air quality or Inspection area air quality AEC utilized comparative analysis to Typical Outdoor Spores Levels for Subject Property state or area as compiled by EmLab P&K and presented within MoldRANGE tables (IAQ Pocket Reference Guide, 7th Ed). Use of this reference was per Client request and engagement and was in lieu of site collected control and/or reference samples. If questions exist about compiled data or reference use, please contact AEC prior to report or data reliance.

#### 4.1.2 Collected Laser Particle Sample Data

"Satisfactory" deemed laser particle sample data was collected. The sample data, as collected by AEC, supports that at the time of sampling, within the areas of sample collection, the sample data was deemed "satisfactory" or "comparable" to control and/or reference. This does not mean in the presence of readily observable microbial growth or in the absence of data to the contrary that the Subject Property and more specifically the sample areas are free of potential microbial exposure issues. Sampling analysis is related to the date, time and conditions of the sample collection. Please refer to report or attachments for specific sample data.

Area	Type	0.3 to 0.5	0.5 to 1.0	1.0 to 3.0	3.0 to 5.0	5.0 to 10.0	>10.0	Area Result / Efficiency Result
Work Area 1	Indoor	8293	1203	320	92	3	0	PASS
Work Area 2	Indoor	9203	993	309	96	0	0	PASS
Work Area 3	Indoor	9638	894	399	89	2	0	PASS
Work Area 4	Indoor	8364	1109	402	109	7	0	PASS
Office	Indoor	5546	774	293	182	11	2	PASS
Art Room	Indoor	7637	637	198	99	0	0	PASS
Outdoor	Control	11923	1402	403	301	29	16	-

#### 4.1.3 Collected General Air Quality Sample Data

"Satisfactory" deemed temperature and relative humidity sample data was collected. Additional general air quality sample data (carbon dioxide, carbon monoxide, HVAC air speed, etc.) was not collected nor was AEC engaged to provide such sample collection.

Area	Temperature (F)	Relative Humidity	HVAC air speed	Carbon Dioxide	Carbon Monoxide	Area Result / Efficiency Result
Work Area 1	74.2	51.2				PASS
Work Area 2	76.9	49.3				PASS
Work Area 3	76.7	48.2				PASS
Work Area 4	75.2	50.3				PASS
Office	80.2	50.2				PASS
Art Room	77.0	52.3				PASS
Outdoor	73.0	77.3				PASS

#### 4.2 Sample Collection Statement

Microbial conditions, both fungal and bacterial, alter frequently within a given area or with a structure and as such within the Inspection areas stated within this document. Exterior conditions, including that of weather variances, and interior living conditions stemming from occupancy, product use, property maintenance and other interior factors can alter finding of a particular time and place to that of another significantly and of a magnitude or greater. Generally and widely accepted standards within the United States do not exist with regards to sample methodology and sample interpretations as related to IAQ or that of IAQ comparative data. In the absence of mandatory federal or state permissible exposure limits, the user of this document must determine the appropriateness and applicability of the Inspection and this document report as stated within to the given situation and their personal health conditions or objectives. This may require further consultation with AEC, supplemental sampling such as indoor microbial based air sampling or the consultation with medical professionals. Identification of the presence of a particular microbial contaminate, including that of a particulate fungal fragment in an indoor environment does not necessarily mean that the building occupants are or are not exposed to contaminate, its byproducts or specific occupancy is exposure sensitive to the contaminate or its byproducts.

AEC advises Client sample results considered "atypical", "elevated" or "not satisfactory" or sample results considered "normal", "non-elevated" or "satisfactory" are not a guarantee or assurance that such a labeled condition exists provided sampling supports numerous variables and in most cases fails to provide statistical significance within sampling areas based on industry standard engagements and sampling practices.

According to the United States Environmental Protection Agency (USEPA):

"A number of pitfalls may be encountered when conducting sampling. An inadequate number of samples may be taken, there may be inconsistency in sampling site actions, the sampler may become contaminated, outdoor control samples may be omitted, and you may incur costs for unneeded or inappropriate samples. Budget constraints will often be a consideration when sampling; professional advice may be necessary to determine if it is possible to take sufficient samples to characterize a problem in a given budget. If it is not possible to sample properly, with a sufficient number of samples to answer the question(s) posed, it would be preferable not sample. Inadequate sample plans may generate misleading, confusing, and useless results".

AEC, in some instances, may be asked to render expert opinion, suggestions or recommendations based on invalid statistical data, incomplete information or intentionally misleading information. Client is advised such opinions, suggestions or recommendations carry extreme limitations in use and reliance and may at times exacerbate Subject Property conditions or create false or inaccurate Subject Property assumptions and reliance as may the limited analysis of any collected samples. According to the American Conference of Industrial Hygienist (ACGIH):

"Failure to find a biological agent or related environmental condition (through sampling) is not absolute insurance of their absence or of exposure and risk. However such findings may make absence more probable than presence and may be used to support that the environment presents conditions of acceptable risk. Investigators can never definitively conclude or prove that an environment is "safe" and presents no risk of exposure to biological agents. Data can be collected that document apparent absence of specific hazards, but the requirements for data quality to reach this conclusion are stringent".

**If questions exist about any Survey data, or the absence of data, please contact AEC prior to any site action, report reliance or report usage. Laboratory analyzed data when listed below will be supplemented by actual laboratory analysis sheets attached to this report.**

## **5.0 – DISCLAIMER STATEMENT**

The results, findings, conclusions and recommendations expressed in this document are based only on conditions noted during the Inspection as noted and identified within this document. Sampling was completed per agreed engagement or as outlined within this document, including that within the Limited Post Corrective Action Verification Inspection Report Reliance and Warranty Statement.

This document is for the sole benefit of Client and is designed to aid Client in determining if site actions within Inspection areas were "satisfactory" completed to the decision criteria and limitations as stated within this work product. This noted, Client accept microbial sampling and the associated Inspection can present false negatives and false positives, that Inspection Conditions can be under reported or over reported and that microbial contamination issues are not uniformly disturbed throughout a building, within the Inspection areas or within air quality, especially when time and site occupancy are considered. AEC cannot guarantee that the areas sampled or Inspected are exactly as represented throughout the sampled or inspected area or that the identified conditions, or lack of identified conditions is represented of other Subject Property areas. The study and understanding of microbial contaminants and their potential exposure and sampling, especially that of fungal contamination or fungal fragments and their byproducts, is a progressing science and multiple documents by varied agencies and organizations have been published that vary as to confirmation of exposure evaluation though documents generally, agree as to the visual and surface indicators of contamination as applied and referenced in this document.

Determinations of "Satisfactory" site action or sample results considered "satisfactory" or "not satisfactory" are not a guarantee or assurance that such a labeled condition exists provided the scope of Inspection, Subject Property changing conditions or the sample collection methodology. The inspection completed by AEC is not technically exhaustive, does not assess certain exposure conditions or routes and based on engagement and cost parameters does not prove site conditions to a scientific certainty through statistical significance applications and as such in all cases. Regardless, AEC is asked by Client and site parties to render a professional opinion which is provided in this document based on stated limitations, promulgated on incomplete data and limited engagement scope which can present as misleading to AEC or Client for opinion purposes. Client is advised such opinions, suggestions or recommendations carry extreme limitations in use and reliance and may at times create false or inaccurate Subject Property assumptions pertaining to the Inspection and the Subject Property. Please contact AEC if you have questions or concerns about this "assumption" conclusion process prior to further site action or document reliance.

Comments and opinions made with regards to potential water source or microbial impact source, even when engaged, are casual in nature and require confirmation of such comments and opinions by a qualified third party or appropriately licensed contractor. AEC will not assume responsibility for or liability as a result of failure to identify or confirm water or contaminant source, to restore any building products or to advise Client or any party about such potential sources or source related impact issues regardless if readily identifiable or cause.

Client is advised the determination the Subject Property or Inspection Areas support "no elevated moisture" or "no microbial contamination" is neither feasible nor practical and as such no company can make such a statement based on the AEC completed inspection or any type of limited inspection. Client is advised that neither AEC nor any company can guarantee all potential contamination was identified at the Subject Property during the completed inspection. It is also possible identified potential contaminated areas may not be noted in this report or may fall outside AEC's engagement or areas of listed inspection.

AEC, in some instances, may be asked to render opinion, suggestions or recommendations based on invalid statistical data, incomplete information or intentionally misleading information. Client is advised such opinions, suggestions or recommendations carry extreme

limitations in use and reliance and may at times exacerbate Subject Property conditions, create false or inaccurate Subject Property assumptions and reliance or may result in breaches in federal, state and/or local regulations. Implementation or use of the recommendations, findings or conclusions from the Inspection or within this document in no way assures the elimination of present or future liability of fulfillment of the property owner's or Client's obligation under any federal, state or local law.

AEC's professional services have been performed, its findings obtained and this document prepared in accordance with customary principles and practices associated with like professional work and do not carry any other guarantee. This statement is in lieu of other statements either expressed or implied. Please refer to document opening statements with regards to Inspection and document limitations that apply to AEC services and this document.

AEC shall not have any liability with respect to Client's decisions or recommendations made or actions taken by the Client, its subsidiaries, contractors or any other related or affiliated third party, based on the findings of any AEC published work product or this document outside that stated herein. If questions arise about any Inspection, any work product, this document or the agreed engagement as represented herein contact AEC immediately and prior to any document reliance or site action.

At this time, unfortunately, no agency in the United States has established recommended airborne levels of culturable mold spore or total mold spore levels or mold growth exposure levels though a number of United States agencies and industry groups have produced assessment and remediation guidelines or standards. This stated it is understood that in the presence of favorable conditions mold and other microbial conditions can proliferate rapidly producing potential adverse conditions. This noted it is generally accepted that molds are allergenic and asthmatic triggers though there is disagreement over the potential extent, if any, that mold may be infectious or toxic. It is for this reason that the assessment of structure for mold contamination and the interpretation of sampling data may at times be difficult at best and in the absence of United States' based standards AEC may rely on foreign agency standards (Canada, multiple European Union countries, etc.) to provide comment and conclusions related to the inspection and site sampling. With this in mind the Client and users of this report must determine the appropriateness and applicability of this report given the situation, lack of United State agency standards and their personal considerations.

AEC shall not have any liability with respect to Client's decisions or recommendations made or actions taken by the Client, its subsidiaries, contractors or any other related or affiliated third party, based on the findings of any AEC published work product or this document outside that stated herein. If questions arise about any Inspection, any work product, this document or the agreed engagement as represented herein contact AEC immediately and prior to any document reliance or site action.

AEC is not licensed as a medical professional nor are any of AEC's personnel. Neither AEC performed inspections nor any AEC work product is meant to be a health evaluation, a health assessment, any form of medical opinion or any type of a health risk analysis. AEC or those representing AEC bear no responsibility, regardless of cause, for the actual condition of the structure or safety of a site pertaining to Indoor Air Quality (IAQ) contamination regardless of the actions taken by the Client. A licensed Medical Doctor should be consulted for medical opinions regarding the information collected during the assessment or presented within this report. AEC will make no comment with regards to, nor is AEC responsible to provide comment with regards to Subject Property or surrounding property's, air quality or conditions with regards to occupancy or habitability.

I hereby certify that I am responsible for the services described in this document. The services described in this document have been provided in a manner consistent with the current standards of the profession and to the best of my knowledge comply with all applicable federal, state and local statutes, regulations and ordinances.

Respectfully submitted,

***(Electronic Delivery - Signature on File)***

John Evans (NYSMA 000842)  
AEC Field Consultant  
Adaptive Environmental Consulting of New York LLC  
Cell: 845.859.9047 / Email: [johne@adaptiveenv.com](mailto:johne@adaptiveenv.com)

*Report / Peer Review by: M. Chris Gusick (NV IJPM 1494)*

#### **APPENDIX A: Investigator Assigned & Inspection Used Field Equipment**

*Listing of investigator assigned and inspection used field equipment are only attached when requested. If field equipment information is required related to an Inspection, it can be obtained by contacting AEC.*

#### **APPENDIX B: Subject Property Diagrams**

*Diagrams are only attached when produced and requested.  
If diagrams are not attached and are required, they can be obtained by contacting AEC when produced.*

#### **APPENDIX C: Subject Property Pictures**

*Pictures are only attached when taken and requested.  
If pictures are not attached and are required, they can be obtained by contacting AEC when taken. Size limitations may prevent email delivery.*

#### **APPENDIX D: Laboratory Data Sheets**

*If samples were processed and are not attached, or if questions exist about sample collection of or lack of sample collection please contact AEC.*



# EMSL Analytical, Inc.

307 West 38th Street New York, NY 10018

Tel/Fax: (212) 290-0051 / (212) 290-0058

<http://www.EMSL.com / manhattanlab@emsl.com>

EMSL Order: 031825335

Customer ID: ADPN42

Customer PO:

Project ID:

Attn: John Evans

Adaptive Environmental Consultants

367 Windsor Hwy #452

New Windsor, NY 12553

Phone: (239) 634-4557

Fax: (888) 987-4437

Collected: 09/13/2018

Received: 09/13/2018

Analyzed: 09/14/2018

Project: NY-JE-41 ALDEN PRV # 2

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

Lab Sample Number:	031825335-0001			031825335-0002			031825335-0003		
Client Sample ID:	90			66			52		
Volume (L):	75			75			75		
Sample Location	OUT			ART			OFFICE		
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	1.3	-	-	-	-	-	-
Aspergillus/Penicillium	13	570	8.5	2	90	8.9	1	40	16.7
Basidiospores	138	6020	89.5	21	920	91.1	5	200	83.3
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	1	40	0.6	-	-	-	-	-	-
Cladosporium	-	-	-	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	1*	10*	0.1	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
<b>Total Fungi</b>	<b>155</b>	<b>6730</b>	<b>100</b>	<b>23</b>	<b>1010</b>	<b>100</b>	<b>6</b>	<b>240</b>	<b>100</b>
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
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)	-	2	-	-	1	-	-	1	-

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

*Joseph Reynolds*

Joseph Reynolds, Lead Technical Manager of Microbiology  
or other approved signatory

No discernable field blank was submitted with this group of samples.

High levels of background particulate can obscure spores and other particulates leading to underestimation. Background levels of 5 indicate an overloading of background particulates, prohibiting accurate detection and quantification. Present = Spores detected on overloaded samples. Results are not blank corrected unless otherwise noted. The detection limit is equal to one fungal spore, structure, pollen, fiber particle or insect fragment. \*\*\* Denotes particles found at 300X. "-" Denotes not detected. Due to method stopping rules, raw counts in excess of 100 are extrapolated based on the percentage analyzed. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical, Inc. New York, NY AIHA-LAP, LLC--EMLAP Lab 102581

Initial report from: 09/14/2018 14:26:42

For information on the fungi listed in this report, please visit the Resources section at [www.emsl.com](http://www.emsl.com)



# EMSL Analytical, Inc.

307 West 38th Street New York, NY 10018

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Phone: (239) 634-4557

Fax: (888) 987-4437

Collected: 09/13/2018

Received: 09/13/2018

Analyzed: 09/14/2018

Project: NY-JE-41 ALDEN PRV # 2

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

Lab Sample Number:	031825335-0004			031825335-0005			031825335-0006		
Client Sample ID:	77			93			71		
Volume (L):	75			75			75		
Sample Location	KILN			UNDER STAGE			GYM		
Spore Types	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	1*	10*	0.1	-	-	-	2*	30*	0.4
Aspergillus/Penicillium	86	3800	56.6	30	1300	89	1	40	0.6
Basidiospores	66	2900	43.2	3	100	6.8	160	6980	99
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	1*	10*	0.7	-	-	-
Pithomyces++	-	-	-	1	40	2.7	-	-	-
Rust	-	-	-	1*	10*	0.7	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
<b>Total Fungi</b>	<b>153</b>	<b>6710</b>	<b>100</b>	<b>36</b>	<b>1460</b>	<b>100</b>	<b>163</b>	<b>7050</b>	<b>100</b>
Hyphal Fragment	-	-	-	-	-	-	-	-	-
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	-	-	1	-	-	2	-

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

*Joseph Reynolds*

Joseph Reynolds, Lead Technical Manager of Microbiology  
or other approved signatory

No discernable field blank was submitted with this group of samples.

High levels of background particulate can obscure spores and other particulates leading to underestimation. Background levels of 5 indicate an overloading of background particulates, prohibiting accurate detection and quantification. Present = Spores detected on overloaded samples. Results are not blank corrected unless otherwise noted. The detection limit is equal to one fungal spore, structure, pollen, fiber particle or insect fragment. \*\*\* Denotes particles found at 300X. \* Denotes not detected. Due to method stopping rules, raw counts in excess of 100 are extrapolated based on the percentage analyzed. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical, Inc. New York, NY AIHA-LAP, LLC--EMLAP Lab 102581

Initial report from: 09/14/2018 14:26:42

For information on the fungi listed in this report, please visit the Resources section at [www.emsl.com](http://www.emsl.com)

September 10, 2018

Millbrook School District c/o Brian Fried  
Attn: Alden Pl Elementary Matter 1  
Delivery with Report via Email



Re: Summary Letter, Report Attached  
41 Alden Pl, Millbrook New York

Adaptive Environmental Consulting of New York LLC (AEC) is pleased to provide the following Limited Preliminary Water Impact and Microbial Inspection Report (Report) for services performed on September 7, 2018 at 41 Alden Pl, Millbrook, New York (Subject Property) to Millbrook School District c/o Brian Fried (Client) pursuant to Client's authorization and engagement.

