American Environmental Specialists, L.L.C.

118 Westbury Court, Marlton, New Jersey 08053
Phone (856) 985-2885 (800) 251-6110
Fax (856) 985-9777
email: aespecialists@comcast.net
website: www.aespecialists.com

Report prepared and submitted on March 15, 2013 by M. Snyder; Environmental Consultant for A.E.S.

INDOOR AIR QUALITY/ FUNGAL & BIOLOGICAL INSPECTION SUMMARY REPORT

Prepared for:
Mr. Steve Schwartz
40 Lincoln Drive
Downingtown, Pennsylvania 19335

Project # AES 3213-A
Date of Inspection: March 2, 2013
Emlab P&K Report # 1033581

SUMMARY OF FINDINGS

A.E.S. conducted a complete Initial Indoor Air Quality Assessment on March 2, 2013 as per the request of Mr. Steve Schwartz, owner of a single family townhome located at 40 Lincoln Drive, Downingtown, Pennsylvania 19335.

The townhome located at 40 Lincoln Drive, Downingtown, Pennsylvania is a nine year old, two story stone and stucco sided residential property with the original composition type roof.

Based on a previous conversation with Mr. Schwartz, A.E.S., was informed that the property is currently under rental contract with Mr. and Mrs. Smith and concerns regarding the indoor air quality of the home were in question due to the fact that their young child has been experiencing health concerns and the tenant wanted to rule out that these concerns could be related to the indoor environment in their home.

A request for a complete indoor assessment of the home was ordered, along with indoor air quality testing to determine if an elevated level of airborne fungal spores or biological particulates were present indoors, quite possibly creating a health concern.

A.E.S, an Indoor Environmental Professional Consulting firm, performed the complete initial assessment on Saturday, March 2, 2013 at 10:00 AM.

The sampling was performed by Murray Snyder, Senior I.H., Environmental Consultant and Project Manager for A.E.S. Results of the inspection are listed below:

SCOPE OF BUILDING INSPECTION AND WORK PERFORMED

- Collected and analyzed one (1) outdoor control air sample for non-cultured spore counts.
- Collected and analyzed three (3) indoor air samples for non-cultured spore and biological particle counts.
- Prepared and submitted a written report summarizing the A.E.S. inspection, activities, findings, conclusions and recommendations.

METHODOLOGY

Air Sample Collection and Analysis:

The air sampling strategy and protocols used in this project are designed to detect total fungal spores (both living and non-living) airborne microbial spores as well as biological particulates.

Air samples were collected on “MCE” Gel Impaction Slides utilizing an A.P. Buck “Bio-Slide” high volume impaction sampling pump calibrated to a flow rate of 15 liters per minute (or what the manufacturer’s literature recommends). The “MCE” Gel Impaction Slide Media employs a sticky sampling surface. The air-sampling pump draws air through an impaction slit on the A.P. Buck “Bio-Slide” unit and traps fungal and biological particles by impaction on the slide.

METHODOLOGY (Cont'd)

Air samples were collected in the basement, first and second floor living levels of the home, along with one initial air sample collected in the front of the home as a control for comparison purposes.

After sample collection, the impacted slides were removed and placed into two plastic slide containers and hand delivered by A.E.S., to Emlab P&K Labs, Cherry Hill, New Jersey for direct microscopic analysis to identify the type species present and to determine the airborne concentration of fungal spores and biological particulates.

SURFACE TAPE, SWAB & OR BULK SAMPLING

NONE REQUIRED

It should be noted that mold sampling is considered to be a "snapshot in time" and the level of spore activity in an indoor environment can greatly change depending on many factors, including activity in the dwelling and the growth cycle of the types of mold that may be present as well as moisture activity. We cannot guarantee that mold does not exist in the areas of the home that were not sampled, nor can we guarantee that conditions will not change, or that mold may/may not grow in the future somewhere else in the structure.

There are no federal or governmental agencies that provide limits or "safe levels" for mold exposure. This is due to the fact that all individuals have different immune systems that can tolerate exposure to molds and other allergens differently depending upon age, genetics and pre-existing health problems. People are continuously exposed to fungi through both inhalation and ingestion with no apparent ill effects; however, certain fungi and fungal products are important agents of human disease. Populations that are listed as "high risk" are infants/children, elderly and individuals that have immune compromised health problems such as Asthma, Aids, Hepatitis, Cancer therapy, or who have taken immunosuppressive medications. It has also been documented that chronic exposure to molds can weaken the immune system of otherwise healthy individuals, allowing for opportunistic disease.

American Environmental Specialists, LLC, is not a medical authority. Clients and/or occupants of a dwelling are encouraged to seek the advice of a qualified medical physician to address the potential health effects of mold.

