

DEPARTMENT DIRECTOR

Lee D. Urban



DIVISION DIRECTORS

Mark B. Adelson  
Housing & Neighborhood Services

Alexander Q. Jaegerman  
Planning

John N. Lufkin  
Economic Development

DEPARTMENT OF PLANNING AND DEVELOPMENT

April 18, 2003

WYMAN TERRY P &  
329 FORESIDE RD  
FALMOUTH, ME 04105

**CBL: 429 H001001**  
**Located at 27 VERANDA ST**

Certified Mail 70023150000642928542

Dear WYMAN TERRY P &,

An evaluation of the above-referenced property on 04/16/2003 that the structure fails to comply with Chapter 6. Article V. of the Code of Ordinances of the City of Portland, The Housing Code. Attached is a list of the violations.

This is a notice of violation pursuant to Section 6-118 of the Code. All referenced violations shall be corrected within 30 days of the date of this notice. A re-inspection of the premises will occur on 05/18/2003 at which time compliance will be required. Failure to comply will result in this office referring the matter to the City of Portland Corporation Counsel for legal action and possible civil penalties, as provided for in Section 1-15 of the Code.

This constitutes an appealable decision pursuant to Section 6-127 of the Code.

Please feel free to contact me if you wish to discuss the matter or have any questions.

Please be advised that the Portland City Council has amended the Building regulations to include a \$75.00 re-inspection fee. This violation will automatically cause a re-inspection at no charge. If there are any subsequent inspections, however, the \$75.00 fee will be assessed for each inspection.

Sincerely,

Marland Wing @ (207) 874-8696  
Code Enforcement Officer

**CITY OF PORTLAND**  
**DEPARTMENT OF PLANNING & URBAN DEVELOPMENT**  
389 Congress Street  
Portland, Maine 04101

**Housing Inspection Violations**

|   |                           |                                     |  |
|---|---------------------------|-------------------------------------|--|
| <b>Owner/Manager</b><br>WYMAN TERRY P & |                           | <b>Inspector</b><br>Marland Wing    | <b>Inspection Date</b><br>04/16/2003           |
| <b>Location</b><br>27 VERANDA ST        | <b>CBL</b><br>429 H001001 | <b>Status</b><br>Re-Inspect 30 Days | <b>Inspection Type</b><br>Complaint-Inspection |

| <b>Code</b>  | <b>Int/Ext</b> | <b>Floor</b> | <b>Unit No.</b> | <b>Area</b> | <b>Compliance Date</b> |
|--|----------------|--------------|-----------------|-------------|------------------------|
| 1) 6-108.2   | Interior       | right        | basem           | Bathroom    |                        |
| <b>Violation:</b> Interior floors, walls, ceilings and doors   |                |              |                 |             |                        |
| <b>Notes:</b> bathroom floor tiles missing   |                |              |                 |             |                        |
| 2) 6-108.2   | Interior       | right        | basem           | Kitchen     |                        |
| <b>Violation:</b> Interior floors, walls, ceilings and doors   |                |              |                 |             |                        |
| <b>Notes:</b> kitchen floor tiles missing  |                |              |                 |             |                        |
| 3) 6-108.3   | Interior       | right        | basem           | Kitchen     |                        |
| <b>Violation:</b> Exterior windows, doors and skylights  |                |              |                 |             |                        |
| <b>Notes:</b> kitchen sliding glass door will not shut properly. Framing is rotted. Must be repaired   |                |              |                 |             |                        |
| <b>Comments:</b> Tiles in bathroom and kitchen must be replaced. Slider will not shut tight wood is rotting in framework, this must also be addressed properly |                |              |                 |             |                        |

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## DEPARTMENT OF PLANNING AND DEVELOPMENT

September 19, 2003

WYMAN TERRY P &  
329 FORESIDE RD  
FALMOUTH, ME 04105

**CBL: 429 H001001**  
**Located at 27 VERANDA ST**

Certified Mail 70020510000333123064

Dear WYMAN TERRY P &,

An evaluation of the above-referenced property on 09/18/2003 shows that the structure fails to comply with Chapter 6, Article V. of the Code of Ordinances of the City of Portland, The Housing Code. Attached is a list of the violations.

This is a notice of violation pursuant to Section 6-118 of the Code. All referenced violations shall be corrected within 30 days of the date of this notice. A re-inspection of the premises will occur on 10/20/2003 at which time compliance will be required. Failure to comply will result in this office referring the matter to the City of Portland Corporation Counsel for legal action and possible civil penalties, as provided for in Section 1-15 of the Code.

This constitutes an appealable decision pursuant to Section 6-127 of the Code.

Please feel free to contact me if you wish to discuss the matter or have any questions.

Please be advised that the Portland City Council has amended the Building regulations to include a \$75.00 re-inspection fee. This violation will automatically cause a re-inspection at no charge. If there are any subsequent inspections, however, the \$75.00 fee will be assessed for each inspection.