AEC's engagement focused on inspecting the Subject Property, as defined by Client, for readily identifiable water impact, elevated moisture and mold or bacteria growth. Given AEC identified conditions, AEC can state provided experience and with reasonable scientific certainty the following general conditions concerns are present in the Subject Property per standard of care practice consideration:

- ***AEC did not identify elevated moisture or other water impact issues requiring ANSI-IICRC S500 loss handling considerations. Please refer to Section 3.0 for specific defined assessment area observations.***
- ***ANSI-IICRC S520 Condition 3 / Condition 2: Visible mold growth was observed on building materials and/or content items and mold spore / fragment cross-contamination was identified within the Subject Property. Mold growth and mold fragment cross contamination in occupiable areas are exposure health hazards. All site actions are to align to appropriate S520 and S500 practices and will include use of appropriate PPE, containment, air control, product removal and contaminated surface cleaning.***

Mold growth (ANSI-IICRC S520 Condition 3) impact conditions were identified. This Condition identification is to be considered a mold, bacteria or potential chemical exposure risk to occupancy and property contents. Mold fragments, bacteria and chemical release can spread through a Subject Property or enter an adjacent property if such contaminants are not adequately controlled. All mold remediation and water damage restoration is to include air control, containment, product removal and cleaning practices aligned to ANSI-IICRC S520 and ANSI-IICRC S500 practices. Per the standard of care, all impacted areas, areas adjacent and areas within airflow patterns, absent rebut sampling to NIOSH 0800 or like intent, are currently considered ANSI-IICRC S520 Condition 2 (settle mold spore contaminated) or bacteria and chemical contamination settled and as such direct exposure hazards to occupancy and site workers.

AEC identified the following Subject Property location issues requiring standard of care directed professional water damage restoration or microbial remediation:

The Subject Property is a slab-on-grade single-story school building. Recently, during the time that the school building was being opened for the year, suspected microbial growth was noted on personal property, school property, and some of the surfaces within the Subject Property. Servpro was dispatched to investigate. Upon discovering a vast amount of personal property was being affected by abnormal microbial contamination, AEC was engaged to conduct a NYS Article 32 Mold Assessment. John Evans was dispatched to conduct the required assessment, sample as required, and product an opinion as to the scope of work, if any, that would be required to remedy the abnormal environmental condition, and render opinion as to cause and solution. The findings of that inspection, conducted on September 7, 2018, are as follows:

\* The Subject Property has two wings, and two other rooms that are affected with an IICRC S520 Condition 3 and Condition 2 mold contamination hazard.

\* Work zone 1 goes from Room 60-80. This is the longer of the two wings. This work zone includes the art room. This work zone includes any sub-rooms within the work area.

\* Work zone 2 goes from Room 70-74. This work area excludes the library and the multipurpose room.

\* Work zone 3 is the Band Room (Room 76).

\* Work zone 4 is the Nurse and Storage Room.

\* The cause of the mold contamination hazard and exposure risk is the following: high humidity, high temperature, limited ventilation, limited airflow, no air quality surveillance program, no engineered air systems, no dehumidification systems.

\* These areas all present abnormal microbial growth on personal property. Mold remediation is required. The scope of work is as follows:

- Place all 4 zones under HEPA filtered negative air.
- Place commercial dehumidifiers within the work areas to reduce the relative humidity to acceptable levels (below 60%).
- Exterior exhaust is required.
- Remove and discard personal property that exhibits readily visible mold growth on non-cleanable and restorable surfaces. This includes but is not limited to: chairs, tables, desks, bookcases, bulletin boards.
- Following the S520 guideline, clean the personal property that remains, with a HEPA vacuum, damp wipe with Benefect, and HEPA vacuum a second time, sequencing of cleaning on all personal property.
- HEPA vacuum the floor, walls, and ceiling in all work areas.
- Apply an antimicrobial, by hand, to the floor, walls, and ceiling. Fogging is not to be completed until the conclusion of the project.
- HEPA vacuum a second time.
- Allow the air to scrub for 24 hours.
- Schedule clearance testing.
- The fee for the work required under this protocol, taking into account the labor required, overtime rules, the equipment required, and the chemicals required, is \$207,333. The actual fee charged may be less or more, but this is the guideline that AEC estimates based on market conditions and software inputs.
- The fee for the clearance testing and inspection will be not to exceed \$10,000.

Abnormal mold samples were collected by AEC as opined in this document. Please refer to report conclusions and sample data analysis.

Please refer to report listings of above noted area issues, applicable engagement parameters, report limitations and inspection conclusions.

I hereby certify that I am responsible for the services described in this document. The services described in this document have been provided in a manner consistent with the current standards of the profession and to the best of my knowledge comply with all applicable federal, state and local statutes, regulations and ordinances.

Respectfully submitted,

(Electronic Delivery - Signature on File)

John Evans (NYSMA000842)

AEC Field Consultant

Adaptive Environmental Consulting of New York LLC

Cell: 845.859.9046 / Email: [johne@adaptivenewyork.com](mailto:johne@adaptivenewyork.com)

*Report / Peer Review by: M. Chris Gusick (NV IJPM 1494)*

Adaptive Environmental Consulting Group, Inc.

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**Refer to cover page for servicing office contact information**



**ADAPTIVE  
ENVIRONMENTAL  
CONSULTING**

## **Limited Preliminary Water Impact and Microbial Inspection Report ©**

### **Prepared for:**

Millbrook School District c/o Brian Fried

### **Subject Property**

41 Alden Pl  
Millbrook, New York

Inspection date: September 7, 2018

Report date: September 10, 2018

### **SIGNATORY**

Adaptive Environmental Consulting of New York LLC

New Windsor, NY 12553

Office: 845.859.9047 / Fax: 888.987.4437

Office email: [admin@adaptivenewyork.com](mailto:admin@adaptivenewyork.com)

Site Inspection and Report Produced By: John Evans (NYSMA000842)

*Report / Peer Review by: M. Chris Gusick (NV IJPM 1494)*

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Servicing Offices: Nevada / California / Arizona / Utah / Illinois / Florida / Texas / Arkansas / New York / New Jersey / Connecticut / Pennsylvania

**Refer to cover page for servicing office contact information**

## **Service Payment Statement**

Millbrook School District c/o Brian Fried (Client) is advised this work product delivery fulfills all Adaptive Environmental Consulting of New York LLC's (AEC) engagement obligations and confirms Millbrook School District c/o Brian Fried's payment obligation for AEC services. Additional services requested by Client, Client representative, insurance carrier, legal representative, contractor or any site representing party including though not limited to, additional inspections, site visits, post work surveys or "clearances", subsequent work product production, file reviews, teleconferences or any supplemental work product production are considered separate billable events at AEC standard rates and will be considered authorized by and payable by Millbrook School District c/o Brian Fried unless written documentation prohibiting additional service requests is provided to AEC before performed service.

Included in additional billable services are any legal related or supplemental report or work product production actions including though not limited to document subpoenas, deposition subpoenas, mediation or trial appearances, legal conferences or any legal document review. These services are specifically billed according to current **AEC Legal Pricelist** fees regardless is AEC is a "retained expert" or not. All supplemental billings are the responsibility of the Client in the event published fees are not paid by requesting party. Payment for any and all such supplemental actions requires payment in full prior to requested work production.

AEC service payments are due no later than 30 days after invoice delivery date. Invoices not paid within 30 days are subject to a \$35 per re-billing labor fee every 30 days and 2% monthly interest (24% yearly). Invoices not paid within 30 days of due date will have liens processed against the service address at Client's expense, minimum \$995. Invoices not paid within 90 days of due date are considered in default by Client and will be submitted to third party collection with Client's acknowledgement Client will be responsible for all collection costs and fees including all legal and attorney fees in addition to all other service, re-billing, interest, lien and penalty fees.

Payment, invoice, service or document concerns are to be communicated to AEC within 72 hours of initial service or report receipt. Client accepts failure to contact AEC within 72 hours constitutes and acknowledges Client's full acceptance of AEC services, report limitations and conditions, invoice and payment terms. Client acknowledges any AEC document distribution, reliance or consideration, either through verbal, written, published or electronic distribution or by way of requested third party report delivery constitutes and acknowledges Client's full acceptance of AEC services, report limitations and conditions, invoice and payment terms.

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## **Report Reliance and Warranty Statement**

Millbrook School District c/o Brian Fried (Client) is advised report acceptance or use in any manner by Client acknowledges AEC services, work products and this report are limited by the terms and conditions herein this Statement and report unless disputes are communicated in writing within 72 hours of report delivery to AEC by Client. Client acknowledges any AEC document distribution, reliance or consideration, either through verbal, written, published or electronic distribution or by way of requested third party report delivery by AEC constitutes and acknowledges full acceptance of AEC services, report limitations and conditions.

AEC's report is for Client's exclusive use and was designed to provide information to assist the Client solely with the determination Client report defined or report limited inspection areas (collectively, hereinafter, Inspection Area) may or may not exhibit readily detectable current or past moisture conditions, including microbial growth, per Client directed engagement. It is the nature of the AEC and Client engagement use of this report by any party other than the Client is not recommended and any report use by any non-defined Client party, absent AEC written permission or communication, places any such report usage at third party's sole liability and peril. Client is solely responsible for the use of, and any liability with respect to decisions or recommendations made from this report and AEC shall not have any liability with respect to decisions or recommendations made or actions taken by Client, their subsidiaries, suppliers, employees, agents, contractors, affiliates or attorneys, based on the findings of this report.

Client was advised AEC's inspection was limited by time, budget and other Client applied constraints which impact inspection and report considerations and opinions and Inspection Areas may change over time with respect to dampness, microbial impact and may support

latent or concealed defects and deficiencies, including issues related to water and mold impact, not observed by or identified by AEC. Inaccessible, impractical to inspect areas or surfaces, areas outside the Inspection Area or areas otherwise not readily observable may support water and mold issues affecting living space areas, including the Inspection Area. Such AEC non-observed or non-identified issues may require water damage restoration or microbial remediation though all such areas are specifically excluded from AEC's inspection and all report considerations and conclusions given the reasons noted herein this statement and report. Such excluded areas, at a minimum, are: the interiors of walls and ceilings and inaccessible areas below; areas concealed by any floor product or floor covering; areas to which there is no access without defacing or tearing out lumber, masonry, roofing or other finished workmanship; any attic and basement areas unless specifically engaged to evaluate and separately listed as a defined inspection area or when engaged attic or basement areas concealed or made inaccessible by insulation, construction, ducting, belongings, or equipment; areas where locks or contents prevented access; and areas concealed by appliances contents or other like items including stored materials.

AEC's services are not to be represented as an all-inclusive evaluation for water and mold throughout the Subject Property or Inspection Area. Such a comprehensive service requires unrestraint intrusive investigation and extensive indoor air quality and surface sampling which are not practical under the current engagement and given most engagements is cost prohibitive. AEC's inspection and sampling was not technically exhaustive and the fee charged is substantially less than of a technically exhaustive service.

AEC's professional services are represented as meeting current professional standards as stated herein this report and provided by AEC-like qualified Indoor Environmental Professionals (IEPs) in light of engagement, inspection limitations and known Inspection Area conditions. AEC's services consist of professional opinions and judgment considerations and absent federal or state mandated standards AEC's inspection and this report was completed in accordance with select industry or AEC established principles and practices. AEC work product may incorporate AEC personnel or other third party experience and analysis, prior investigation documentation, related Subject Property party interviews or inclusion of potential non-standard industry practices. No warranty or guarantee concerning services, findings or conclusions beyond noted in this Statement or within the report are intended or offered.

AEC considers information provided by Engaged Party and third parties truthful and accurate. Accuracy and completeness of information can vary and information not provided within this report was not considered by AEC. If additional information should be considered or provided information is incomplete AEC is to be contacted prior to any report distribution or reliance. AEC is not responsible for consequences or conditions intentionally or unintentionally concealed or withheld from AEC, overlooked or not evaluated by AEC or not fully disclosed to AEC at any time prior to, during or after the conducted inspection.

AEC hereby expressly disclaims any and all representations and warranties of any kind or nature, whether expressed, implied or statutory, related to any AEC service and the findings stated in this document including that of any express or implied warranty or guarantee regarding the inspection or methodology used by the inspector performing the inspection or the accuracy of any information provided. In no event will AEC be liable for special, indirect, incidental, punitive, or consequential damages of any kind regardless of the form of action whether in contract, tort, (including negligence), strict product liability or otherwise, arising from or related to the inspection or this report. AEC accepts no responsibility or liability to any person or organization for any claim for loss or damage, including attorney's fees, caused, or believed to be caused, directly or indirectly by conditions not identified by AEC, revealed by the laboratory analysis performed, that were misreported by the laboratory, detectable under other chemical analysis or through alternative test methods or by failure to locate, install or perform additional sample points or suggest additional sample locations.

AEC makes no warranty whatsoever with respect to any condition for areas outside the Inspection Area and based on engagement other pollutants (i.e. lead, asbestos, mold, bacteria, other microbial impact issues, etc.) may not have been characterized. Property work completed absent other such pollutant evaluation is done so at Engaged Party's or acting party's sole peril and liability. AEC is not required to make other such potential pollutant survey recommendations.

Regulatory standards and industry standards or guidelines referenced in this report are based on AEC's knowledge of applicable documents in effect at the time of AEC services per AEC personnel's understanding of such documents. In many cases document interpretation can vary between IEPs and application of interpretations are significantly reliant on professional experience and judgments. AEC cannot anticipate potential future changes or interpretation adjustments to regulatory standards.

In the event that any Court of Law, Arbitrator, Mediator, Tribunal, or any other entity capable of enforcement of the contents and covenants contained within this report declares that AEC has financial liability of any type, AEC's liability is limited by agreement between the Client and AEC to the amount of the engagement between AEC and the Client, or \$1,000.00, whichever is greater.

The invalidity or unenforceability, in whole or in part, of any provision, statement, term or condition herein this statement or this report shall not invalidate or otherwise affect the enforceability of the remainder of these provisions, statements, terms and conditions.

## **1.0 - GENERAL BACKGROUND**

### **1.1 Inspection Introduction**

On September 7, 2018, Adaptive Environmental Consulting of New York LLC (AEC) Field Consultant, John Evans (NYSMA000842) (Inspector), performed preliminary limited inspection services at 41 Alden Pl Millbrook, New York (Subject Property) in an attempt to identify within the report defined Inspection Area readily detected elevated moisture, readily observable areas of prior elevated moisture and conditions supporting or conducive to supporting microbial contamination (mold or bacteria) with regards to current or past elevated moisture (hereinafter collectively referred to for report purposes as “Inspection Conditions”).

AEC services were engaged by Millbrook School District c/o Brian Fried or Client authorized representative (hereinafter referred to collectively as, “Client”), in accordance to considerations and agreements published in the Service Payment Statement, the Copyright and Intellectual Property Statement, the Report Reliance and Warranty Statement prefacing this report and functioning with report published limitations as the contractual agreement between AEC and Client in addition to other engagement or contractual documents when available.

### **1.2 Inspection Specific Information**

AEC services were limited to the following defined Inspection Area:

- Interior areas as deemed readily observable and accessible by AEC.

Areas AEC deemed not readily accessible or not readily observable were excluded from the inspection areas as listed above and are outside all report considerations, comments and conclusions. Partial listings of such areas are provided within report listed Inspection limitations. At request, all such excluded areas can be presented at request if not listed herein this work product.

AEC did not inspect the attic area, the HVAC system or if present, any crawlspace or basement area unless separately listed above. All such areas and conditions stemming from such areas are outside the engagement and any inspection or report considerations.

AEC was provided the following information for inspection and report consideration:

- Mold was detected on various items and surfaces within four areas of the school. The school was closed by the superintendent, and testing was ordered.
- Work started within Inspection Area prior to AEC inspection. Site actions may impact AEC's inspection and as such inspection findings and report conclusions are based on AEC observations at the time of service.

AEC did not inspect areas outside those listed herein this section. In the event the Inspection Area should be expanded or if a listing of not readily observable or not readily accessible excluded areas is required, AEC is to be contacted prior to report distribution or reliance.

### **1.3 Inspection Specific Engagement Information**

AEC's inspection typically involves background information collection from available site parties, an inspection of defined Inspection Areas and the use basic sensory observations and basic field instrumentation (e.g. moisture meters, hygrometer, thermometer, etc.) within Inspection Areas. Specialty instrumentation (e.g. thermal imaging, laser particle counters, luminometers, etc.) is not typically used unless accordingly engaged by Client and indicated within this report.

