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# PROFESSIONAL BUILDING INSPECTORS

1057 MORA PLACE, WOODMERE, NY 11598 • 6 JULIA CIRCLE, EAST SETAUKET, NY 11733



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May 11, 2009

Mr. S. H.  
PO Box XXX  
Woodmere, NY 11598

Dear Mr. H.,

## SUMMARY OF OUR FINDINGS

A site visit was conducted on Tuesday, May 5<sup>th</sup> 2009 at the above inspection address. A visual investigation of the building and review of the laboratory data **confirm gross fungal contamination throughout the apartment.** This indoor environment is consistent with I.I.C.R.C. standard 520 Condition 3 due to the square footage of the contamination it is a NYC DOHMH "Large Area" (>100 sq/ft)

In accord with the 2008 New York City Department of Health and Mental Hygiene guidelines on assessment and remediation of fungi in the indoor environment as well as the Institute for Inspection Cleaning and Restoration Certification, **I.I.C.R.C.** standard 520, standard and reference guide for professional mold remediation, a remediation protocol has been detailed below.

Please read the remainder of the report for a detailed explanation of how the testing was performed, interpreted, and additional comments we have regarding indoor air quality.

## THE OBJECTIVE OF THE SURVEY

The objective of the survey was to identify conditions, which may be affecting occupant health or comfort in areas of concern and to make recommendations to correct any indoor air quality (IAQ) problems based on a limited, one time, non-invasive air quality survey.

Mankind has recorded mold since Leviticus in biblical times and science has taught us that molds are Mother Nature's way of recycling organic compounds. Without molds the leaves that fell from the trees one hundred years ago would still be laying on the ground. While molds are ubiquitous in the environment there are times when either the levels of mold present are more than we typically compensate for, or the types of mold should not be found in our home or work place. Since molds eat plant matter, and most of our homes are constructed using wood framing mold can actually destroy the integrity of the buildings we live and work in.

There are three elements molds (fungi) need in order to grow and those are:

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- The existence of a **food source**, molds eat organic compounds such as cellulose. Cellulose is found in paint, the paper on sheetrock, dirt, wood, clothing and similar surfaces.
- The second requirement is **temperature** conducive to mold growth, but unfortunately molds and humans like to live in the same temperature ranges.
- The third requirement is a **water source**. This can be water in a liquid state, i.e. from a flood or leaking pipe, or it can be chronic humidity levels above 60%, such as those found in crawl spaces or damp basements.

We have no realistic way to eliminate temperature, but we do have some control over the two remaining requirements. Chemicals can successfully be used to create a barrier between the food source and the mold; by removing the food we lower or remove the mold growth. We can also control the water by the altering the physical conditions found, by the use of French drains and finally the humidity by the use of self-draining dehumidifiers. A dirty house is just that, dirty - but not moldy. A wet, clean house on the other hand will be a moldy house.

## HISTORY OF THE PROBLEM

It was reported to this firm that the tenant in Apt 3F failed to maintain the apartment. Subsequent to the tenant vacating the unit the owner now has access to clean and repair the space.

## VISUAL INSPECTION

Apt 3F is a studio unit located on the 3<sup>rd</sup> floor of a low rise residential building in a suburban village on LI. The unit is heated with hot water radiators. There is no central AC system in the apartment. The images below depict the condition of the apartment on the date of the inspection.