RESULTS OF ANALYSIS OF AIR, TAPE, SWAB OR BULK SAMPLES

The results of microscopic analysis of the air samples taken were conclusive, showing that the indoor fungal spore counts and biological particulate levels observed throughout all living levels of the home tested, were considered to be well within acceptable limits indoors, as confirmed by laboratory analysis, at the time of inspection by A.E.S., when compared to the initial outdoor control (Sample # ST-1).

No elevated levels of fungal spores or biological particulates were observed at the time of the assessment, indoors. The indoor fungal spore count levels were well below the acceptable standards set by A.E.S. and the AAAAI-NAB.

RESULTS OF ANALYSIS OF THE SWAB LIFT SAMPLES

NONE REQUIRED

RESULTS, DISCUSSION & CONCLUSIONS

At the time of the on-site assessment, no elevated levels of fungal type spores or biological particulates were detected indoors. No further action is required at this time.

GENERAL OBSERVATIONS

At the time of the assessment, A.E.S., recorded indoor relative humidity levels below 60% which is considered to be within acceptable indoor level standards as recommended by the United States Environmental Protection Agency (USEPA) and The American Society for Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) Standard 55-1992.

FACTORS CONTRIBUTING TO FUNGAL GROWTH

NONE OBSERVED AT THE TIME OF THE ASSESSMENT

GENERAL RECOMMENDATIONS

The American Society for Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) Standard 55-1992, along with the United States Environmental Protection Agency (USEPA) recommends that the indoor relative humidity in a building should not exceed 60% or fall below 30% at any time throughout the year. Prolonged excessive moisture in the building can result in microbial growth on painted surfaces as well as wood and cellulose-based substrates. In my opinion, it should be maintained between 30% - 50% to prevent any microbial growth. This basically means you should monitor the relative humidity and operate a de-humidifier or multiple de-humidifiers to control these levels.

A.E.S. recommends that the homeowner consider the use of a portable HEPA/VOC odor absorbing air purifier, capable of producing filtered air into the home at a high rate as required. A.E.S. can recommend and if requested, can supply the best type of this equipment to fit the application.

A.E.S. observed at the time of the inspection, the length of dryer vent hose being used to exhaust lint from the clothing dryer and is considered excessive and the obstruction or build up of lint in the line is a concern. A.E.S. recommends that the un-coiling and shortening of the dryer exhaust hose be implemented.

A.E.S. understands that the tenant employs the use of an outside cleaning service to maintain their home and the use of a vacuum cleaner (s) as well as general cleaning supplies, including rags and chemicals are supplied by cleaning service. A.E.S., recommends that the homeowner purchase and provide <u>their own</u> HEPA equipped vacuum cleaner, cleaning chemicals, rags or towels to be used by the cleaning service and laundered by the tenant.

GENERAL SCOPE FOR REMEDIATION

NONE REQUIRED AT THIS TIME

STANDARDS FOR REMEDIATION

(NOT REQUIRED AT THIS TIME)

This project should only be completed by a certified professional mold remediation firm that will adhere to the IICRC-S520 mold remediation standard and the NYC Department of Health Guidelines on Assessment and Remediation of Fungi in Indoor Environments, in addition to any other local, state or federal guidelines or laws that exist at the time the work commences.

STATEMENT OF CONFIDENTIALITY

A.E.S. has been retained to represent only the client in this report. All and any information contained in this report may not be discussed, duplicated or distributed in any form without the expressed written permission of the client.

LIMITATIONS

This report was prepared for the sole use of the client. The use of this report by anyone other than the client or American Environmental Specialists, LLC, is strictly prohibited without the express written consent of American Environmental Specialists, LLC. All or any portion of this report may not be modified in any manner without the express written permission of American Environmental Specialists, LLC.

Please contact American Environmental Specialists with any questions or concerns.

Respectively submitted,

Murray S. Snyder **I.H.** (CIE, CBIE, CRIE, CMIR, CESA)
A.E.S. Environmental Consultant/Senior Industrial Hygienist
Approved IAQ/IEQ Consultant / State of New Jersey (NJDHSS)
IESO Standards Organization
IICRC-520 Remediation Standards & Guidelines
New York City Dept. of Health Guidelines (NYCDOH)
Member IAQA (Indoor Air Quality Association) #17514
EPA/AHERA/Building Inspector Cert: # ACC-0912-6-002

References:

1. Bioaerosols: Assessment and Control, Janet Macher, Ed., American Conference of Governmental Industrial Hygienists, Cincinnati, Ohio (1999).
2. Standards of Practice for the Assessment of Indoor Environmental Quality, volume 1: Mold Sampling; Assessment of Mold Contamination, Indoor Environmental Standards Organization (2002).
3. Institute of Cleaning and Restoration Certification (IICRC) S520 Standards for Professional Mold Remediation (2008)
4. Mycotoxins, Risks to Human and Animal Systems (CAST) Council for Agricultural Science and Technology
5. American Academy of Allergy, Asthma & Immunology National Bureau (AAAAI-NAB)
6. U.S. Department of Health and Senior Services
7. U.S. Environmental Protection Agency
8. U.S. Center for Disease Control