AEC's inspection was not exhaustive and AEC services, unless noted differently in this report, did not include any form of microbial (bacteria or mold) sampling, intrusive or destructive investigation, water source testing, the evaluation of any personal property or content items or any other contaminant sampling (asbestos, lead, silica, etc.). All such services are only completed when Client engaged and authorized. Additional Client engaged inspection services performed and considered within report were:

- No additional services outside those indicated within this report were engaged by or authorized by Client or Client representative.
- Subject Property content items (personal property) were inspected by or considered within this report by AEC as engaged and authorized by Client. Contents can support microbial contamination issues as a result of contaminated water contact, direct mold growth or via microbial cross contamination. Care is to be exercised when moving or addressing contents and applicable S500 and S520 standard practices should be applied. If specific content review or comment is required please contact AEC prior to report distribution or reliance.
- AEC collected limited Adenosine Triphosphate (ATP) samples during the inspection though either surface swabbing or liquid droplet collection as engaged and authorized by Client. Sample analysis, when provided, is presented within Section 4.0 of this report. Swab samples are collected by gently applying the swab to a surface to permit suspect material transfer from a pre-defined collection area whereas liquid droplet collection occurs through contacting the collection “stick” to a suspect liquid permitting liquid transfer to collection grooves. The collection media is then activated through the mixing of potential ATP and a liquid-stable reagent then the mixing tube is inserted into a testing device (luminometer) permitting the evaluation of detectable ATP.

- AEC collected limited laser particle sampling during the inspection as engaged and authorized by Client. Laser particle sampling permits the evaluation of in-air particles ranging between .3 microns to those in excess of 10 microns with AEC selected particle breaks generally set at .3, .5, 1.0, 3.0, 5.0 and >10.0 microns. Sample analysis, when provided, is presented within Section 4.0 of this report. When possible multiple samples are collected from each sample location and compared to one another and then to that of other sample locations both inside and outside the Subject Property. Variances in particle numbers and hierarchy can indicate potential contamination issue or indoor air quality concern.
- AEC collected limited non-viable air samples (air based spore traps) during the inspection as engaged and authorized by Client. Sample analysis, when provided, is presented within Section 4.0 of this report. Non-viable air sampling is performed, when possible, to ASTM collection standards using a disposable bioaerosol spore cassette attached by hose to a sample pump that is pre- and post- calibrated to a 15 liters per minute flow rate. Based on sample location total liter volume can vary between 15 liters to 150 liters. Samples were submitted under chain-of custody to analyzing laboratory. Sampling collected in a manner other than NIOSH 0800, or like intent, was at Client direction. Questions about sample methodology should be directed to AEC prior to report distribution or report reliance.

AEC assumes no liability with regards to non-engaged or non-permitted services, such as microbial or other contaminant sampling or any intrusive actions, or the conditions and findings such services would have identified including those related to hazard exposure concerns. AEC is not responsible or required to recommend additional services regardless of potential recommendation or Inspection Conditions. Requests or inquiries about additional services are to be requested by Client prior to report distribution or reliance.

#### **1.4 Inspection, Conclusion and Site Plan Methodology**

AEC attempts to align inspection services to generally accepted industry and governmental standard of care documents and references as understood by AEC personnel and permitted under Client engagement.

In general practice, AEC relies on ANSI-IICRC S500 and ANSI-IICRC S520 as well as ASTM D7338-10 and ASTM E2418-06 for inspection considerations, report conclusions and report recommendations. These documents are AEC considered industry primary standard of care documents to inspect for and address water damage restoration (S500), mold remediation (S520) and baseline building inspections (D7338, E2418). Additional documents may have also been considered during the inspection and in report production as provided through or referenced within ASTM, ACGIH, AIHA, NIOSH and other entities. Listings of other considered documents can be provided by request.

AEC acknowledges, as should Client, evaluation of water damage and moisture potentially leading to microbial issues is complex and for this reason AEC performs services applying professional judgment within Client permitted engagement to establish conclusions, site plans and provide Client information about the Subject Property and Inspection Area. Client and site parties are advised AEC's services are not meant to replace, mimic or extend as a comprehensive indoor air quality investigation within the Inspection Area or determine the potential impact the Inspection Area may or may not have on surrounding areas, properties, contents or occupants.

New York Statement: New York State Article 32 requires that a third-party assessment be conducted by a party other than the contractor that will be conducting the mold remediation work. AEC is a licensed New York State mold assessment firm. All inspectors conducting mold assessment work in the State of New York are properly trained and licensed in the field of mold assessment. AEC is required to determine, to the extent possible: the amount of building materials to be removed, the personal protective equipment that will be work by the workers conducting the mold remediation, the methodology of the removal, the EPA approved chemicals that will be used during the remediation, the clearance criteria, and the estimated amount of cost for the mold remediation. AEC is not offering to conduct any mold remediation for a specific price, or any mold remediation of any type. The estimated price is based on a variety of factors including but not limited to market conditions, industry standard pricing, and the complexity of the project.

## **2.0 – INSPECTION CONCLUSIONS**

### **2.1 Conclusion Statements**

Provided the September 7, 2018 inspection AEC opines the following preliminary inspection report conclusion:

- Inspection Conditions **WERE** observed by AEC within the Inspection Area.

The preliminary report conclusion was based on the following AEC observed Inspection Conditions:

- Active elevated moisture issues were identified by AEC: **NO**
- Water damage or other water impact issues were identified by AEC: **NO**
- Bacteria or other moisture based contamination issues are opined present by AEC: **NO**
- Mold growth and mold contamination issues were identified by or opined present by AEC: **YES**

Provided AEC observed Inspection Conditions and site Inspection actions the Inspection Areas provided the above conclusions and as such support the following ANSI-IICRC S500 or ANSI-IICRC S520 considerations in whole or part:

- AEC did not identify elevated moisture or other water impact issues requiring ANSI-IICRC S500 loss handling considerations. Please refer to Section 3.0 for specific defined assessment area observations.
- ANSI-IICRC S520 Condition 3 / Condition 2: Visible mold growth was observed on building materials and/or content items and mold spore / fragment cross-contamination was identified within the Subject Property. Mold growth and mold fragment cross contamination in occupiable areas are exposure health hazards. All site actions are to align to appropriate S520 and S500 practices and will include use of appropriate PPE, containment, air control, product removal and contaminated surface cleaning.

Mold growth (ANSI-IICRC S520 Condition 3) or grossly contaminated water (ANSI-IICRC S500 Category 3) impact conditions were identified. This Condition or Category identification are to be considered a mold, bacteria or potential chemical exposure risk to occupancy and property contents. Mold fragments, bacteria and chemical release can spread through a Subject Property or enter an adjacent property if such contaminants are not adequately controlled. All mold remediation and water damage restoration is to include air control, containment, product removal and cleaning practices aligned to ANSI-IICRC S520 and ANSI-IICRC S500 practices. Per standard of care, all impacted areas, areas adjacent and areas within airflow patterns, absent rebut sampling to NIOSH 0800 or like intent, are currently considered ANSI-IICRC S520 Condition 2 (settle mold spore contaminated) or bacteria and chemical contamination settled and as such direct exposure hazards to occupancy and site workers.

Client is advised supplemental Inspection Area inspection, site actions or sampling may permit the alteration S500 Category assignment, S520 Condition assignment or microbial hazard exposure consideration statement.

## **2.2 Additional Inspection Conclusion Statements**

AEC opines the following specific inspection conclusions with respect to inspection findings:

- ANSI-IICRC S520: Inspection Area requires mold remediation aligned to ANSI-IICRC S520 standard of care practices. This includes, at a minimum, water source identification, moisture mapping or water sprawl and mold growth extent confirmation, air control, containment, elevated moisture control, product removal with appropriate re-surface and cleaning actions and verification of Inspection Area return to dry-standard and “satisfactory” remediation of ANSI-IICRC S520 Condition 3 mold growth issues. Third party post verification of mold remediation action is highly recommended under standard of care before any building re-construction occurs.
- The Inspection Area or areas adjacent support presumed asbestos containing material (PACM) or suspect asbestos containing material disturbance. Regulatory sampling to rebut such was not provided to AEC and as such the disturbances appear to have violated federal, state and county regulations and may have created an occupant, content and building system asbestos exposure hazard. All site actions should cease pending regulatory sampling which if determines asbestos containing materials (ACM) or trace asbestos containing materials (TACM) were disturbed. Air sampling to assess asbestos fiber exposure to occupancy, workers and contents must occur in compliance with federal, state and county regulations.
- AHERA and NESHAP compliance is the obligation of the client and the contractor.

AEC reserves its right to alter or modify any opinion, conclusion or statement herein this report provided supplemental documentation or information is presented or in the event additional AEC services are engaged by Client or other site party. Please contact AEC prior to report distribution or reliance if questions about inspection findings, report conclusions, the site plan, standard of care practices or if additional information should be considered by AEC.

## **3.0 - LIMITED PRELIMINARY INSPECTION OBSERVATIONS**

### **3.1 Walk-Through Inspection Visual Observations and Opined Inspection Conditions**

AEC identified the following Inspection Conditions within the Inspection Area. All listed items require professional corrective actions by an appropriately qualified, insured and when required licensed or certified party. Water restoration or microbial remediation corrective actions should align to S500 and S520 practices and when provided AEC site plan, minimum to regulatory requirements and industry best practices.

Specific Inspection Conditions opined present based on current observations, data and engagement were as follows:

The Subject Property is a slab-on-grade single-story school building. Recently, during the time that the school building was being opened for the year, suspected microbial growth was noted on personal property, school property, and some of the surfaces within the Subject Property. Servpro was dispatched to investigate. Upon discovering a vast amount of personal property was being affected by abnormal microbial contamination, AEC was engaged to conduct a NYS Article 32 Mold Assessment. John Evans was dispatched to conduct the required assessment, sample as required, and product an opinion as to the scope of work, if any, that would be required to remedy the abnormal environmental condition, and render opinion as to cause and solution. The findings of that inspection, conducted on September 7, 2018, are as follows:

\* The Subject Property has two wings, and two other rooms that are affected with an IICRC S520 Condition 3 and Condition 2 mold contamination hazard.

\* Work zone 1 goes from Room 60-80. This is the longer of the two wings. This work zone includes the art room. This work zone includes any sub-rooms within the work area.

\* Work zone 2 goes from Room 70-74. This work area excludes the library and the multipurpose room.

\* Work zone 3 is the Band Room (Room 76).

\* Work zone 4 is the Nurse and Storage Room.

\* These areas all present abnormal microbial growth on personal property. Mold remediation is required. The scope of work is as follows:

- Place all 4 zones under HEPA filtered negative air.

- Place commercial dehumidifiers within the work areas to reduce the relative humidity to acceptable levels (below 60%).

- Exterior exhaust is required.

- Remove and discard personal property that exhibits readily visible mold growth on non-cleanable and restorable surfaces. This includes but is not limited to: chairs, tables, desks, bookcases, bulletin boards.

- Following the S520 guideline, clean the personal property that remains, with a HEPA vacuum, damp wipe with Benefect, and HEPA vacuum a second time, sequencing of cleaning on all personal property.

- HEPA vacuum the floor, walls, and ceiling in all work areas.

- Apply an antimicrobial, by hand, to the floor, walls, and ceiling. Fogging is not to be completed until the conclusion of the project.

- HEPA vacuum a second time.

- Allow the air to scrub for 24 hours.

- Schedule clearance testing.

- Engage a contractor to conduct an NADCA certified duct cleaning company to clean the duct system within the entire building. This should include all areas, not just the work areas within this report. This should be conducted with 30 days of the clearance testing for this project.

- The fee for the work required under this protocol, taking into account the labor required, overtime rules, the equipment required, and the chemicals required, is \$207,333. The actual fee charged may be less or more, but this is the guideline that AEC estimates based on market conditions and software inputs.

- The fee for the clearance testing and inspection will be not to exceed \$10,000.

Inspection Area	Elevated Moisture Noted	Water Impact Noted	Mold Growth Noted	AEC Samples Collected	AEC Sample Results	Occupant Exposure Concern	IICRC S500 Category	IICRC S520 Condition	Additional Investigation Recommend
School Interior	N	N	Y	Y	FAIL	Y	-	2/3	N
Comment: <i>IICRC S520 Condition 3 contamination noted to personal property within all 4 work areas. Condition 2 is concluded because of the condition 3 growth.</i>									

#### Chart legend considerations:

- Y (Yes) or N (No) indicates the condition, exposure or service was or was not, respectively, opined present or completed.

- U (Undetermined) indicates additional information is needed to assign a “Yes” or “No” the condition, exposure or analysis.
- ANSI-IICRC S500 Category is provided as Category 1 (1), Category 2 (2), or Category 3 (3).
- ANSI-IICRC S520 Condition is provided as Condition 1 (1), Condition 2 (2), or Condition 3 (3).
- Sample results are opined as Satisfactory (S), Not Satisfactory (NS), or Withheld (W)\*.
- Blank cells indicate “Not applicable” to the engagement or the condition or service was not identified or performed by AEC.

If questions about the above noted or opined conditions exist please contact AEC prior to report distribution, reliance or any site action.

\* Samples indicated as “withheld” were at Client request and can apply to sample processing, reporting or AEC analysis.

## 4.0 – COLLECTED INSPECTION DATA

### 4.1 Inspection Collected Sample Data

AEC collected the following site sample data during the inspection at Client engagement and authorization:

#### 4.1.1 Collected Microbial Sample Data

Visible mold growth (S520 Condition 3) was observed. Verification surface sampling was not required and is not relevant to current report considerations. Air sampling was not authorized by Client and per standard of care the identified mold growth is considered a microbial exposure hazard (S520 Condition 2) to Subject Property occupancy, workers and contents. Confirmation or rebut of the S520 Condition 2 assignment can be assessed through supplemental air sampling aligned to NIOSH 0800 or like sampling intent and should include collection of silent and disturbed samples. Report conclusions and statements are based on AEC inspection findings and standard of care considerations. If any microbial sampling is required, please contact AEC prior to report distribution or report reliance.

AEC completed microbial sampling was as follows:

Sample ID	Sample location	Sample type	Sample results
N/A	-	-	-

Please refer to the attached laboratory data sheets for additional sample information and analysis.

AEC sampling supports the following ANSI-IICRC standard of care considerations and general AEC conclusions:

- No Sample: AEC was not engaged to perform S500 Category related sampling. Water restoration and mold remediation actions should align to S500 / S520 standard of care practices for water and mold impact documentation, containment, air control, dry down action, product removal and product cleaning considerations.
- Condition 3/2: AEC collected sampling supports actual mold growth (S520 Condition 3) and settled mold spore (S520 Condition 2) cross contamination in sampled areas, with Condition 2 opined to extend to adjacent areas. This considered, Inspection Areas require mold remediation and water restoration. Mold remediation actions should align to S520 and S500 standard of care practices for water and mold impact documentation, containment, air control, dry down action, product removal and product cleaning considerations. All areas adjacent sampled or opined impacted areas should be undergo surface and content cleaning actions.

Client limited AEC recommended sampling in total number, sample type, sample pattern or in a manner impacting possible sample certainty. Client was advised of sampling limiting conditions and considerations. Specific sampling limiting and limiting considerations can be provided by AEC at request.

AEC recommends all sampling be performed to NIOSH 0800, or like general intent, when assessing indoor air quality or surface contamination. Sampling to a lesser degree may, based on sample purpose, increase false-negatives or false-positives, limit scientific certainty considerations and leave conditions, including exposure hazards, not identified. Client assumes all associated liability for limited sample engagement or the lack of sample engagement, including though not limited to, sample data irregularities, lack of sample scientific certainty, undiscovered Inspection Conditions and opinions or conclusions presented in good faith based on limited or absent sampling. Inspection and report considerations were produced provided directed limited sample or lack of sample authorization.

AEC may have used EmLab P&K MoldRANGE tables (IAQ Pocket Reference Guide, 7th Ed) for air sample comparisons and analysis. Reference use was per Client acknowledgement and such reference use may have been completed in substitution of exterior sample collection at Client direction.

If questions exist about the collection of or the lack of microbial samples, the use of third party references or any AEC or laboratory analysis and conclusions, contact AEC prior to report distribution reliance, including data reliance.

#### 4.1.2 Collected Laser Particle Sample Data

Not satisfactory laser particle sample analysis was confirmed within sampled Inspection Areas when compared to control or reference data. Laser sample data can alter based on time, weather and property use. Varied factors can alter sample "not satisfactory" analysis considerations.

Area	Type	0.3 to 0.5	0.5 to 1.0	1.0 to 3.0	3.0 to 5.0	5.0 to 10.0	>10.0	Area Result / Efficiency Result
Work area 1	Indoor	42039	12039	6273	839	724	313	FAIL
Work area 2	Indoor	48203	13332	6787	921	801	402	FAIL
Work area 3	Indoor	39283	11241	4023	820	632	221	FAIL
Work area 4	Indoor	39002	14293	5443	799	701	350	FAIL
Outdoor	Standard	16772	2893	637	102	19	3	-

#### 4.1.3 Collected General Air Quality Sample Data

Not satisfactory general indoor air collection data was identified with regards to temperature and relative humidity. General air sample data can alter based on time, weather and property use. Varied factors can alter sample "not satisfactory" analysis considerations.