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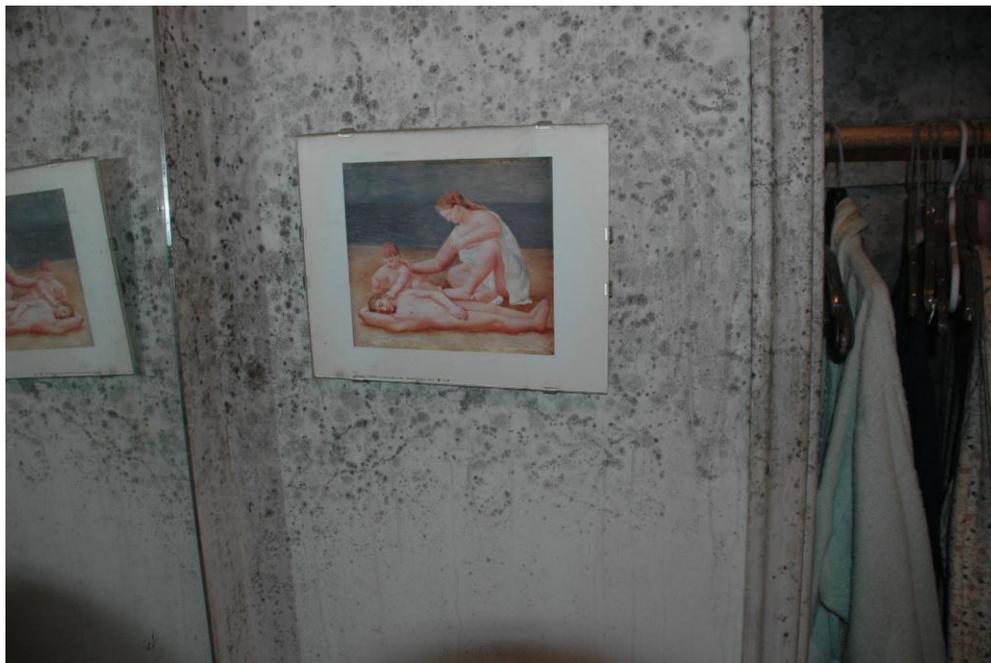
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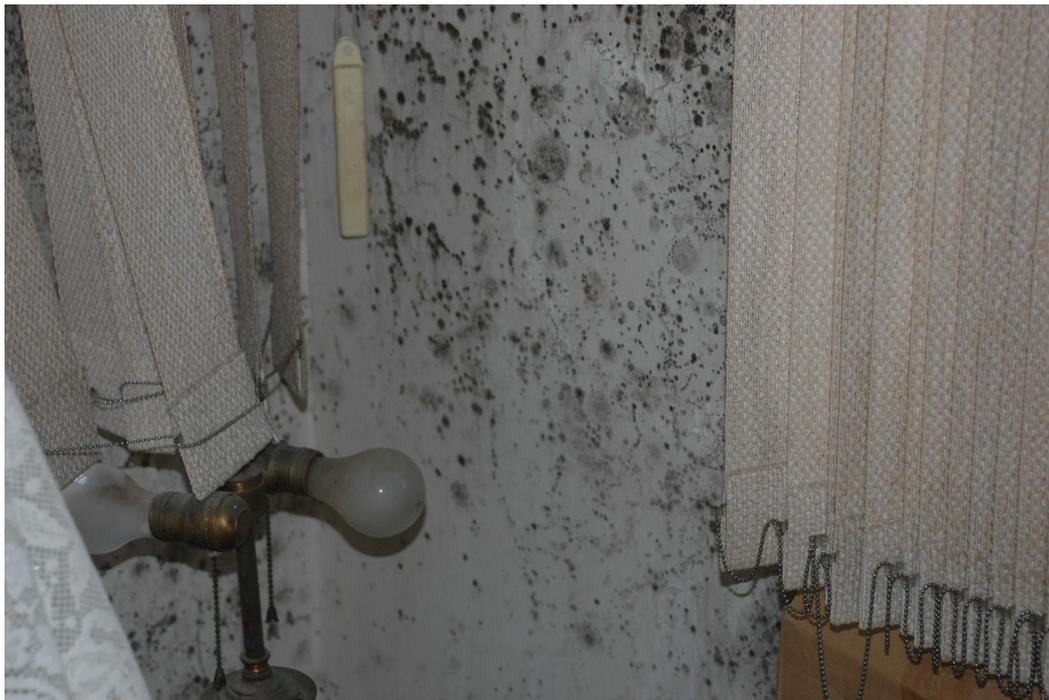
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## HOW INDOOR AIR QUALITY TESTING WAS PERFORMED

There are numerous ways to detect potential environmental problems in a building. Air samples, collection of bulk materials, tape lift sampling, swab sampling, wall cavity testing, and dust and carpet sampling are some of the more common methods.

We referenced materials listed at the end of this document and during this inspection it was determined by the inspector which testing methods were most appropriate given the location, timing, and suspected problem.