“POST REMEDIATION CLEARANCE INSPECTION & TESTING”

NOT REQUIRED AT THIS TIME

CERTIFICATES OF LABORATORY ANALYSIS

EMLab P&K
1936 Olney Avenue, Cherry Hill, NJ 08003
(866) 871-1984 Fax (856) 489-4085 www.emlab.com

Client: American Environmental Specialists
C/O: Mr. Murray Snyder
Re: AES3213-A;

Date of Sampling: 03-02-2013
Date of Receipt: 03-04-2013
Date of Report: 03-06-2013

OTHER BIOLOGICAL PARTICLES REPORT: NON-VIABLE METHODOLOGY

Location:	ST-2: Basement (Center)		ST-3: 1st Floor (Center Hall)		ST-4: 2nd Floor Hallway	
Comments (see below)	None		None		None	
Lab ID-Version‡:	4634084-1		4634086-1		4634088-1	
	raw ct.	particles/m3	raw ct.	particles/m3	raw ct.	particles/m3
POLLEN						
Elm (Ulmus)						
Eucalyptus (Eucalyptus)						
Grass (Poaceae)						
Mulberry (Morus)						
Oak (Quercus)						
Other						
Pine (Pinaceae)						
Ragweed (Ambrosieae)						
Sycamore (Platanus)						
OTHER PLANT						
Algae						
Diatoms						
Fern, moss, etc. spores						
Other (wood, trichomes, etc.)	1	13	4	53	4	53
OTHER PARTICLES:						
ANIMAL						
Epithelial (skin) cells	67	3,600	83	4,400	92	4,900
Hair						
Insect parts						
Mites						
FUNGI						
Hyphal fragments			1	13	1	13
NON-BIOLOGICAL						
Cellulose fibers	28	370	32	430	18	240
Glass fiber						
Starch particles	4	53	6	80	4	53
Synthetic fibers	5	67	8	110	10	130
Background debris (1-4+)†	1+		1+		2+	
Sample volume (liters)	75		75		75	

Comments:

The analytical sensitivity is the spores/m3 divided by the raw count. The limit of detection is the analytical sensitivity multiplied by the sample volume divided by 1000.

Carbonaceous particles include soot and other combustion products. A detailed analysis of soot can be accomplished using scanning electron microscopy.
Note: Interpretation is left to the company and/or persons who conducted the field work.

† Background debris is an indication of the amounts of non-biological particulate matter present on the slide (dust in the air) and is graded from 1+ to 4+ with 4+ indicating the largest amounts. To evaluate dust levels it is important to account for differences in sample volume.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

EMLab P&K
1936 Olney Avenue, Cherry Hill, NJ 08003
(866) 871-1984 Fax (856) 489-4085 www.emlab.com

Client: American Environmental Specialists
C/O: Mr. Murray Snyder
Re: AES3213-A;

Date of Sampling: 03-02-2013
Date of Receipt: 03-04-2013
Date of Report: 03-06-2013

SPORE TRAP REPORT: NON-VIABLE METHODOLOGY

Location:	ST-1: Initial O/S Control			ST-2: Basement (Center)		
Comments (see below)	None			None		
Lab ID-Version‡:	4634082-1			4634083-1		
Analysis Date:	03/06/2013			03/06/2013		
	raw ct.	% read	spores/m3	raw ct.	% read	spores/m3
Alternaria						
Ascospores				1	25	53
Basidiospores	2	25	53			
Chaetomium						
Cladosporium	1	25	27			
Curvularia	1	100	7			
Epicoccum						
Fusarium						
Myrothecium						
Nigrospora						
Other colorless						
Penicillium/Aspergillus types†						
Pithomyces						
Rusts						
Smuts, Periconia, Myxomycetes	1	100	7			
Stachybotrys						
Stemphylium						
Torula						
Ulocladium						
Zygomycetes						
Background debris (1-4+)††	1+			1+		
Hyphal fragments/m3	7			< 13		
Pollen/m3	< 7			< 13		
Skin cells (1-4+)	< 1+			1+		
Sample volume (liters)	150			75		
§ TOTAL SPORES/m3			93			53

Comments:

Spore types listed without a count or data entry were not detected during the course of the analysis for the respective sample.
† The spores of *Aspergillus* and *Penicillium* (and others such as *Acremonium, Paecilomyces*) are small and round with very few distinguishing characteristics. They cannot be differentiated by non-viable sampling methods. Also, some species with very small spores are easily missed, and may be undercounted.
††Background debris indicates the amount of non-biological particulate matter present on the trace (dust in the air) and the resulting visibility for the analyst. It is rated from 1+ (low) to 4+ (high). Counts from areas with 4+ background debris should be regarded as minimal counts and may be higher then reported. It is important to account for samples volumes when evaluating dust levels.