Area	Temperature (F)	Relative Humidity	Grains per Pound	Carbon Dioxide	Carbon Monoxide	Area Result / Efficiency Result
Work area 1	77.2	82.3				FAIL
Work area 2	78.2	84.7				FAIL
Work area 3	78.3	83.9				FAIL
Work area 4	78.9	87.2				FAIL
Outdoor	68.4	83.0				-

#### 4.2 General Sample Collection Statements

Exterior conditions and interior living conditions create variant factors. Absent universally mandated national or state applied permissible exposure limits Client must determine the assessment and this report's appropriateness and applicability given situation and their personal health or objectives related to mold growth, mold exposure and other contamination concerns. This may require further consultation with AEC, supplemental sampling such as indoor microbial based air sampling or consultation with medical professionals.

Sampling when completed by AEC is performed to test an established hypothesis. Standard applied hypotheses attempt to prove S500 Category or S520 Condition assignments either through the presence of or exposure to supporting conditions. As such, the identification or opinion of the presence of a particular microbial contaminant, including mold growth, does not necessarily mean building occupants are or are not exposed to contaminant, its byproducts or occupancy is sensitive to the contaminant or its byproducts.

Sample results or Inspection Area conditions considered "abnormal" or "not satisfactory" or sample results or Inspection Area conditions considered "normal" or "satisfactory" are not a guarantee or assurance such labeled condition exists as all sampling and inspection techniques support numerous variables and can fail to provide statistical significance. Such conditions will create false assurance or false reliance considerations and report conclusions.

According to the United States Environmental Protection Agency (USEPA): "A number of pitfalls may be encountered when conducting sampling. An inadequate number of samples may be taken, there may be inconsistency in sampling site actions, the sampler may become contaminated, outdoor control samples may be omitted, and you may incur costs for unneeded or inappropriate samples. Budget constraints will often be a consideration when sampling; professional advice may be necessary to determine if it is possible to take sufficient samples to characterize a problem in a given budget. If it is not possible to sample properly, with a sufficient number of samples to answer the question(s) posed, it would be preferable not sample. In adequate sample plans may generate misleading, confusing, and useless results".

According to the American Conference of Industrial Hygienist (ACGIH): "Failure to find a biological agent or related environmental condition (through sampling) is not absolute insurance of their absence or of exposure and risk. However such findings may make absence more probable than presence and may be used to support that the environment presents conditions of acceptable risk. Investigators can never definitively conclude or prove that an environment is "safe" and presents no risk of exposure to biological agents. Data can be collected that document apparent absence of specific hazards, but the requirements for data quality to reach this conclusion are stringent".

#### 5.0 – DISCLAIMER STATEMENT

The results, findings, conclusions and recommendations expressed in this document are based only on conditions noted during the inspection and based on AEC's opinions of Assessment Conditions considering report limitations and parameters. Client accepts microbial assessments can under estimate or over-estimate Assessment conditions as they are based on opinion and experience whereas

microbial sampling can present false negative data and false positive data. Client is advised microbial contamination issues are not uniformly disturbed throughout a building or within air quality especially when time and site occupancy are considered.

Comments and opinions made by AEC with regards to potential water source issues are casual in nature and require confirmation by a qualified third party or appropriately licensed contractor. AEC will not assume responsibility for or any liability as a result of failure to identify or confirm water or contaminant source, to restore any building products or to advise Client or any party about such potential sources or source related impact issues regardless if readily identifiable or cause.

The determination the Subject Property or defined assessment area support “no elevated moisture” or “no microbial contamination” is neither feasible nor practical and as such no company can make such a statement based on the AEC completed assessment or any type of limited assessment. Neither AEC nor any company can guarantee all potential contamination was identified at the Subject Property or in defined assessment area. AEC may have identified Assessment Conditions issues within the defined assessment area or outside which fall outside engagement and as such are not documented in this report.

AEC, in most all instances, is asked and engaged by Client to render professional opinions, suggestions and recommendations based on invalid statistical data, incomplete information, limited sampling or misleading information. Client is advised all AEC opinions, suggestions and recommendations carry extreme limitations in use and reliance and may at times, given industry conflicts, technology limitations and limited assessment engagement create exacerbated Subject Property conditions or create false or inaccurate Subject Property assumptions and reliance as may the limited analysis of any collected samples.

AEC’s professional services have been performed, its findings obtained and this document prepared in accordance with customary principles and practices associated with like professional work and do not carry any other guarantee. This statement is in lieu of other statements either expressed or implied. Implementation or use of the recommendations, findings or conclusions from the assessment or within this report in no way assures the elimination of present or future liability or fulfillment of the property owner’s or Client’s obligation under any federal, state or local law.

AEC shall not have any liability with respect to Client’s decisions or recommendations made or actions taken by the Client, it subsidiaries, contractors or any other related or affiliated third party, based on the findings of any AEC’s assessments or this report outside that stated herein. If questions arise about any assessment, any work product, this report or the agreed engagement as represented herein contact AEC immediately and prior to any report distribution, report reliance or any site action.

In the event that any Court of Law, Arbitrator, Mediator, Tribunal, or any other entity capable of enforcement of the contents and covenants contained within this report declares that AEC has financial liability of any type, AEC’s liability is limited by agreement between the Client and AEC to the amount of the engagement between AEC and the Client, or \$1,000.00, whichever is greater.

AEC is not licensed as a medical professional nor are any of AEC’s personnel. AEC performed assessment and work product is not meant to be a health assessment, any form of medical opinion or any type of a health risk analysis. AEC or those representing AEC bear no responsibility, regardless of cause, for the actual condition of the structure or safety of a site pertaining to Indoor Air Quality (IAQ) contamination regardless of the actions taken by the Client. A licensed medical professional should be consulted for medical opinions regarding assessment findings and report conclusions. AEC will make no comment with regards to, nor is AEC responsible to provide comment with regards to Subject Property or surrounding property’s, air quality or conditions with regards to occupancy or habitability.

I hereby certify that I am responsible for the services described in this document. The services described in this document have been provided in a manner consistent with the current standards of the profession and to the best of my knowledge comply with all applicable federal, state and local statutes, regulations and ordinances.

Respectfully submitted,

***(Electronic Delivery - Signature on File)***

John Evans (NYSMA000842)

AEC Field Consultant

Adaptive Environmental Consulting of New York LLC

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*Report / Peer Review by: M. Chris Gusick (NV IJPM 1494)*

## **APPENDIX A - Water Damage Restoration or Microbial Remediation Considerations**

Regardless if AEC provides a site action plan (protocol) or not, Client and site parties are advised all site action is to align to S500 and S520 standard of care practices, as well as other specialty applicable documents as applicable (e.g. National Institute of Health or NIH for medical facility or health sensitive environments and the Uniform Facilities Guides Specifications or UFGS for government structures). Client, contractor and site parties are advised this includes the use of containment and air control measures to prevent mold and bacteria contaminant, dust release and cross-contamination issues. Unless indicated below air control and containment is to consist of a multiple-decontamination entry / exit point or is to permit direct outdoor entry / exit. Negative pressurization is to be maintained within all containment areas. If localized air control is specifically directed by AEC then use of an air scrubber at work site can occur in lieu of full containment, with product wetting for dust control prior to removal. All surfaces within work area and adjacent are to be HEPA cleaned and damp wiped after completed site actions. Air control must be maintained to control contaminant and dust release and all air exhausting is to occur outside the Subject Property

Regulatory asbestos sampling is mandatory, per USEPA and Federal OSHA, of all presumed asbestos containing material (PACM) and all suspect asbestos containing material regardless of material or building age when any such products are to be disturbed. If sampling is not performed then materials are to be considered PACM or asbestos containing material (ACM) and addressed per regulatory requirements by appropriately trained, certified and licensed contractors. The assumption materials do not require asbestos testing post-1980 is incorrect and failure to test is a direct violation of regulatory sampling requirements. Lead based paint testing is required of all painted or top-coat sealed surfaces with an install date or manufacture date pre-1978, whereas silica sampling is required when silica release issues may occur. As with asbestos, lack of sampling when required mandates the contractor address non-sampled surfaces as lead-based paint containing or silica exposure hazards per regulatory requirements. Service performed absent regulatory sampling or application of regulatory controls and training is done so at Client, contractor or varied site parties' sole liability and peril.

AEC recommends all water restoration and microbial remediation work undergoes a post verification assessment (PVA) or "clearance" by AEC before any building product restoration. PVAs are performed to confirm "satisfactory" identified contaminant address in an effort to protect Client and site parties' liability through a Risk Based Level assessment of a work area's return to an opined "pre-loss" or otherwise opined "normal" ecology. PVA decision criteria vary among IEPs. Use of a party other than AEC for PVA is not recommended and increases Client's and work parties' liability as AEC specific directed actions or considerations were not confirmed "satisfactory" to AEC practices or recommendations and in such cases Client, work party and inspection third party assume all such liability, peril and warranties related to all work performed.

Client and site parties are advised when product removal is directed by AEC or through S500 / S520 standard of care application all product or content disturbance can result in cross contamination considerations to the impacted area as well as to previously non-impacted areas. As noted above, air control and containment is required in all product disturbance or content disturbance cases. Likewise, Client and site parties are advised product removal and content disturbance can expand or contract outside AEC recommendations or that of third-party observed conditions and it is the contractor's or work completing party's responsibility to verify all product removal parameters and appropriately document and communicate adjusts to scope party and Client. Inadequate product removal is at removing party's sole liability and peril.

When water restoration directs product removal all cavity area surfaces exposed are to undergo HEPA cleaning, damp wiping and general cleaning. When mold remediation directs product removal all impacted wood or mold contacting wood is to be re-surfaced and then all cavity area surfaces are to undergo HEPA cleaning, damp wiping and general cleaning. Areas are to present as dust and debris free. All other work area or containment surfaces as well as all areas adjacent the work area work areas, even when non-contained, should undergo HEPA cleaning and damp wiping. Encapsulation or other like sealer use is not to occur unless directed by AEC within this report and use is accepted by Client and building owner prior to application in writing. Encapsulation use is in contrast to standard of care practices and inhibits PVA effectiveness. Use of encapsulation prior to PVA service can result in a "not satisfactory" PVA determination and AEC may require encapsulation removal prior to "satisfactory" PVA consideration.

Client and site parties are advised AEC highly recommends and standard of care suggests all water damage restoration and mold remediation is performed under the establishment of a third-party indoor environmental professional (IEP) who is not performing the water damage restoration or mold remediation services or related to parties performing such actions. Any and all water restoration actions related to Category 2 or Category 3 or any and all mold remediation actions related to Condition 2 or Condition 3 should be overseen by third-party IEP to verify scope, monitor site actions, verify standard of care application and evaluate site actions prior to PVA service. This oversight can be full, meaning ongoing during the entire project, or limited, meaning scheduled at key service points to verify actions.

### **AEC Limited Site Recommendation Considerations**

A limited site plan (protocol) is being provided by AEC below based. Recommendations are based on AEC identified conditions and can expand or contract in scope once product removal or additional investigation action occurs. Contractor or site action party is responsible to verify product removal parameters. General recommendations are provided with regards to product removal, special considerations and post verification considerations. All work is to be completed to S500 and S520 standard of care considerations and varied attached report appendixes unless specifically altered by AEC below and agreed to by Client and building occupants. If questions exist about the specific recommendations, considerations or standard of care practices contact AEC prior to report distribution, work start or any report reliance.

**For purposes of this work product, the front door is considered to face: Not identified**

- **School Interior**

- Remove and discard action:
  - S500 / S520 Removal. Water or microbial impacted building products within area are to be removed and discarded per S500 and/or S520 standard. Be sure products are removed in a manner to permit buffers of at least 12" beyond any noted water or microbial. Underlying or retained building components are to be appropriately cleaned.
  - Pull the cork and fabric bulletin boards.
- Special considerations – comments:
  - S520 Content Considerations. Personal property and content items within area are to be considered cross contaminated by settled mold spores (Condition 2). Content items, when possible and to prevent further cross contamination, are to be pre-cleaned (HEPA or air washed) after containment or air control set-up and if required wrapped to move from area. Moved items should be relocated to non-living space or if additional cleaning is required to the cleaning location. Cleaning can occur within a contained, air controlled environment or outside. Content items are to be address per S520 standard with consideration of ability to clean, and verify cleaning, against that of item replacement. Direct water impacted content items are to be addressed per S500 standard whereas actual mold growth (Condition 3) impacted content items are to be addressed per S520 standard. Refer to Appendix C, when provided, for content cleaning considerations and contact AEC as needed.
- Required post action:
  - PVA Level - 1SA - Visual assessment, surface sampling and contained area air sampling

### **Post Verification Assessment Recommendations**

Following “Satisfactory” PVA inspection or after any completed site action, and prior to water restoration or mold remediation action conclusion and rebuild services, AEC highly recommends and standard of care practices suggest several actions occur within the work or containment area and through the Subject Property. Recommended and suggestive actions regardless if site plan was provided by AEC, at a minimum when such items are present, are as follows and should be included in all site action (protocol) considerations:

Containment barrier is to remain in-place during post verification services and during all area rebuild action. Containment barriers prevent cross-contamination issues and assist in controlling reconstruction dust issues. HEPA exhaust filtering and decontamination chamber systems do not need to remain in-place unless health sensitive occupancy is identified.

All area surfaces adjacent the work or containment areas are to undergo HEPA cleaning and damp wiping as are all areas within and adjacent contractor entry and exit access points. Cleaning should focus on horizontal surfaces and content items. If a limited containment was established, no multiple decontamination chambers, full HEPA cleaning and damp wiping of all area adjacent surfaces followed by supplemental area air sampling is highly recommended to verify or deny cross-contamination issues.

Verification of water source or water sources is required by qualified third-party. All identified source issues are to be corrected before reconstruction and when the source is related to exterior water intrusion issue (e.g. door, window, roof system) or interior water escape issue (e.g. shower system, toilet failure, leaking plumbing system) the repaired system or systems should be water tested before any reconstruction to verify repair.

Exposed vapor barrier system or waterproofing systems are to be verified as intact and functioning correctly by qualified third-party. Inadequate or failing systems, including systems with paper barrier tears, are to be repaired or replaced to code or best practices. Damage to these systems can occur through careless water restoration or mold remediation action, through water or mold impact damage or through site parties taping or caulking such systems. Taping or caulking such systems is never recommended and can violate building and fire codes and result in system alteration.

Inspect entire Subject Property, interior and exterior, for additional Inspection Conditions, construction deficiencies and other issues which may impact the Subject Property or area within. AEC’s inspection was limited as noted in this report. Supplemental areas can support additional water and mold impact issues which impact the Subject Property and the work areas.

Professionally clean the HVAC system utilizing a National Air Duct Cleaners Association (NADCA) certified or like-qualified company. Cleaning should include all heating and air conditioning (HVAC) system components, including duct system, blower system, all forced air unit (FAU) components and return system components. Cleaning should occur to current ACR standards and is to include filter replacement.

Professionally clean all Subject Property carpet products using an IICRC certified firm or like qualified party. Cleaning of carpet products should include at least two cleanings. Cleaning directives apply to all carpet products within work or containment areas not discarded and to all carpet products within Subject Property common or work area adjacent areas. Any carpet removal should only occur after carpet products have been HEPA cleaned and then products are to be removed by rolling carpet onto itself to prevent dust and particle release. Concrete slab, sub-floor and other under carpet product surfaces should be HEPA cleaned prior to new product installation. AEC recommends use of HEPA air control during carpet product removal actions.

All content items (personal property) previously located in work areas or present in work areas during site actions should be cleaned contents are returned to the work area or containment is removed. Contents are never to be moved from work areas to non-work occupiable areas and all content manipulation is to occur to non-work areas or contents are to be left within work area fully sealed under 6mm plastic barrier. Cleaning practices are noted within S500 and S520 standards as well as AEC appendixes. Failure to clean content items or move items from work areas to non-occupiable areas can result in re-contamination of work areas and cross-contamination of Subject Property. AEC was not engaged, unless noted in this report, to inspect or provide cleaning and restoration recommendations associated with content items.

Failure to complete post assessment actions or apply standard of care practices can result in a return of Assessment Conditions to work areas or other Subject Property areas, can create cross-contamination issues within work areas or the Subject Property and voids all AEC warranties and any performed post remediation or post dry-down verification services releasing AEC of any Subject Property liability as related to AEC work product regardless of cause or impact condition when potentially related to non-completed directed or standard of care actions.

## **APPENDIX B - AEC Specific Post Verification Service Considerations**

When engaged, AEC requires “satisfactory” compliance with specific limited criteria for post verification assessment (PVA) purposes. PVA services are to occur BEFORE any building product restoration or repair while building cavity and building systems are open and exposed. Surfaces are not to be encapsulated or product sealed unless so directed by AEC. If encapsulation or like sealer is used prior to PVA a “not satisfactory” PVA determination may be issued and AEC may require encapsulation or sealer material removal. At a minimum, unless Client altered, AEC requires “satisfactory” compliance to S500 and S520 standard requirements for end of project determination, or as otherwise presented within stated in the PVA hypothesis or hypotheses. AEC’s minimum decision criteria focus on sensory observations and are as follows:

- Work areas are prepared in a manner to allow visual observation, documenting and when engaged sample collection.
- Work areas display adherence to S500 and S520 standards and comply with AEC or other third party IEP directed actions and recommendations.
- Work areas are free of readily visible mold growth and potential bacteria concerns.
- Work areas do not support supplemental water or microbial issues not addressed or documented.
- Work areas are free of readily exposed insulative product.
- Work area is free of readily observed dust or debris.
- Work area building materials maintain moisture at or below dry standard or accepted percentages, wood <15%; drywall <0.5.