The purpose of the sampling is to:

1. Determine the mold burden and airborne spore concentrations within representative areas of the building.
2. Provide a comparison of the indoor and outdoor mold spores as well as a comparison of different areas of within the structure.
3. Determine mold spore types.

For the purposes of air spore sampling PBI utilizes a Buck Bioslide 1020 slit impactor. The Buck impactor is specifically designed for the rapid collection and analysis of a wide range of airborne aerosols including viable and non viable spores, pollen insect parts, skin cell fragments, fibers (e.g. fiberglass, cellulose, clothing fibers, etc) in addition to inorganic particulates such as ceramic, clay, etc; providing a broad overview of potential allergens.

Viable spores are those that will germinate and reproduce when given certain environmental conditions. Non-viable spores will not germinate despite being in favorable growth environments. Whether or not spores are viable, adverse health effects can result from the exposure to the spores.

The unit operates upon the principle of inertial impaction whereby particulate laden air is accelerated as it is drawn through the cassette's tapered inlet and directed towards and over a slide containing a sticky collection media, where the particles become impacted and the airflow continues out the exit orifice. The adhesive nature of the collection media prevents collected particulate from blurring or being washed off during the collection, shipping and analytical processes.

## SAMPLES

Based on the above visual inspection of the building and the external temperature and weather conditions we determined that testing would consist of swab samples in various locations as the

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windows in the apartment have been open for some period of time. A swab sample was collected in the main room, kitchen, hallway and bathroom.

## WHAT WE FOUND AS THE RESULTS OF THOSE TESTS

The bioaerosol testing identified several types of mold in the tests we performed at your site. Of specific concern to us are the molds listed below. For more information on the molds listed you can check out the web site [www.doctorfungus.com](http://www.doctorfungus.com)

### ASPERGILLUS / PENICILLIUM

A wide number of organisms have been placed in the genus. Identification to species is difficult. Often found in aerosol samples, Commonly found in soil, food, cellulose, grains, paint, compost piles, carpet, wallpaper and in interior fiberglass duct insulation. It is reported to be an allergenic and may cause hypersensitivity pneumonitis, allergic alveolitis in susceptible individuals. Members of the genus are reported to cause ear infection. May species produce mycotoxins, which may be associated with disease in humans and animals. Toxin production is dependent on the species or strain within a species and on the food source for the fungus. Some of these toxins have been found to be carcinogenic in animal species. Several toxins are considered potential human carcinogens. Common cause of the extrinsic asthma (immediate-type hypersensitivity: type I). Acute symptoms include edema and bronchospasms, chronic cases may develop pulmonary emphysema.

### CLADOSPORIUM

Cladosporium is the most commonly identified outdoor fungus. The outdoor numbers are reduced in the winter and often high in the summer. It is often found indoors in numbers less than outdoor number and it is a common allergen. Indoor Cladosporium spores may be different than the species identified outdoors. It is commonly found on the surface of fiberglass duct liner in the interior of supply ducts. A wide variety of plants are food sources for the fungus. It is found on dead plants, woody plants, food, straw, soil, paint and textiles Antigens in commercial extracts are of variable quality and may degrade within weeks of preparation. **CLADOSPORIUM IS A COMMON CAUSE OF EXTRINSIC ASTHMA (IMMEDIATE-TYPE HYPERSENSITIVITY: TYPE I). ACUTE SYMPTOMS INCLUDE EDEMA AND BRONCHIOSPASMS; CHRONIC CASES MAY DEVELOP PULMONARY EMPHYSEMA.**

### HYPHAL ELEMENTS

Some types of Hyphal elements are pieces of fungal organisms than cannot be identified as to what genus then are from. They can be considered allergenic and indicative of active growth in

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the sampling vicinity

## ULOCLADIUM SPORES

Ulocladium Spores (widespread) are found on gypsum board, paper, paint tapestries, jute, and other straw materials. They have a high water requirement. Type I allergies (hay fever and asthma). Ulocladium cross-reacts with Alternaria, adding to the allergenic burden of Alternaria-sensitive patients.

### HOW THE RESULTS ARE INTERPRETED

When Professional Building Inspectors interpreted the attached laboratory results several documents were referenced, some of which are listed at the end of this document. Although there are no current Federal or State regulations with regard to mold, the **EPA** and the **New York City Department of Health and Mental Hygiene** have published guidance documents.