The analytical sensitivity is the spores/m3 divided by the raw count. The limit of detection is the analytical sensitivity multiplied by the sample volume divided by 1000.

For more information regarding analytical sensitivity, please contact QA by calling the laboratory.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".
§ Total Spores/m3 has been rounded to two significant figures to reflect analytical precision.

EMLab P&K
1936 Olney Avenue, Cherry Hill, NJ 08003
(866) 871-1984 Fax (856) 489-4085 www.emlab.com

Client: American Environmental Specialists
C/O: Mr. Murray Snyder
Re: AES3213-A;

Date of Sampling: 03-02-2013
Date of Receipt: 03-04-2013
Date of Report: 03-06-2013

SPORE TRAP REPORT: NON-VIABLE METHODOLOGY

Location:	ST-3: 1st Floor (Center Hall)			ST-4: 2nd Floor Hallway		
Comments (see below)	None			None		
Lab ID-Version‡:	4634085-1			4634087-1		
Analysis Date:	03/06/2013			03/06/2013		
	raw ct.	% read	spores/m3	raw ct.	% read	spores/m3
Alternaria	1	100	13			
Ascospores						
Basidiospores				1	25	53
Chaetomium						
Cladosporium	1	25	53	1	25	53
Curvularia						
Epicoccum	1	100	13			
Fusarium						
Myrothecium						
Nigrospora						
Other colorless						
Penicillium/Aspergillus types†						
Pithomyces						
Rusts						
Smuts, Periconia, Myxomycetes	1	100	13	1	100	13
Stachybotrys						
Stemphylium						
Torula						
Ulocladium						
Zygomycetes						
Background debris (1-4+)††	1+			2+		
Hyphal fragments/m3	13			13		
Pollen/m3	< 13			< 13		
Skin cells (1-4+)	1+			1+		
Sample volume (liters)	75			75		
§ TOTAL SPORES/m3			93			120

Comments:

Spore types listed without a count or data entry were not detected during the course of the analysis for the respective sample.
† The spores of *Aspergillus* and *Penicillium* (and others such as *Acremonium, Paecilomyces*) are small and round with very few distinguishing characteristics. They cannot be differentiated by non-viable sampling methods. Also, some species with very small spores are easily missed, and may be undercounted.
††Background debris indicates the amount of non-biological particulate matter present on the trace (dust in the air) and the resulting visibility for the analyst. It is rated from 1+ (low) to 4+ (high). Counts from areas with 4+ background debris should be regarded as minimal counts and may be higher then reported. It is important to account for samples volumes when evaluating dust levels.

The analytical sensitivity is the spores/m3 divided by the raw count. The limit of detection is the analytical sensitivity multiplied by the sample volume divided by 1000.

For more information regarding analytical sensitivity, please contact QA by calling the laboratory.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".
§ Total Spores/m3 has been rounded to two significant figures to reflect analytical precision.

American Academy of Allergy, Asthma and Immunology National Allergy Bureau (AAAAI-NAB)

Mold Spore Concentrations (Spores/m³)	Ranking	Symptoms
Absent	Zero	No Symptoms
>1 - 4,244 spores will experience symptoms.	Low	Only individuals extremely sensitive to mold
4,225 – 7,799 spores will experience symptoms.	Moderate	Many individuals extremely sensitive to mold
7,800 – 24,999 spores will experience symptoms.	High	Most individuals extremely sensitive to mold
>25,000 all to mold spores will experience symptoms. Extremely sensitive people could have severe symptoms.	Very High	Almost all individuals with any sensitivity at

IICRC S520 Fungal Environmental Indoor Condition Levels

Condition 1
(Normal fungal ecology): An indoor environment that may have settled spores, fungal fragments or traces of actual growth whose identity; location and quantity are reflective of a normal fungal ecology for a similar indoor environment.

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

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.

DIGITAL PHOTOGRAPHIC IMAGES

Photo # 1 View in front of townhome property located at 40 Lincoln Drive, Downingtown, Pennsylvania.

Photo # 2 View of front entrance of home during initial outdoor control baseline air sampling procedure.

Photo # 3 View of central basement area of home during initial indoor air sampling procedure.

Photo # 4 View of first floor central area of home during initial indoor air sampling procedure.

Photo # 5 View of second floor central hallway area of home during initial indoor air sampling procedure.

Photo # 6 View of the over-length coiled clothes dryer vent hose that should be reduced.

END OF REPORT