Areas obfuscated from view by building materials, contents or any site party’s action including sealed by plastic or other barrier systems are specially outside post verification consideration and such conditions in these areas or extending from these areas are Client or work performing party’s sole liability and responsible. No liability is assumed for such areas or conditions stemming from such areas by AEC.

Additional decision criteria for PVA can include, when engaged by Client prior to service, various forms of post action sampling to prove hypothesis or hypotheses beyond those established around sensory-only observations. Potential additional AEC minimum requirements are as follows, when engaged, based on sample type:

- ATP Samples:
  - Work area exposed surfaces presented as “clean” to S500 or absent S520 Condition 3 display surfaces are relatively free of detectable organic material, <50 RLU.
- Microbial Samples:
  - Surfaces: Work area exposed surfaces presented as “clean” to S500 or absent S520 Condition 3 display surfaces are relatively free (below laboratory detection limit) of bacteria or mold contaminants
  - Air: Work area and other sampled area air present absent detectable S520 Condition 2 through the determination sampling data presents sampled areas as Condition 1 (normal fungal ecology) based on balance of spore and mycelial fragments as compared to control, reference or available historical data.
- Laser Particle Samples:
  - Work area and other sampled area air present an opined “satisfactory” balance of particles based on hierarchy and size as compared to control, reference or available historical data.
  - Work area AFD units and other in-property AFD units display units are functioning at HEPA filtration (99.97% of .3 micron or greater) when comparative is completed between unit intake and unit exhaust.

Specific sample criteria may alter based on hypotheses to be sampled and site conditions. AEC recommends greater criteria requirements within health sensitive environments, where health sensitive occupants are known present or where conditions require more stringent criteria as with standard of care issues or when certain air control measures are, or are not, in-place.

At a minimum AEC recommends all PVA services are to include sensory observations, a review of standard of care considerations and surface sampling to confirm surface “cleanliness” via ATP sampling for all post water restoration or mold remediation verification actions. Air sampling is suggested to assess mold colony loads and provide data to review to assess potential exposure after mold remediation actions or when water impact conditions support mold growth may be present though such sampling AEC recommends to NIOSH 0800 or like sample intent and should include in-containment, containment adjacent, other Subject Property reference area and exterior control sampling. As of this report, AEC has not been engaged to perform PVA services and when engaged services are completed other than suggested here or in the absence of air sampling all such services were performed at Client or Client representative direction and Client accepts all liability and responsibility for any conditions not identified in such situations. If questions exist about PVA requirements, or future Client engaged PVA services, specific to a project or area please contact AEC prior to report distribution or reliance.

## **APPENDIX C – ANSI-IICRC S500 / ANSI-IICRC S520 Limited Summarized General Work Flow Practices**

This appendix provides a limited summary of ANSI-IICRC S500 water restoration (hereinafter, S500) and ANSI-IICRC S520 mold remediation (hereinafter, S520) practices. This appendix is not meant to substitute knowledge of nor is being presented as a full review of the S500 or S520. Actions listed herein this appendix, as should all S500 and S520 recommendations, are considered by AEC and should be considered by other Indoor Environmental Professionals (IEP) as mandatory. All items listed herein this appendix are standard of care actions as directed, considered or implied in S500 and S520.

If any actions listed in this appendix, within this report or altered from standard of care practices as highly recommended, recommended or suggested within S500 or S520 then work party is to document deviations (complications or conflicts) with AEC, involved IEP, Client, property occupant and all other site involved parties in a verifiable and recallable form. Failure to confirm standard or recommended action deviations can result in contamination issue retention, cross-contamination issues and post verification “not satisfactory” inspection and sampling. AEC assumes no liability for adjustments in site action or deviations from standard of care not accepted by AEC in writing.

AEC highly recommends and standard of care practices suggest all site actions are overseen by an IEP in whole or at least in part with regards to overall scope considerations, standard of care application and project conclusion. These IEP recommended actions occur during the actual water damage restoration or mold remediation actions and would be considered project oversight. Lack of IEP oversight or project involvement outside limited preliminary involvement or limited post verification involvement can lead to the contamination issue retention, exposure hazards issues and limits the ability of the IEP to perform a post verification assessment with regards to standard of care, air control and potential cross contamination issues and establishes reliance on contractor or work party. Lack of IEP use during site actions for oversight or in a project review capacity or to verify site actions and containment or air control parameters both before and during actual site work leaves confirmation of site condition verification, site plan confirmation and contamination control at the sole liability and peril of the Client and site remediation contractor or work performing party.

Site parties are to contact AEC with site action (protocol) concerns or questions including such issues about S500 Category or S520 Condition assignments or any issues about standard of care practices. Site parties are to contact AEC with any questions, concerns or additional information considerations prior to report distribution, report reliance or any site work start.

### **PRELIMINARY LIMITED S500 / S520 STANDARD OF CARE PRACTICES**

#### **Regulatory Asbestos and Lead Sampling Statement**

AEC did not collect asbestos, lead or other environmental or regulatory samples unless noted in this report. Work completed without such sampling is at Client, Client fiduciary, building owner or contractor liability and risk.

Various federal, state and local regulations require sampling of all potential asbestos containing materials (ACM) in all structures, **regardless of structure date or structure use**. Lead paint and lead coating sampling within all residential structures, child care facilities and schools built in or before 1978 or when lead products may be present regardless of age or structure use is required as is sampling for silica exposure concerns. Asbestos, lead and silica sampling applies to all suspect materials when such products may be disturbed.

Regulatory language associated with specific project sampling requirements can be provided at request.

#### **Communication Recommendations**

A service contract outlining to-be completed actions, determination of action completed and costs associated with the project, including associated Indoor Environmental Professional (IEP) costs (asbestos sampling, preliminary inspection and “clearance” actions) and party responsible for such costs should be agreed to prior to work start.

A project timeline, with start and anticipated completion date, should be established and agreed upon between site parties. Delays associated with project should be communicated to all parties.

#### **Minimum Site Regulatory Communication Requirements**

Warning signs shall be posted to identify egress means and exits (29 CFR 1910.37), biological hazards (29 CFR 1910.145), caution (29 CFR 1910.145) and dangers (29 CFR 1910.145). A “No Entry” sign listing emergency contact information should be posted. All site workers, occupants and property owner are to be advised of any site chemical use and the property occupant, property owner and Client are to sign off on such chemical use. Safety data sheets (SDS) are to be maintained at site and all chemicals are to be properly stored at site adhering to 29 CFR 1910.1200.

Containments and work areas are to maintain compliance with confined or limited space regulations (29 CFR 1910.146 / 29 CFR 1926.21) and adhere to ANSI Z117.1-1989. All containments and work areas, and an adjacent area, should have a first aid kit and fire extinguisher as well as all other CFR and ANSI required items. In the event machinery or electrical components are located in contained or work area, lockout-tagout compliance is required under CFR 29 1910.147 and all precautions to disable machinery to avoid potential electrical discharge are to be implemented.

#### **Personnel Recommendations**

AEC recommends at least two (2) contractor personnel are present during all site actions and site personnel are to be appropriately trained and when required certified for work being performed and in accordance with regulatory requirements.

All site involved personnel are to be familiar with their company’s written Respiratory Protection Program, First Aid Program and when respirators are required personnel is to be medically qualified to wear a respiratory, trained in its limitations and use and fit tested within the last 12 months. Contractor is to have provided “right-to-know” training on chemical hazard exposures used during site actions and the health effects, control methods and other pertinent information regarding potential chemical, microbial and other hazard exposures.

#### **Personal Protective Equipment (PPE) Recommendations**

Persons completing any remediation site work where mold impact (Condition 2 / 3) or potential bacteria contaminants (Category 2 / 3) are present are to don, at a minimum, a P100, properly fit tested, rated NIOSH approved respirator and at all times, wear full Tyvek (or like) coveralls with sealed closures, booties and gloves when within containment or work area. All other persons completing work not related to Category and Conditions noted above and

non-workers should use a minimum rated P95 respirator and use a Tyvek (or like) coverall with sealed closures. All PPE shall comply, as a minimum, with OSHA Standard 29, CFR 1910.134 and any applicable state requirements. All non-workers should be regulated and always be accompanied by a qualified party.

Users of PPE are advised that PPE use is not a guarantee contamination exposure risk is eliminated or lessened. Contaminant exposure may result in adverse impact to exposed party regardless of PPE or other precautions. AEC does not provide any warranty, implied or expressed, with regard to PPE, containment or the protection of any remediation employee or site involved party including that of site occupancy persons.

#### **Contents and Detached Building Items Recommendations**

Contents and detached building items are to be appropriately cleaned or discarded per S500 or S520 standards. When cleaning is required consideration as to item value versus cleaning costs are to be considered and specialty items such as electronics, computers, appliances and matrices supporting items (e.g. sofa, mattresses, pillows) may be not restorable or not easily confirmed “cleaned” when impacted by S500 Category 3 or S520 Condition 3 / Condition 2 impact issues. Third party verification of cleaning actions should be agreed to between Client, site parties and cleaning contractor prior to cleaning actions and, at a minimum, include sampling to support reasonable scientific certainty considerations to validate cleaning effectiveness. Site parties are advised AEC opines cleaning and “satisfactory” post cleaning verification sampling may not eliminate occupancy exposure hazard issues and supplemental cleaning and sampling is often required.

Moving of contents or detached building items from areas supporting S520 Condition 2 (settled mold spores) or from within areas supporting S520 Condition 3 (actual mold growth) or Category 3 (grossly contaminated water impact) is mandatory as is the cleaning of such items. Moving of all such items is recommended into a non-living space, containment established area or alternative storage location only after items have been appropriately cleaned or wrapped or other air control measures taken. Items left in work areas or containments or inadequately cleaned can result in cross-contamination of areas and areas adjacent or of the items. Items not moved to such areas are to be cleaned, wrapped and then re-cleaned and stored in living space area with air control measures or in non-living space area.

Content and detached building items to be discarded should be retained for insurance or litigation review and documentation when appropriate. Items transferred to off-site areas are to be appropriately inventoried and stored in a manner to prevent damage to items or contamination to storage site or transport method. Decontamination of storage site or transport method may be required.

#### **HVAC System Cleaning Recommendations**

HVAC systems with components contaminated by S500 Category 3 or S520 Condition 3 impact issues are to have all non-porous impacted products removed and discarded. Semi-porous products can be considered case-by-case. HVAC system components not directly impacted by direct impact though are considered impacted by S520 Condition 2 (settled mold spores) or are located within any area supporting any S500 Category 2 or Category 3 impact or any Condition 2 or Condition 3 impact or S520 Category 3 issues shall be cleaned to current NADCA ACR cleaning practices. Biocides and sanitizing chemicals are not permitted unless mechanical methods have shown not successful and such use of product is EPA approved, confirmed by IEP and occupant’s medical professional. Comprehensive PVA sampling of HVAC system, when cleaned and engaged, shall be performed and not satisfactory conditions will require additional cleaning or system component replacement.

### **GENERAL SITE ACTION RECOMMENDATIONS**

#### **Indoor Environmental Professional (IEP) and Documentation Recommendation**

An IEP should oversee all S500 contaminated water damage restoration (Category 3) and all S520 microbial remediation actions (Condition 2 or Condition 3) on behalf of the Client or property owner and to provide ongoing consultation as additional recommendations and site plan adjustments may be required during site actions. If such engagement does not occur IEP should be advised of Client and contractor agreed work plan and any deviations in agreed site actions as related to this report, Client – contractor agreement or S500 / S520 standard of care practices prior to work start and at the time of action adjustment. All deviation actions are to be documented per standard of care as conflict or complication to all involved site parties.

Site work party is to document site conditions prior to and during water damage restoration or microbial remediation actions in accordance with S550 and S520 recommendations and suggestions. Documentation is to include water sprawl mapping, mold growth spread considerations, picture or video captures, employee site and work logs, change orders and all other such required documentation actions as recommended under S500 and S520.

#### **General Hygiene Recommendations**

All parties exiting containment or work areas are to doff coveralls and other protective clothing inside the containment or the first stage (dirty room) of a multiple-stage decontamination system with respirator doffing after exit from containment. Hands are to be washed prior to rubbing face, handling food, placing anything in mouth or touching anything outside containment area. Doffed respirators are to have cartridge surfaces cleaned with disinfectant and cartridges retained or reuse if possible. Respirator is to be soaked in appropriate disinfectant, rinsed in cleaned water, re-wiped with disinfectant and dried with a clean towel. All equipment leaving containment or work area is to be HEPA cleaned, disinfectant wiped and bagged. All air movement devices are to have intakes and exhaust discharges sealed with 6mm plastic and duct tape or like sealed barrier.

#### **Adjacent Containment or Adjacent Work Area Control Recommendations**

Vacating people from spaces adjacent containments and work areas is not normally necessary but is recommended for individuals with compromised immune systems, infants, persons with respiratory issues and other potential health sensitive individuals. This decision is to be made by the Client, property occupants or qualified medical personnel.

When health sensitive occupants are in property, or when any S500 Category 3, S520 Condition 2 or S520 Condition 3 actions occur the use of AFD units in areas adjacent containment or work areas is highly recommended especially when entry – exit is not direct to property exterior. Adjacent units should set to “low” speed and permitted to run during all site actions. AFD units are to be confirmed HEPA functioning through documented unit testing.

### **Anti-Microbial Paint, Anti-Microbial Chemical and Water Use**

Anti-microbial paint and chemical use (e.g. biocide, anti-microbial, anti-bacterial) during or after water damage restoration or microbial remediation is NOT recommended especially when such use is in lieu of product removal and underlining building component cleaning. Use of such chemicals have been shown to have little impact on water damage restoration or microbial remediation actions, may violate pesticide regulations, can alter building material function and can lead to occupant complaints or chemical sensitivity issues. According to S500 and S520 standards of care the goal of water damage restoration and microbial remediation is to appropriately dry building materials to prevent microbial issues or to remove microbial issues when present, not cover issue or “kill” issue in-place.

S500 Category 2 and Category 3 actions do require cleaning of non-removed or non-discarded and water contacted building materials (e.g. wood framing, concrete surfaces, non-porous floor products) which is recommended through “disinfecting” such surfaces. AEC recommends use of water with the addition of a surfactant (mild detergent absent perfumes and emollients) or other like mild disinfectant when possible in lieu of more stringent biocide or anti-microbial and when such is not directed by building use. AEC recommends all surfaces in such cases should be pre-HEPA cleaned.

S520 Condition 3 and Condition 2 actions do require cleaning of non-removed or non-discarded and water contacted building materials (e.g. wood framing, concrete surfaces, non-porous floor products) which is recommended through “disinfecting” such surfaces. AEC recommends use of water with the addition of a surfactant (mild detergent absent perfumes and emollients) or other like mild disinfectant. Like mixture should be used during microbial remediation action as a misting agent to limit particulate aerosolization and as a final wipe or cleaning agent during detail cleaning related to water damage restoration or microbial remediation. AEC recommends all surfaces in such cases should be pre-HEPA cleaned.

In some cases the use of anti-microbial chemicals may be warranted and such use can be acceptable after removal of contaminated building products and when products are used per product labeling. Authorization by Client and property occupants is required before any chemical use without exception and is to be signed and documented prior to use. AEC is currently not aware of chemical agents permitted within HVAC systems for “cleaning action” approved by the EPA and as such chemical use in such environments over physical cleaning or replacement is not recommended.

Use of encapsulation or other like sealers is not to occur unless directed by AEC within this report, or other IEP at IEP liability and responsibility, and use is accepted by Client or building owner signed and documented prior to use. Building systems require contaminated product discard and cleaning per S500 and S520 standards. If such products are applied prior to PVA (clearance) a “not satisfactory” PVA determination may be issued by AEC and AEC may require encapsulation or sealer material removal prior to “satisfactory” PVA consideration.

### **Flooring Covering Recommendations**

Floor covering is to remain in-place until air control and containment structures are established when product is to be discarded. All carpet product supporting contamination, S520 Condition 3 or S500 Category 3, is to be discarded unless directed differently within this report.

AEC does not recommend carpet “sealing” in containment areas and when possible suggests non-impacted carpet is rolled out of containment. Roll-out carpet should be HEPA cleaned, rolled and then plastic wrapped. Underlying carpet pad is to always be discarded, do not rollout or seal carpet pad products. If carpet cannot be rolled out of work area then carpet is to be sealed below 6mm plastic and edge taped with carpet adjacent to-be removed wall products rolled back and carpet pad within 12” of wall removed and discarded. Water impacted carpet tacks are to be removed in all cases with removal and discard of all wet carpet pad or any carpet pad within 12” of water impacted carpet tack.

All walk paths within Subject Property, to and from containment or work areas, should be covered to protect surfaces. Hard surface floor products are to be covered to protect. Covered floor products are to be monitored for potential moisture trapping issues.