The Institute of Inspection Cleaning and Restoration Certification, **I.I.C.R.C.**, is a not for profit, independent certification body and this organization has developed **The Standard reference guide for Professional Mold Remediation, IICRC S-520.** This document is the only current standard and widely accepted in the industry. The standard defines three (3) environmental conditions related to mold levels and the category identified predicates the type of remediation to be followed. You will find the appropriate categories listed below when we discuss what has to be done to clean up the mold.

The American Conference of Governmental Industrial Hygienists, **A.C.G.I.H.**, develops Threshold Limit Values (TLV's) as a guideline to assist in the control of health hazards in the work place. There are no current TLV's for mold. The A.C.G.I.H. has stated that in non-problem environments the concentrations of fungi (mold) in indoor air typically is similar to or lower than the concentration seen outdoors, except when outdoor air concentrations are altered by weather conditions.

### HEALTH ADVISORY:

Environmentalists are not Doctors, and are prohibited, as they should be, from making any medically related recommendations. We always recommend that you **consult your healthcare provider** prior to handling mold or moldy items if you are unsure of your health or the health of others.

### WHAT NEEDS TO BE DONE

The upcoming spring and summer weather will result in a rise in **ambient relative humidity**

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**above 55% for several months.** For this reason we recommend that dehumidification units be brought into the apartment to not only dry down current humidity but to maintain an indoor environment that will not promote further mold growth. In the future, the if the tenants install and *continually* use window air-conditioners the humidity may be controlled. If, however, the window air conditioner units are not continuously operated the humidity in the building will likely persist above 55%.

**For Large Areas** (greater than 100 square feet in a contiguous area)

**I.I.C.R.C. Standard S-520 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.

- Remediation to be conducted by properly trained and equipped mold remediation workers
- The presence of a trained building or environmental health professional to provide oversight during remediation may be helpful to ensure quality work and compliance with the work plan.
- Workers to have training on proper cleaning methods, personal protection, and potential health hazards associated with mold exposure. This training to comply with the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200).
- Respiratory protection (e.g., N-95 disposable respirator), in accordance with the OSHA respiratory protection standard (29 CFR 1910.134), to be worn by all persons working in the apartment as part of the remediation effort.
- Glove and eye protection to be worn.
- The work area should be unoccupied by non trained personnel such as tenants, owners, etc.
  
- **Installation of negative air to maintain containment within unit 3F.**
- **Installation of HEPA air filtration.**
- **If a debris chute can installed on the exterior of the unit directly to a disposal container such as a box truck or dumpster this would be preferred.**
- **If an exterior chute is not possible the an air-lock within the unit must be established at the entry door. A manometer should be installed to insure the air lock and negative air machines are properly operating.**
- Seal any ventilation ducts/grills and common air shafts in the work area with 6 mil fireproof plastic sheeting.
- Efforts should be made to reduce dust generation. Dust suppression methods particularly during any cutting or resurfacing of materials are highly recommended. Methods to consider include: cleaning or gently misting surfaces with a dilute soap or detergent solution prior to removal.

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- Remove all contents from the apartment for either cleaning off site or disposal.
- Removal of soft goods as well, ie clothing, bedding, curtains, etc.
- The removal of and disposal of all carpeting and padding.
- Use of High-Efficiency Particulate Air (HEPA) vacuum-shrouded tools; or using a vacuum equipped with a HEPA filter at the point of dust generation. Work practices that create excessive dust should be avoided.
- Remove and dispose of all mold covered wall coverings, e.g. fabrics and wall paper.
- Our preference would be the removal of the mold covered wall board, plaster etc. from the entire unit, ceiling to floor.
- If, for cost concerns, you elect to clean and encapsulate these porous materials **please realize that this is not the recommended treatment for porous materials.**
- The contaminated sheetrock and other building materials from the walls and ceiling are to be removed from the building in heavy weight plastic bags, sealed while in containment and wiped down prior to removal to a disposal container if no external rubbish chute can be employed.. A disposal container in this instance can be a box truck or dumpster.
- There are no special requirements for the disposal of moldy materials once outside the apartment..
- The removal of all insulation associated with the removed sheetrock.
- The spraying of all exposed organic surfaces with an approved encapsulant such as Fosters 40/20 or equivalent . Such surfaces would include lumber framing, plywood, etc.
- The spraying of all exposed inorganic surfaces with approved disinfectant such as Fosters 40/80 or equal as determined by this firm.
- Any remaining exposed wall board or plaster to be treated with Fosters 40/20.
- Wipe down all non porous surfaces in the bathroom using a mildicide/surfactant solution.
- Use of air agitation to loosen all trapped spores.
- HEPA vacuuming of all surfaces.
- HEPA air scrubbing in the apartment to accomplish 8 air changes per hour for 72 hours.
- Plastic sheeting should be discarded after use
- Any soft goods that are felt to be contaminated can be cleaned using standard laundering products.
- All areas should be left dry and visibly free from mold, dust, and debris.
- Any clothing removed from the area may be cleaned using standard laundering products or dry cleaning.