After “satisfactory” post verification action professionally clean all Subject Property carpet products using an IICRC certified firm or like qualified party. Cleaning of carpet products should include at least two cleanings. Cleaning directives apply to all carpet products within work or containment areas not discarded and to all carpet products within Subject Property common or work area adjacent areas. Any carpet removal should only occur after carpet products have been HEPA cleaned and then products are to be removed by rolling carpet onto itself to prevent dust and particle release. Concrete slab, sub-floor and other under carpet product surfaces should be HEPA cleaned prior to new product installation. AEC recommends use of HEPA air control during carpet product removal actions.

All vinyl sheet product and all hard surface floor products within water impacted areas and areas adjacent mold growth should be removed, or considered for removal. All vinyl and hard products supporting elevated moisture under material which cannot be readily dried or verified to not support microbial issues under are to be removed and discarded without exception.

### **Containments, Capture Zones & Air Control Recommendations**

All mold remediation action and all water restoration action should, per standard of care, include containment or air control as directed within standard of care practices. Containments can vary though AEC highly recommends all containments are erected using multiple decontamination system considerations and all air exhausting is to occur outside work area or Subject Property. Any containment or exhausting to the contrary can result in cross-contamination issues within the work area and within the Subject Property areas. Containment and work areas hold be erected applying the following:

- Confirm electrical draw is adequate, address potential gas flame-out issues and review all possible work area hazards.
- Work areas are to be isolated from occupied and non-impacted spaces using 4-6mm poly (or equivalent) sheeting sealed with duct tape or other sealing method.
- Sealing of all ventilation ducts/grills, fixtures, wall/ceiling penetrations, non-removed cabinets and other containment or work area openings is required.
- Barriers should be erected and secured in a manner that that will not allow loss of adhesion or barrier system during site actions. Multiple work areas should be adjoined and containments established with direct exterior structure entry – exit points. When direct exterior entry – exit is not permitted, use of decontamination chamber systems are to be established (clean, transition and dirty room) to control release of particles from containment work area to direct living space or other non-impacted areas. If such multiple chambers cannot be erected AEC is to be advised for supplemental containment / air control recommendations and non-containment air sampling considerations.

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**Refer to cover page for servicing office contact information**

- When HVAC system or components are located in work area system intake, returns or registers are to be sealed. If HVAC is to be adversely impacted or restricted the system is to be shutdown. All floor products are to be covered when not removed, please refer above to flooring comments and specific area action.
- Use a negative air machine (NAM) with HEPA filter to establish negative pressurization within containment or exterior exhausting within work area. Negative pressurization, when possible, should be maintained at a monitored negative pressurization at a pressure differential of -0.02 inches of water relative to the outside environment. All HEPA used equipment is to be confirmed at documented HEPA efficiency function either through laser particle field monitoring or DOP testing. Improper or non-HEPA efficiency functioning units may result in PVA deemed “not successful” and may result in occupied space contamination issues. Negative air machines should be ducted outdoors. Supplemental air movement devices can be used within containment areas to promote air exchange and agitation.
- Air exchanges from a contained area or within a work area should occur at a rate of 8 to 12 per hour. In the event air washing is used as a surface cleaning method air exchanges can increase to allow greater particulate capture. Make-up air intake should be set opposite the AFD/NAM intake and aligned so that air movement passes over the work area. Make-up air should be confirmed as to source when possible and if possible should be filtered when adjacent containment areas are unknown or are considered “dirty”. Filtering can occur by way of a square opening within the containment wall permitting air intake through a pleated residential air filter (MERV 11 or better).
- All removed debris, equipment and PPE should be done so in 6mm bags (wiped and neck sealed) and carried immediately from exit point to exterior of building. In cases decontamination chamber or exit point is direct to exterior bag cleaning is not required.
- After final cleaning, AEC recommends that NAM units are shifted to air filtration device (AFD) recycling and permitted to run in-place at least 24 hours. Shutdown of AFD units can occur at contractor’s discretion after 24 hours post final clean and that containment or work area air is permitted to acclimate to “normal” interior conditions for at least four hours prior to any PDV or PRV action. Shutdown machines are to be sealed without exception.

### **Intrusive Investigation Recommendations**

Unless noted differently in report intrusive investigation holes are to be made in such a manner that permits observation and inspection into cavity areas when directed. Cuts into wall products should be made to permit observation into at least two cavity areas when wall cavity intrusions and in a manner to expose sill plate product when lower wall cuts are directed. Cuts that are to expose sill plate material only, no cavity inspection, can be made so that only sill plate product is exposed and cuts can be covered by baseboard install. Cuts into ceiling products should be made to permit observation into at least two cavity areas (flat roof or first floor areas) or in a manner that permits visible inspection of cavity – attic areas (second floor).

Intrusive cuts, unless otherwise advised in this report, are to be made under contained or air controlled requirements as directed for product removal within this report and per S500 and S520 practices. Limited cuts can be performed absent containment but only at IEP direction. Full documentation of intrusive action is to be maintained and in all cases any removed wall or ceiling product is to be left at site, bagged and number to the removed cut location for AEC inspection purposes.

### **Elevated Moisture Dry-Down Recommendations**

Building products displaying elevated moisture supporting S500 Category 3, S500 Category 2 or S520 Condition 3 impact should be removed and discarded as soon as possible per standard of care. Dry down of such products, either active (through air movement) or passive (through time), will result in potential microbial cross contamination of impacted area and adjacent areas if air controls and containment are not in-place or inadequate. Delays in dry down action are to be documented as to cause in writing and delay notices submitted to Client and other site parties. AEC recommends that AFDs and where and when possible containment systems are erected when dry down or product removal delays occur.

Building products displaying elevated moisture are to be dried to dry standard or documentable dry condition, including underlying wood framing or underlying floor system (wood subfloor, concrete, etc.) when S500 Category 1 losses are involved or when product removal is not directed by AEC or under S500 practices.

Losses involving S500 Category 2 or Category 3 losses, S520 Condition 3 or where AEC directs product removal all underlining building products are to be cleaned of surface contamination (HEPA and damp wiped) and then the retained building materials returned to dry standard prior any re-surface or aggressive microbial cleaning action. Products that are re-surfaced or final cleaned that support elevated moisture may permit microbial proliferation issues to return to surfaces.

Floor products and underlying product (sub-floor, concrete slab, etc.) displaying elevated moisture are to be dried to dry standard or after covering product demolition (vinyl, wood floor, tile, etc.) during remediation action floor system supporting S500 Category 3 or S520 Condition 3 impact are to be discarded as are systems supporting S500 Category 2 when directed under S500 or to address underling contamination issues. Lightweight concrete systems atop wood subfloor products are to be treated as floor systems and are to be removed when impacted by Category 2, Category 3 or Condition 3 impact unless standard of care is altered by AEC, oversight IEP or Client and accordingly documented.

### **Contaminated Material Removal Recommendations**

Products are to be removed or cleaned per AEC suggestive actions when provided or per S500 or S520 standard recommendations. At a minimum wall products are to be removed to a point at least 12” vertically beyond any water or microbial impact and to a point at least one stud bay horizontally beyond any water or microbial impact with drywall cuts lines terminated at to framing stud or framing blocking lines to prevent drywall product overhang issues. Ceiling product is to be removed to a point at least 6” beyond any noted water or microbial impact. All work and containment area surfaces, horizontal and vertical, are to be HEPA cleaned or air washed and damp wiped in manner that no visible dust or debris remains in containment or work area on any surface. Deviations from suggested product removal “buffers” can occur in case of shower systems, cabinets, and other like in-place items or where product removal cost associated with buffer zone is unreasonable or are not permitted as with adjoining unit or common wall systems. All deviations are to be documented with AEC, oversight IEP and Client.

Products displaying visible microbial impact or water staining are to undergo a pre-cleaning (HEPA) to remove surface impact and debris before product removal. Building products attached to walls and ceilings within to-be removed product areas, or that may interfere with product removal (cabinets, appliances, toilets, etc.), are to be detached, assessed for potential impact and then treated as detached building items for handling practices considering retention or discard. Detached items not displaying readily visible microbial or products that do not require discard from water impact are to be SALVAGED for re-use. This includes all plumbing fixtures, lighting, cabinet faces (and boxes when no impact noted), door units, and all other finish carpentry items. If items are to be discarded, and not noted in site action for discard, should be reviewed with Client before product discard.

When products are detached or removed for discard action work is always to start at the highest point (upstairs, ceiling, etc.) and move to the lowest point. In cases ceiling product is removed, regardless if additional product remove is to occur, the ceiling cavity should be cleaned and then the cavity is to be sealed (6mm plastic) prior to other in area product remove (walls, flooring, etc.). Additional product removal considerations are, at a minimum, per standard of care:

- Floor products, when directed for removal are to be removed after containment or air control is set. Following any floor product removal or lifting and during the cleaning areas of exposed sub-floor and concrete slab are to be scraped cleaned of all dust, debris and other “stuck-on” floor products and then are to be HEPA cleaned and detergent wiped when within work area or containment.
- Rotted wood when removed should be done so to a point at least two inches beyond deflection, about three inches beyond visual impact. Rotted wood not removed is to have loose debris cleaned out, rotted product encapsulated and then marked “remove” for action during re-build.
- Structural support items and in-wall paneling (sheer or fire) is to be removed, when required, at the direction of a structural engineer or general contractor. AEC assumes no liability for removal of such items regardless if so noted in the site plan.
- Insulative product, wall and ceiling product fasteners, carpet tack product, any framing attached items (e.g. metal plates, nail plates, strike plates, furring strips, etc.) and framing shims exposed during product removal are to be detached or discarded without exception.
- S500 Category 3 or S520 Condition 3 impacted vapor barrier products and stucco paper products are to be cleaned with care to avoid damage to product or in cases cleaning is not possible removed only after Client or property owner accepts product removal in writing. Such systems should always be removed in a manner that allows restoration absent exterior wall access by leaving at least a two inch product overhand at stud and contact points. If product is cut flush with framing or contact point product require will require exterior surface removal. Removed systems are always to be restored. If systems cannot be removed the product is to be sealed and accordingly noted on sealed surface with “Removal Not Authorized” for documentation purposes. When removed the exposed surface is to be cleaned per report and S500 or S520 recommendations.
- Non-load barrier framing members such as trim boards, framing edges, fillers and fire blocking AEC recommends should be considered for remove and discard vs. resurface and cleaning based on a cleaning vs. replacement cost basis at contractor’s discretion.
- If product remove uncovers large cavity or non-controlled air paths all such areas are to be sealed after dust and debris cleaning from within the cavity area and prior to full work area or containment area cleaning.
- All in action area detached and removed product is to be moved from air controlled areas and containments using sealed plastic bags that are to be HEPA cleaned or damped wipe with a detergent solution prior to carry out through non-work areas or other uncontaminated areas.

#### **Contaminated Material Cleaning Recommendations**

Water restoration actions associated with S500 Category 3 losses and in most all S500 Category 2 losses require the removal of porous and other not readily cleanable products. Underlining semi-porous products and non-porous products are to be cleaned per S500 recommendations. Product systems supporting Category 2 or Category 3 water within the system or behind the top or exterior surface (e.g. walls, ceiling, floor covering, etc.) requires the removal of the top surface to permit address of underlining moisture and contamination issues. Lightweight concrete atop wood subfloor system requires removal when contamination is potentially under lightweight concrete. Cleaning action is to consist of the removal of all dust and debris (HEPA or air wash) and the cleaning of all exposed water contacted surfaces within the containment of work area. Aggressive wood framing re-surface is not required when mold impact is not present. Cleaning is to occur under contained and air control conditions.

Water restoration associated with S500 Category 1 loss events usually are confined to product dry down. Dry down should only occur after water source have been corrected or stopped. Work area debris is to be cleaned and the work area is to support a general dust free environment. AEC recommends the use of AFD unit whenever active air drying is applied within the property and requires AFD units when health sensitive individuals, including small children, are present.

Mold remediation actions associated with S520 Condition 3 losses require the removal of all mold impacted porous building products and other not readily cleanable semi-porous products. Cleaning of all underling surfaces (e.g. wood framing, metal framing, concrete, sheer panel, etc.) is required after product removal. Cleaning action is to consist of the removal of all dust and debris (HEPA or air wash) and the re-surface (scrub, scrap, sand or power blast) action of all exposed framing and other areas displaying visible microbial, enzymatic staining with additional emphasis placed across locations wall and ceiling product contacted or will contact framing members. Wood product not displaying visible microbial or enzymatic staining can often undergo only a general scrub, i.e. side of non-drywall framing contact points, tops of sill plates, underside of top plates, etc. Re-surface of these areas is at contractor discretion though cleaning is required. Cleaning is to occur under contained and air control conditions.

Areas supporting or designated S520 Condition 2 are to have all area surfaces, horizontal and vertical, HEPA cleaned and damp wiped or air washed and damp wiped. Carpet products are to be lifted and underlying carpet pad replaced with all remaining carpet product professionally cleaned (two times). Contents within Condition 2 areas are to be cleaned or discarded as noted within this report (see Contents and Detached Building Items Recommendations and other report Content references when provided), per S520 practices or per Client or content owner’s directives. Cleaning is to occur under contained and air control conditions. Verification of content cleaning is to align to Client or content owner specifications and acceptance.

Following product removal, when required dry down actions and final cleaning all surfaces are to visibly clean within the containment or work area which includes at a minimum the following:

- No readily observable dust or debris is to be visible.
- No insulative products are to be observed.
- No elevated moisture identified within any area products.
- No visible mold growth or other potential contamination issues are visible or present.

Accomplishment of the above requires multiple general vacuuming passes of all work area and containment surfaces followed multiple HEPA cleaning and damp wipe passes.

As noted in this document, monitored air washing can be substitute for and is recommended by AEC over multiple HEPA cleanings especially during final cleaning actions. Air washing has been shown to be more effective in dust and other particulate cleaning action over that of HEPA cleaning and damp wiping alone. Air washing should be followed by damp wipe (detergent wipe). AEC can assist with air wash practices at request.

Prior to any post verification action verification and after all cavity areas have been cleaned be sure all cavity areas presenting potential non-control air flow issues are sealed with 6mm plastic. Do not use expanding foam, caulking or other like products on vapor barriers, stucco paper product or in weep screed or on or in other like-product or crevice areas. Tape application, especially duct tape application, to these systems is not recommended. All such applications can damage applied products, can violate fire and building codes and alter product or system function.

After final cleaning, AEC recommends air control measures involving NAM units (negative pressurization or exterior exhausting) are shifted to recycling AFD and permitted to run in-place for a minimum of at least 10 full turn overs of work area or containment area air. As a guide, if air control is properly set this should occur within eight to 12 hours in most cases. Shutdown of AFD units should occur at least four hours prior to PVA to permit return of air to “normal” interior conditions. Shutdown machines are to be sealed without exception.

AEC or PVA performing IEP is to be contacted at least 48 hours prior to needed PVA (clearance) survey date and time.

#### **Post Verification Action Services (Clearance / Dry-Down Confirmation) Recommendations**

Prior to any re-construction or re-occupancy areas of microbial remediation (S520 Condition 3 or Condition 2) or areas of water damage restoration (S500 Category 3 or Category 2) should undergo a post verification action (clearance or dry down confirmation). Surfaces in the containment or work area should not be painted or coated prior to any PVA action with any encapsulation or other “sealer”. Containment and work area should present free of all dust and debris, should be void of any mold or other contamination issues and all work area and containment area surfaces should have been damp wiped. Re-construction or re-occupancy can occur only after “successful” PVA determination.

PVA should at a minimum involve decision criteria centered upon visual assessment, dry down confirmation and surface based ATP sampling for all projects (S500 or S520) and when site actions involve S520 Condition 3 or S520 Condition 2 impact issues air based sampling to NIOSH 0800, or like practices, within work area or containment and within adjacent areas. Report appendixes direct AEC suggestive PVA given current assessment information and conclusions and lists potential PVA “satisfactory” decision criteria.

Unless engaged appropriately, in writing prior to PVA regardless of AEC directed PVA, AEC will perform a PVA (clearance) that involves visual assessment and surface sampling only. Air sampling will be excluded unless accordingly engaged. This does not mean this action is recommended by AEC but current engagement has directed these limited actions. Please refer to main report for PVA recommendations and comment about current AEC engagement with regards preliminary and PVA based air sampling.

**APPENDIX D**  
**Investigator Assigned & Used Assessment Equipment**

The field equipment assigned to the AEC Sr. Field Consultant, John Evans, and available at site during the completed Survey was as follows:

Thermo-hygrometer:

- Protimeter MMS - Serial No: LH53-097 (Primary unit)

Moisture meter:

- Delmhorst Moisture Check – Serial No: 11973 (Primary unit)
- Protimeter MMS - Serial No: LH53-097 (Primary unit)

Thermal Imager:

- Fluke TiR – Serial No: 090108 (Primary unit)

Sampling pumps:

- Pump 1: EMS Megalite – Serial No: 2470 (Primary unit)
  - Field Rotometer – Dwyer 56-195375-00; Serial No: S47N
- Pump 2: EMS Megalite – Serial No: 2705 (Secondary unit)
  - Field Rotometer – Dwyer 56-195375-00; Serial No: S04O

Particle Meter:

- Aerotrak 8220 – Serial No: 70827249 (Primary unit)

Calibration units:

- Bios DryCal DC Lite – Serial No: 4365
  - Certificate No: 37749, 04/20/2009
- Hygiena Calibration Control PDC4000
  - Ref. Date 05/2008; Lot No. 1214-4; Exp. 06/2013
- Bio-Pump Primary Calibrator – Serial No: 8704200
  - Certification: NIST
- Extech Calibration Standards

Equipment used is listed as “Primary unit” unless otherwise noted in report findings.

**APPENDIX E**  
**Assessment Pictures**

*Pictures are only attached when requested to save file delivery size. If pictures are not attached, and are required, they can be obtained by contacting AEC when available.*

**APPENDIX F**  
**Assessment Site Diagram**

*Diagram is only attached when completed and required for site action product removal action. If diagram is not attached, and is required, it can be obtained by contacting AEC when available.*



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EMSL Order: 051804634

Customer ID: ADPN42

Customer PO:

Project ID:

Attn: John Evans

Adaptive Environmental Consultants

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Collected: 09/10/2018

Received: 09/10/2018

Analyzed: 09/10/2018

Project: NY-JE-41/ ALDEN PL PRV

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

Lab Sample Number:	051804634-0001			051804634-0002			051804634-0003		
Client Sample ID:	64			70			54		
Volume (L):	75			75			75		
Sample Location	RM 60			RM 61			RM 62		
Spore Types	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	3	100	31.3	1	40	11.8	-	-	-
Aspergillus/Penicillium	1	40	12.5	-	-	-	-	-	-
Basidiospores	3	100	31.3	7	300	88.2	2	80	21.1
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	2	80	25	-	-	-	7	300	78.9
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Chaetoconis	-	-	-	-	-	-	-	-	-
<b>Total Fungi</b>	<b>9</b>	<b>320</b>	<b>100</b>	<b>8</b>	<b>340</b>	<b>100</b>	<b>9</b>	<b>380</b>	<b>100</b>
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	41	-	-	41	-	-	41	-
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.

Chaoyut Sae Lao, Laboratory Manager  
or other approved signatory

No discernable field blank was submitted with this group of samples.

High levels of background particulate can obscure spores and other particulates leading to underestimation. Background levels of 5 indicate an overloading of background particulates, prohibiting accurate detection and quantification. Present = Spores detected on overloaded samples. Results are not blank corrected unless otherwise noted. The detection limit is equal to one fungal spore, structure, pollen, fiber particle or insect fragment. \*\*\* Denotes particles found at 300X. "-" Denotes not detected. Due to method stopping rules, raw counts in excess of 100 are extrapolated based on the percentage analyzed. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical, Inc. Piscataway, NJ AIHA-LAP, LLC--EMLAP Accredited #167035

Initial report from: 09/10/2018 15:14:18

For information on the fungi listed in this report, please visit the Resources section at [www.emsl.com](http://www.emsl.com)



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Project: NY-JE-41/ ALDEN PL PRV

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

Lab Sample Number:	051804634-0004			051804634-0005			051804634-0006		
Client Sample ID:	51			58			57		
Volume (L):	75			75			75		
Sample Location	RM 63			RM 64			RM 65		
Spore Types	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	7	300	55.6	16	660	67.3	22	900	65.2
Aspergillus/Penicillium	1	40	7.4	2	80	8.2	1	40	2.9
Basidiospores	6	200	37	5	200	20.4	5	200	14.5
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	1	40	4.1	4	200	14.5
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Chaetoconis	-	-	-	-	-	-	1	40	2.9
<b>Total Fungi</b>	<b>14</b>	<b>540</b>	<b>100</b>	<b>24</b>	<b>980</b>	<b>100</b>	<b>33</b>	<b>1380</b>	<b>100</b>
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	41	-	-	41	-	-	41	-
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.

Chaoyut Sae Lao, Laboratory Manager  
or other approved signatory

No discernable field blank was submitted with this group of samples.

High levels of background particulate can obscure spores and other particulates leading to underestimation. Background levels of 5 indicate an overloading of background particulates, prohibiting accurate detection and quantification. Present = Spores detected on overloaded samples. Results are not blank corrected unless otherwise noted. The detection limit is equal to one fungal spore, structure, pollen, fiber particle or insect fragment. \*\*\* Denotes particles found at 300X. "-" Denotes not detected. Due to method stopping rules, raw counts in excess of 100 are extrapolated based on the percentage analyzed. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.

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Project: NY-JE-41/ ALDEN PL PRV

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

Lab Sample Number:	051804634-0007			051804634-0008			051804634-0009		
Client Sample ID:	56			53			61		
Volume (L):	75			75			75		
Sample Location	RM 66			RM 67			RM 68		
Spore Types	Raw Count	Count/m <sup>3</sup>	% of Total	Raw Count	Count/m <sup>3</sup>	% of Total	Raw Count	Count/m <sup>3</sup>	% of Total
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	4	200	25	4	200	45.5	10	410	67.2
Aspergillus/Penicillium	5	200	25	5	200	45.5	-	-	-
Basidiospores	5	200	25	1	40	9.1	6	200	32.8
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	6	200	25	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Chaetoconis	-	-	-	-	-	-	-	-	-
<b>Total Fungi</b>	<b>20</b>	<b>800</b>	<b>100</b>	<b>10</b>	<b>440</b>	<b>100</b>	<b>16</b>	<b>610</b>	<b>100</b>
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	41	-	-	41	-	-	41	-
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.

Chaikut Sae Lao, Laboratory Manager  
or other approved signatory

No discernable field blank was submitted with this group of samples.

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Samples analyzed by EMSL Analytical, Inc. Piscataway, NJ AIHA-LAP, LLC--EMLAP Accredited #167035

Initial report from: 09/10/2018 15:14:18

For information on the fungi listed in this report, please visit the Resources section at [www.emsl.com](http://www.emsl.com)



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EMSL Order: 051804634

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Received: 09/10/2018

Analyzed: 09/10/2018

Project: NY-JE-41/ ALDEN PL PRV

## 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	051804634-0010 80 75 RM 69			051804634-0011 67 75 RM 70			051804634-0012 59 75 RM 71		
Spore Types	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	3	100	50	2	80	66.7
Aspergillus/Penicillium	4	200	40	-	-	-	-	-	-
Basidiospores	6	200	40	3	100	50	1	40	33.3
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	3	100	20	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Chaetoconis	-	-	-	-	-	-	-	-	-
Total Fungi	13	500	100	6	200	100	3	120	100
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	41	-	-	41	-	-	41	-
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.

Chaoyut Sae Lao, Laboratory Manager  
or other approved signatory

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Received: 09/10/2018

Analyzed: 09/10/2018

Project: NY-JE-41/ ALDEN PL PRV

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

Lab Sample Number:	051804634-0013			051804634-0014			051804634-0015		
Client Sample ID:	60			78			69		
Volume (L):	75			75			75		
Sample Location	RM 72			RM 73			RM 74		
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	10.8	2	80	100
Aspergillus/Penicillium	39	1600	95.2	1	40	10.8	-	-	-
Basidiospores	1	40	2.4	2	80	21.6	-	-	-
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	1	40	2.4	6	200	54.1	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	1*	10*	2.7	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Chaetoconis	-	-	-	-	-	-	-	-	-
<b>Total Fungi</b>	<b>41</b>	<b>1680</b>	<b>100</b>	<b>11</b>	<b>370</b>	<b>100</b>	<b>2</b>	<b>80</b>	<b>100</b>
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	41	-	-	41	-	-	41	-
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.

No discernable field blank was submitted with this group of samples.

Chaoyut Sae Lao, Laboratory Manager  
or other approved signatory

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Received: 09/10/2018

Analyzed: 09/10/2018

Project: NY-JE-41/ ALDEN PL PRV

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

Lab Sample Number:	051804634-0016			051804634-0017			051804634-0018		
Client Sample ID:	76			60			52		
Volume (L):	75			75			75		
Sample Location	RM 80			Band			Boys		
Spore Types	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	4	200	66.7	-	-	-	5	200	25
Aspergillus/Penicillium	3	100	33.3	-	-	-	4	200	25
Basidiospores	-	-	-	-	-	-	5	200	25
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	-	-	-	6	200	25
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Chaetoconis	-	-	-	-	-	-	-	-	-
<b>Total Fungi</b>	<b>7</b>	<b>300</b>	<b>100</b>	-	<b>None Detect</b>	-	<b>20</b>	<b>800</b>	<b>100</b>
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	41	-	-	41	-	-	41	-
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.

Chaoyut Sae Lao, Laboratory Manager  
or other approved signatory

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Received: 09/10/2018

Analyzed: 09/10/2018

Project: NY-JE-41/ ALDEN PL PRV

## 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	051804634-0019 48 75 Girls			051804634-0020 63 75 Storage			051804634-0021 62 75 Nurse		
Spore Types	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	3	100	100	4	200	83.3
Aspergillus/Penicillium	-	-	-	-	-	-	-	-	-
Basidiospores	1	40	100	-	-	-	-	-	-
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	1	40	16.7
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Chaetoconis	-	-	-	-	-	-	-	-	-
Total Fungi	1	40	100	3	100	100	5	240	100
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	41	-	-	41	-	-	41	-
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.

Chaikut Sae Lao, Laboratory Manager  
or other approved signatory

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Analyzed: 09/10/2018

Project: NY-JE-41/ ALDEN PL PRV

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

Lab Sample Number:	051804634-0022						
Client Sample ID:	55						
Volume (L):	75						
Sample Location	RM 75 Adj.						
Spore Types	Raw Count	Count/m³	% of Total				
Alternaria (Ulocladium)	-	-	-	-	-	-	-
Ascospores	2	80	100	-	-	-	-
Aspergillus/Penicillium	-	-	-	-	-	-	-
Basidiospores	-	-	-	-	-	-	-
Bipolaris++	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-
Cladosporium	-	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-
Chaetoconis	-	-	-	-	-	-	-
<b>Total Fungi</b>	<b>2</b>	<b>80</b>	<b>100</b>	-	-	-	-
Hyphal Fragment	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	41	-	-	-	-	-
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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Attn: John Evans

Adaptive Environmental Consultants

367 Windsor Hwy #452

New Windsor, NY 12553

Phone: (239) 634-4557

Fax: (888) 987-4437

Collected: 09/07/2018

Received: 09/07/2018

Analyzed: 09/08/2018

Project: NY-JE-MILLBROOK/

## 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	031824663-0001 02 75 OUT			031824663-0002 20 75 CLASS			031824663-0003 04 75 HALL		
Spore Types	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	24	1000	8.8	-	-	-	-	-	-
Aspergillus/Penicillium	8	300	2.7	18	790	33.1	17	740	37.4
Basidiospores	222	9690	85.6	36	1600	66.9	27	1200	60.6
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	5	200	1.8	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	2	90	0.8	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Botryotrichum	-	-	-	-	-	-	1	40	2
Botrytis	1	40	0.4	-	-	-	-	-	-
Total Fungi	262	11320	100	54	2390	100	45	1980	100
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
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.

*Joseph Reynolds*

Joseph Reynolds, Lead Technical Manager of Microbiology  
or other approved signatory

No discernable field blank was submitted with this group of samples.

High levels of background particulate can obscure spores and other particulates leading to underestimation. Background levels of 5 indicate an overloading of background particulates, prohibiting accurate detection and quantification. Present = Spores detected on overloaded samples. Results are not blank corrected unless otherwise noted. The detection limit is equal to one fungal spore, structure, pollen, fiber particle or insect fragment. \*\*\* Denotes particles found at 300X. \* Denotes not detected. Due to method stopping rules, raw counts in excess of 100 are extrapolated based on the percentage analyzed. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical, Inc. New York, NY AIHA-LAP, LLC--EMLAP Lab 102581

Initial report from: 09/08/2018 15:06:11

For information on the fungi listed in this report, please visit the Resources section at [www.emsl.com](http://www.emsl.com)



# EXPANDED FUNGAL REPORT <sup>TM</sup>

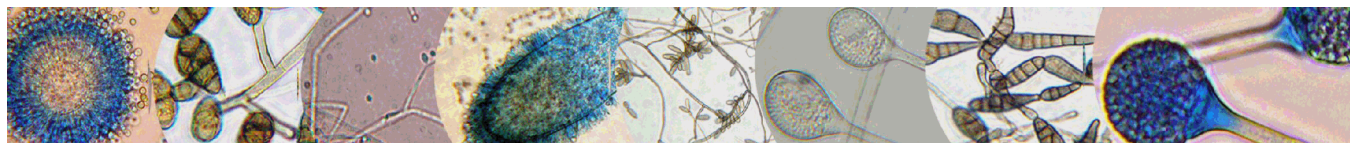
## Prepared Exclusively For

Adaptive Environmental Consultants

367 Windsor Hwy #452  
New Windsor, NY 12553  
Phone:480-719-3338

**Report Date:** 9/8/2018  
**Project:** NY-JE-180907 SWABS  
**EMSL Order:** 031824670

AIHA-LAP, LLC--EMLAP Accredited  
#102581



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## EMSL Analytical, Inc.

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**Attn:** John Evans  
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EMSL Order: 031824670  
Customer ID: ADPN42  
Collected: 9/07/2018  
Received: 9/07/2018  
Analyzed: 9/08/2018

**Proj:** NY-JE-180907 SWABS

### 1. Description of Analysis

#### Analytical Laboratory

EMSL Analytical, Inc. (EMSL) is a nationwide, full service, analytical testing laboratory network providing Asbestos, Mold, Indoor Air Quality, Microbiological, Environmental, Chemical, Forensic, Materials, Industrial Hygiene and Mechanical Testing services since 1981. Ranked as the premier independently owned environmental testing laboratory in the nation, EMSL puts analytical quality as its top priority. This quality is recognized by many well-respected federal, state and private accrediting agencies, such as AIHA-LAP, LLC's EMLAP and proficiency testing providers such as AIHA, LLC's EMPAT programs, and assured by our high quality personnel, including many Ph.D. microbiologists and mycologists.

EMSL is an independent laboratory that performed the analysis of these samples. EMSL did not conduct the sampling or site investigation for this report. The samples referenced herein were analyzed under strict quality control procedures using state-of-the-art microbiological methods. The analytical methods used and the data presented are scientifically and legally defensible.

The laboratory data is provided in compliance with AIHA-LAP, LLC policy modules and ISO-IEC 17025 guidelines for the particular test(s) requested, including any associated limitations for the methods employed. These data are intended for use by professionals having knowledge of the testing methods necessary to interpret them accurately.

### 2. Analytical Results

See attached data reports and charts.



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**Proj:** NY-JE-180907 SWABS

Surface Contamination ASSESSMENT Report

™ Swab Samples Based on Direct Microscopic Analysis MICRO-SOP-200

Sample Information	Sample Location	Surface Contamination Rating (Referenced in IICRC S520)	Recommended Remedial Action (Referenced in IICRC S520)
Lab Sample #: 031824670-0001 Client Sample ID: 1	AREA 1	Condition 3: Actual fungal growth	 Remediate to a Condition 1 status
Lab Sample #: 031824670-0002 Client Sample ID: 2	AREA 2	Condition 2: Contaminated with settled spores	 Remediate to a Condition 1 status
Lab Sample #: 031824670-0003 Client Sample ID: 3	AREA 3	Condition 2: Contaminated with settled spores	 Remediate to a Condition 1 status
Lab Sample #: 031824670-0004 Client Sample ID: 4	AREA 4	Condition 3: Actual fungal growth	 Remediate to a Condition 1 status
Lab Sample #: 031824670-0005 Client Sample ID: 5	AREA 5	Condition 3: Actual fungal growth	 Remediate to a Condition 1 status
Lab Sample #: 031824670-0006 Client Sample ID: 6	AREA 6	Condition 3: Actual fungal growth	 Remediate to a Condition 1 status
Lab Sample #: 031824670-0007 Client Sample ID: 7	AREA 7	Condition 1: Normal fungal ecology	 None Required
Lab Sample #: 031824670-0008 Client Sample ID: 8	AREA 8	Condition 3: Actual fungal growth	 Remediate to a Condition 1 status
Lab Sample #: 031824670-0009 Client Sample ID: 9	AREA 9	Condition 2: Contaminated with settled spores	 Remediate to a Condition 1 status

## Definitions (from IICRC S520 Standard)



Condition 1 (normal fungal ecology): an indoor environment that may have settled spores, fragments, or traces of actual growth.



Condition 2 (settled spores): an indoor environment which is primarily contaminated with settled spores that were dispersed directly or indirectly from a Condition 3 area, and which may have traces of actual growth.



Condition 3 (actual growth): an indoor environment contaminated with the presence of actual mold growth and associated spores. Actual growth includes growth that is active or dormant, visible or hidden.

Data provided in this report are intended to facilitate the assessment process performed by an Indoor Environmental Professional (IEP). The IEP is responsible for final data interpretation and remediation conclusions based on their assessment which may include information on the building history, an inspection, sampling, and laboratory data. Post-remediation verification testing recommended after any remediation.