**Note:** Because of the age of the building and construction methods used we suspect that there could be asbestos containing building materials as well as lead based paint in the building. We recommend you check with the local building authority and determine if a demolition permit is required due to the potential asbestos containing building materials.

You, the client of the right to authorize additional testing at any time. We can arrange for both

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asbestos inspections and a lead based paint inspection of the building to determine where these materials exist if at all.

**Note:** Your Certified Mold Remediation Contractor (CMR) may elect to modify this protocol based on information found during remediation provided such modification is recognized in the S-520 protocol. It is recommended you have your CMR fax or e-mail us a copy of any revisions to our protocols.

## REGARDING CLEARANCE TESTING

Air monitoring shall be conducted prior to occupancy to determine if the area remediated has been reduced to **Condition 1 levels, normal background levels of mold that do not require remediation**, and if the mold contaminated any other areas between initial testing and completion of abatement. Post remediation testing will include both the remediated area and the surrounding areas exterior to the containment area.

**All HEPA filters, air movers and fans need to be shut down for 24 hours flowing the above protocol before post remediation air samples can be taken. In addition, all windows, doors or exterior openings should be closed during this 24 hour period.**

Samples were analyzed in order to determine the type(s) and approximate amount of fungal components present at the sampling location(s). The samples analyzed represent the conditions present at the time of the collection, but we caution you that since Mold is a living species it has the potential to grow in areas not affected at the time of this testing. Since it is not possible to test all areas PBI follows accepted standards for the testing of visible mold and for Blind Testing where there is a suspicion of mold but none can be observed. You, as the client have the right to authorize additional testing for an additional fee at any time.

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This report was designed following current industry guidelines for the interpretation of microbial sampling and analysis utilized by the independent laboratories used by Professional Building Inspectors for the analysis of samples taken. Interpretation of these parameters is a scientific work in progress and may as such be changed at any time without notice. This report makes no express or implied warranty or guarantee as to the testing methodology used, and Professional Building Inspectors makes no express or implied warranties as to such use or interpretation.

Sincerely,

*Scott Gressin*

*Certified Indoor Environmental Consultant # 0705065  
NYS Home Inspector License #16000028893  
Certified EIFS Inspector #785806  
Certified Infrared Thermographer #32227  
NYS EPA Asbestos Inspector #07-07380  
EPA Lead Risk Assessor #NYR 17027-1*

## REFERENCE MATERIALS

**I.E.S.O.**, (Indoor Environmental Standards Organization), *Standards of Practice for the Assessment of Indoor Environmental Quality, 2<sup>nd</sup> Edition*

**I.I.C.R.C. Standard S-520**, *Standard and Reference Guide for Professional Mold Remediation.*

**U.S.E.P.A., Office of Air and radiation, Indoor Environments Division**, *Mold Remediation in Schools and Public Buildings*

**N.A.D.C.A. ACR 2006**, *Assessment, Cleaning and Restoration of HVAC Systems*

**N.Y.C. DOH**, *Guideline on Assessment and Remediation of Fungi in the Indoor Environment*

**U.S.E.P.A.**, *Building Air Quality, A Guide for building owners and facility Managers*

**A.C.G.I.H.**, *American Conference of Governmental Industrial Hygienists, Bioaerosols, Assessment and Control*