*Joseph Reynolds*

Joseph Reynolds, Lead Technical Manager of Microbiology

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AIHA-LAP, LLC--EMLAP Accredited #102581

Initial report from: 09/08/2018 14:37:20

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EMSL Order: 031824670  
Customer ID: ADPN42  
Collected: 9/07/2018  
Received: 9/07/2018  
Analyzed: 9/08/2018

**Proj:** NY-JE-180907 SWABS

## Test Report: Microscopic Examination of Fungal Spores, Fungal Structures, Hyphae, and Other Particulates from Swab Samples (EMSL Method MICRO-SOP-200)

Lab Sample Number:	031824670-0001	031824670-0002	031824670-0003	031824670-0004	031824670-0005
Client Sample ID:	1	2	3	4	5
Sample Location:	AREA 1	AREA 2	AREA 3	AREA 4	AREA 5
Spore Types	Category	Category	Category	Category	Category
Alternaria (Ulocladium)	-	-	-	-	-
Ascospores	-	-	-	-	-
Aspergillus/Penicillium	-	High	Rare	-	-
Basidiospores	-	-	-	-	-
Bipolaris++	-	-	-	-	-
Chaetomium	-	-	Medium	-	-
Cladosporium	Low	Rare	-	-	-
Curvularia	-	-	-	-	-
Epicoccum	-	-	-	-	-
Fusarium	-	-	-	-	-
Ganoderma	-	-	-	-	-
Myxomycetes++	-	-	-	-	-
Pithomyces++	-	-	-	-	-
Rust	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-
Zygomycetes	-	-	-	-	-
Aspergillus	*High*	-	-	*High*	*High*
Hyphal Fragment	-	-	-	-	-
Insect Fragment	Rare	-	-	-	-
Pollen	-	-	-	-	-

Category: Count/per area analyzed

Rare: 1 to 10 Low: 11 to 100 Medium: 101 to 1000 High: >1000

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

\* = Sample contains fruiting structures and/or hyphae associated with the spores.

- = Not detected.

No discernable field blank was submitted with this group of samples.

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Samples analyzed by EMSL Analytical, Inc. New York, NY AIHA-LAP, LLC--EMLAP Accredited #102581

Initial report from: 09/08/2018 14:37:20

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EMSL Order: 031824670  
Customer ID: ADPN42  
Collected: 9/07/2018  
Received: 9/07/2018  
Analyzed: 9/08/2018

**Proj:** NY-JE-180907 SWABS

## Test Report: Microscopic Examination of Fungal Spores, Fungal Structures, Hyphae, and Other Particulates from Swab Samples (EMSL Method MICRO-SOP-200)

Lab Sample Number:	031824670-0006	031824670-0007	031824670-0008	031824670-0009	
Client Sample ID:	6	7	8	9	
Sample Location:	AREA 6	AREA 7	AREA 8	AREA 9	
Spore Types	Category	Category	Category	Category	-
Alternaria (Ulocladium)	-	-	-	-	-
Ascospores	-	-	-	-	-
Aspergillus/Penicillium	-	-	-	Medium	-
Basidiospores	-	-	-	-	-
Bipolaris++	-	-	-	-	-
Chaetomium	-	-	-	Medium	-
Cladosporium	-	-	Rare	-	-
Curvularia	-	-	-	-	-
Epicoccum	-	-	-	-	-
Fusarium	-	-	-	-	-
Ganoderma	-	-	-	-	-
Myxomycetes++	-	-	-	-	-
Pithomyces++	-	-	-	-	-
Rust	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-
Zygomycetes	-	-	-	-	-
Aspergillus	*High*	-	*High*	-	-
Hyphal Fragment	-	-	-	-	-
Insect Fragment	-	-	-	-	-
Pollen	-	-	-	-	-

**Sample Comment:** 031824670-0007 None Detected

Category: Count/per area analyzed

Rare: 1 to 10 Low: 11 to 100 Medium: 101 to 1000 High: >1000

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

\* = Sample contains fruiting structures and/or hyphae associated with the spores.

- = Not detected.

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Joseph Reynolds, Lead Technical Manager of  
Microbiology



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**Proj:** NY-JE-180907 SWABS

### 3. Understanding the Results

EMSL Analytical, Inc. is an independent laboratory, providing unbiased and scientifically valid results. These data represent only a portion of an overall IAQ investigation. Visual information and environmental conditions measured during the site assessment (humidity, moisture readings, etc.) are crucial to any final interpretation of the results. Many factors impact the final results; therefore, result interpretation should only be conducted by qualified individuals. The American Conference of Governmental Industrial Hygienists (ACGIH) has published a good reference book covering sampling and data interpretation. It is entitled, Bioaerosols: Assessment and Control, 1999.

Fungal spores are found everywhere. Whether or not symptoms develop in people exposed to fungi depends on the nature of the fungal material (e.g., allergenic, toxic, or infectious), the exposure level, and the susceptibility of exposed persons. Susceptibility varies with the genetic predisposition (e.g., allergic reactions do not always occur in all individuals), age, pre-existing medical conditions (e.g., diabetes, cancer, or chronic lung conditions), use of immunosuppressive drugs, and concurrent exposures. These reasons make it difficult to identify dose/response relationships that are required to establish "safe" or "unsafe" levels (i.e., permissible exposure limits).

It is generally accepted in the industry that indoor fungal growth is undesirable and inappropriate, necessitating removal or other appropriate remedial actions. The New York City guidelines and EPA guidelines for mold remediation in schools and commercial buildings define the conditions warranting mold remediation. Always remember that water is the key. Preventing water damage or water condensation will prevent mold growth.

This report is not intended to provide medical advice or advice concerning the relative safety of an occupied space. Always consult an occupational or environmental health physician who has experience addressing indoor air contaminants if you have any questions.



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## 4. Glossary of Fungi

### ASPERGILLUS

<b>Allergic Potential</b>	Allergic bronchopulmonary aspergillosis (ABPA) which is common in asthmatic and cystic fibrosis patients. Aspergillus sinusitis. Invasive aspergillosis in immunocompromised patients
<b>Industrial Uses</b>	A. sojae is used for fermented food and beverages in Asia. A. oryzae is used in soy sauce production. A. terreus produces mevlinin which is able reduce blood cholesterol. A. niger produces enzymes used to make some breads and beers and is also used in plastic decomposition. A. niger and A. ochraceus are used in cortisone production
<b>Mode of Dissemination</b>	Wind
<b>Natural Habitat</b>	Soil and Plant debris.
<b>Other Comments</b>	It is the second most common opportunistic pathogen following Candida.
<b>Potential or Opportunistic Pathogens</b>	Aspergilloma and chronic pulmonary aspergillosis in people with lung disease.
<b>Potential Toxins Produced</b>	3-Nitropropionic acid, 5-metoxystermatocystin, Aflatoxin B1, B2, Aflatoxin G1, G2, Aflatoxin M1, M2, Aflatoxin P1, Aflatoxin Q1, Aflatoxins, Aflatrem (alkaloid), Aflatrem (indole alkaloid), Aflavinin, Ascalidol, Aspergillilic acid, Aspergillomarasmin, Aspertoxin, Asteltoxin, Austamid, Austdiol, Austins, Austocystins, Avenaciolide, Brevianamide A, Candidulin, Citreoviridin, Citrinin, Clavatul, Cyclopiazonic acid, Cyclopiazonic acid, Cytochalasin E, Emodin, Fumagillin, Fumigaclavine A, Fumigatin, Fumitremorgens, Fumitremorgin A, Gliotoxin, Griseofulvin, Helvolic acid, Kojic acid, Kotanin, Malformins, Naphtopyrones, Neoaspergillilic acid, Nidulin, Nidulotoxin, Nigragillin, Ochratoxin A, Ochratoxin B, Ochratoxin C, Ochratoxins $\beta$ , Ochratoxins $\alpha$ , Ochratoxins (A,B,C,a, $\beta$ ), Orlandin, Oryzacidin, Paspaline, Patulin, Penicillic acid, Phthioic acid, Secalonic acid A, B, D and F, Sphingofungins, Spinulosin, Sterigmatocystin, Terphenyllin, Terredional, Terreic acid, Terrein, Terretinin, Terretinin, Territrem A, Tryptoquivalines, Verruculogen, Versicolorin A, Viomellein, Viriditoxin, Xanthocillin, Xanthomegnin, $\beta$ -nitropropionic acid.
<b>Suitable Substrates in the Indoor Environment</b>	Grows on a wide range of substrates indoors. Prevalent in water damaged buildings
<b>Water Activity</b>	Aw=0.75-0.94

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### ASPERGILLUS/PENICILLIUM

Allergic Potential	Type I (hay fever, asthma) · Type III (hypersensitivity)
Industrial Uses	Many depending on the species
Mode of Dissemination	Wind · Insects
Natural Habitat	Plant debris · Seed · Cereal crops
Other Comments	Spores of Aspergillus and Penicillium (including others such as Acremonium, Talaromyces, and Paecilomyces) are small and spherical with few distinguishing characteristics. They cannot be differentiated or speciated by non-viable impaction sampling methods. Some species with very small spores may be undercounted in samples with high background debris.
Potential or Opportunistic Pathogens	Possible depending on the species.
Potential Toxins Produced	
Suitable Substrates in the Indoor Environment	Grows on a wide range of substrates indoors · Prevalent in water damaged buildings · Foods (blue mold on cereals, fruits, vegetables, dried foods) · House dust · Fabrics · Leather · Wallpaper · Wallpaper glue
Water Activity	Aw=0.75-0.94

### CHAETOMIUM

Allergic Potential	Type I (asthma and hay fever).
Industrial Uses	Cellulase production, Textile testing.
Mode of Dissemination	Wind. Insects. Water splash.
Natural Habitat	Dung. Seeds. Soil. Straw.
Potential or Opportunistic Pathogens	Onychomycosis. C. perlicidum recognized as a new agent of cerebral phaeohyphomycosis.
Potential Toxins Produced	Chaetomin. Chaetoglobosins A,B,D and F are produced by Chaetomium globosum. Sterigmatocystin is produced by rare species
Suitable Substrates in the Indoor Environment	Paper. Sheetrock. Wallpaper.
Water Activity	Aw=0.84-0.89.

### CLADOSPORIUM

Allergic Potential	Type I (asthma and hay fever).
Industrial Uses	Produces 10 antigens.
Mode of Dissemination	Air
Natural Habitat	Dead plant matter. Straw. Soil. Woody plants
Potential or Opportunistic Pathogens	Edema. keratitis. onychomycosis. pulmonary infections. Sinusitis.
Potential Toxins Produced	Cladosporin and Emodin.
Suitable Substrates in the Indoor Environment	Fiberglass duct liner. Paint. Textiles. Found in high concentration in water-damaged building materials.
Water Activity	Aw 0.84-0.88

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### 5. References and Informational Links



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---

### Books

- Bioaerosols: Assessment and Control. Janet Macher, Ed., American Conference of Governmental Industrial Hygienists, Cincinnati, OH 1999.
- Exposure Guidelines for Residential Indoor Air Quality. Environmental Health Directorate, Health Protection Branch, Health Canada, Ottawa, Ontario, 1989.
- Fungal Contamination in Public Buildings: Health Effects and Investigation Methods. Health Canada, Ottawa, Ontario, 2004.
- IICRC: S500 Standard and Reference Guide for Professional Water Damage Restoration. 3rd Edition, Institute of Inspection, Cleaning, and Restoration Certification, Vancouver, WA, 2006

IICRC: S520 Standard and Reference Guide for Professional Mold Remediation. 1st Edition, Institute of Inspection, Cleaning, and Restoration Certification, Vancouver, WA, 2004

- Field Guide for the Determination of Biological Contaminants in Environmental Samples. 2nd Edition, American Industrial Hygiene Association, 2005.

### Consumer Links

Read the full text of AIHA's "The Facts About Mold" consumer brochure.

<http://www.aiha.org/get-involved/VolunteerGroups/Documents/BiosafetyVG-FactsAbout%20MoldDecember2011.pdf>

The Occupational Safety and Health Administration (OSHA)

<http://www.osha.gov/SLTC/molds/index.html>

CDC Mold Facts

<http://www.cdc.gov/mold/faqs.htm>

CDC Stachybotrys - Questions and answers on Stachybotrys chartarum and other molds

<http://www.cdc.gov/mold/stachy.htm>

IOM, NAS: Clearing the Air: Asthma and Indoor Air Exposures

<http://www.iom.edu/Reports/2000/Clearing-the-Air-Asthma-and-Indoor-Air-Exposures.aspx>

National Library of Medicine-Mold website

<http://www.nlm.nih.gov/medlineplus/molds.html>

California Department of Health Services (CADOHS)

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EMSL Order: 031824670  
Customer ID: ADPN42  
Collected: 9/07/2018  
Received: 9/07/2018  
Analyzed: 9/08/2018

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<http://www.cal-iaq.org/separator/mold-and-dampness/about-mold>

Minnesota Department of Health

<http://www.health.state.mn.us/divs/eh/indoorair/mold/index.html>

New York City Department of Health and Mental Hygiene

[<http://conyers.house.gov/index.cfm/issues?p=toxic-mold>](http://conyers.house.gov/index.cfm/issues?p=toxic-mold)

H.R.: The United States Toxic Mold Safety and Protection Act

[<http://conyers.house.gov/index.cfm/issues?p=toxic-mold>](http://conyers.house.gov/index.cfm/issues?p=toxic-mold)

### EPA

"Should You Have the Air Ducts in Your Home Cleaned?"

[<http://www.epa.gov/iaq/pubs/airduct.html>](http://www.epa.gov/iaq/pubs/airduct.html)

General information about molds and actions that can be taken to clean up or prevent a mold problem.

[<http://www.epa.gov/asthma/molds.html>](http://www.epa.gov/asthma/molds.html)

"A Brief Guide to Mold, Moisture, and Your Home" - Includes basic information on mold, cleanup guidelines, and moisture and mold prevention

<http://www.epa.gov/mold/moldguide.html>

"Mold Remediation in Schools and Commercial Buildings" - Information on remediation in schools and commercial property, references for potential mold and moisture remediators.

[http://www.epa.gov/mold/mold\\_remediation.html](http://www.epa.gov/mold/mold_remediation.html)

### FEMA

"Homes That Were Flooded May Harbor Mold Problems" - Information and tips for cleaning mold.

<http://www.fema.gov/news-release/homes-were-flooded-may-harbor-mold-problems>

"Dealing With Mold & Mildew in Your Flood Damaged Home.

[http://www.fema.gov/pdf/rebuild/recover/fema\\_mold\\_brochure\\_english.pdf](http://www.fema.gov/pdf/rebuild/recover/fema_mold_brochure_english.pdf)

"Prompt Flood Cleanup Can Help Prevent Health Problems" - How to clean up in-house mold problems (not large or serious exposures).

<http://www.fema.gov/news-release/prompt-flood-cleanup-can-help-prevent-health-problems>



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### 6. Important Terms, Conditions, and Limitations

#### A. Sample Retention

Samples analyzed by EMSL will be retained for 90 days after analysis date. Storage beyond this period is available for a fee with written request prior to the initial 30 day period.

Samples containing hazardous/toxic substances which require special handling will be returned to the client immediately. EMSL reserves the right to charge a sample disposal fee or return samples to the client.

#### B. Change Orders and Cancellation

All changes in the scope of work or turnaround time requested by the client after sample acceptance must be made in writing and confirmed in writing by EMSL. If requested changes result in a change in cost the client must accept payment responsibility. In the event work is cancelled by a client, EMSL will complete work in progress and invoice for work completed to the point of cancellation notice. EMSL is not responsible for holding times that are exceeded due to such changes.

#### C. Warranty

EMSL warrants to its clients that all services provided hereunder shall be performed in accordance with established and recognized analytical testing procedures and with reasonable care in accordance with applicable federal, state and local laws. The foregoing express warranty is exclusive and is given in lieu of all other warranties, expressed or implied. EMSL disclaims any other warranties, express or implied, including a warranty of fitness for particular purpose and warranty of merchantability.

#### D. Limits of Liability

In no event shall EMSL be liable for indirect, special, consequential, or incidental damages, including, but not limited to, damages for loss of profit or goodwill regardless of the negligence (either sole or concurrent) of EMSL and whether EMSL has been informed of the possibility of such damages, arising out of or in connection with EMSL's services thereunder or the delivery, use, reliance upon or interpretation of test results by client or any third party. We accept no legal responsibility for the purposes for which the client uses the test results. EMSL will not be held responsible for the improper selection of sampling devices even if we supply the device to the user. The user of the sampling device has the sole responsibility to select the proper sampler and sampling conditions to insure that a valid sample is taken for analysis. Any resampling performed will be at the sole discretion of EMSL, the cost of which shall be limited to the reasonable value of the original sample delivery group (SDG) samples. In no event shall EMSL be liable to a client or any third party, whether based upon theories



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of tort, contract or any other legal or equitable theory, in excess of the amount paid to EMSL by client thereunder.

### E. Indemnification

Client shall indemnify EMSL and its officers, directors and employees and hold each of them harmless for any liability, expense or cost, including reasonable attorney's fees, incurred by reason of any third party claim in connection with EMSL services, the test result data or its use by client