Sincerely,

Arthur Rowe @ (207) 874-8697  
Building Inspector

**CITY OF PORTLAND**  
**DEPARTMENT OF PLANNING & URBAN DEVELOPMENT**

389 Congress Street  
 Portland, Maine 04101

**Inspection Violations**

|   |                           |                                     |  |
|---|---------------------------|-------------------------------------|--|
| <b>Owner/Manager</b><br>WYMAN TERRY P & |                           | <b>Inspector</b><br>Arthur Rowe     | <b>Inspection Date</b><br>09/18/2003                   |
| <b>Location</b><br>27 VERANDA ST        | <b>CBL</b><br>429 H001001 | <b>Status</b><br>Re-Inspect 30 Days | <b>Inspection Type</b><br>Complaint-Housing Inspection |

| <b>Code</b>   | <b>Int/Ext</b> | <b>Floor</b> | <b>Unit No.</b> | <b>Area</b> | <b>Compliance Date</b> |
|---|----------------|--------------|-----------------|-------------|------------------------|
| 1) 6-113.5  | Interior       | basemen      | 3b              | Kitchen     |                        |
| <b>Violation:</b> Maintenance of lighting fixtures  |                |              |                 |             |                        |
| <b>Notes:</b> kitchen range has melted wire to burner   |                |              |                 |             |                        |
| 2) 6-113.5  | Interior       | basemen      | 3b              | Kitchen     |                        |
| <b>Violation:</b> Maintenance of lighting fixtures  |                |              |                 |             |                        |
| <b>Notes:</b> complaint that electrical baseboard and thermostats were sparking and crackling |                |              |                 |             |                        |

**Comments:** A Master Licensed Electrician from the State of Maine must check the electrical baseboard heating system and make any necessary corrections

DESMOND & RAND, P.A.  
ATTORNEYS AT LAW

DANIEL J. DESMOND  
STEVEN W. RAND\*

\*Also admitted in MA

55 STROUDWATER STREET  
WESTBROOK, MAINE 04092

TEL 207-854-1218  
FAX 207-854-3502  
e-mail: srand@gbn1.com  
ddesmond@gbn1.com

August 29, 2003

429 H001

NOTICE OF TERMINATION OF TENANCY  
(30-Day Tenant at Will)

Kyra Pardue  
And All Other Occupants  
27 Veranda St., #3  
Portland, Maine

Dear Ms. Pardue:

Please be advised that I represent your Landlords, Drs. Bennas and Wyman. I am writing this letter to notify you that your tenancy of the property at 27 Veranda St., #3, Portland, Maine, will be terminated effective October 1, 2003.

Your obligation to pay rent is not affected by this Notice of Termination. Your failure to pay rent as it becomes due may result in an earlier termination of your tenancy than provided above. Your failure to pay any rent due and owing on the date of termination may result in the filing of collection proceedings against you.

You are required to vacate the premises on or before the above termination date. If you fail to so vacate the premises, immediate legal proceedings of Forcible Entry and Detainer will be commenced against you in the Ninth District Court in and for the County of Cumberland, located at Portland, Maine pursuant to 14 M.R.S.A. §6001 et seq.

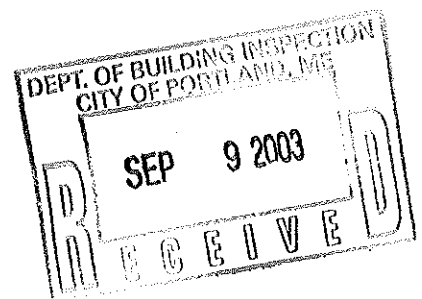
If you have any questions or concerns, please feel free to contact me.

Very truly yours,

  
Daniel J. Desmond

DJD/gmw

c:



Mercy Hospital  
Emergency Department  
144 State Street  
Portland, Maine 04101  
207-879-3265

EMERGENCY DEPARTMENT PATIENT INSTRUCTIONS

|   |  |                         |           |          |                            |             |             |
|---|--|-------------------------|-----------|----------|----------------------------|-------------|-------------|
| PAT ID : M000905201<br>VISIT # : AH0000019220                                   | REGISTRATION DATE/TIME<br>09/08/03 00:29 | BIRTHDATE<br>04/09/1980 | AGE<br>23 | SEX<br>F | MODE OF ARRIVAL<br>WALK IN | TRIAGE<br>3 | LOC<br>BAY1 |
| NAME/ADDRESS<br>PARDEE, KYRA L.<br>27 VERANDA STREET<br>PORTLAND, ME. 041030000 | HOME PHONE<br>(207) 774-5098             | REFERRING PHYSICIAN     |           |          |                            |             |             |
| CHIEF COMPLAINT<br>/ALLERGIC REACTION TO MOLD                                   |  |                         |           |          |                            |             | SITE NAME:  |

PHYSICIAN(S) YOU HAVE BEEN REFERRED TO

|   |  |
|---|--|
| MERCY PC - STATE ST,<br>144 STATE STREET<br>PORTLAND, ME. 04101       | Specialty: Family Practice<br>Phone #: 879-3040      |
| PORTLAND COMM FREE, CLINIC<br>103 INDIA STREET<br>PORTLAND, ME. 04101 | Specialty: Family Practice<br>Phone #: (207)874-8982 |

DIAGNOSIS

Allergy, allergic unspecified

DISCHARGE INSTRUCTIONS

ALLERGIC REACTION/HIVES

Hives are a form of an allergic reaction that causes an itchy rash and/or soft tissue swelling. It is caused by different things including food, medicines, or insect stings. In many cases the cause is never identified. Most cases go away on their own or with medications over 1-3 days, but the reaction can get worse and involve swelling in or around the mouth, and make breathing hard.

GENERAL INSTRUCTIONS...

1. If you know what caused the reaction, avoid these things in the future. If the cause has not been identified, it may be best to follow a bland diet. Avoid foods that are known to have a higher chance of causing allergies (nuts, shellfish, eggs, citrus fruit). Foods that have many additives or colorings, can also sometimes cause allergic reactions. Simple foods that are fresh or frozen are best.
2. For the itching, you may use cool compresses or bathe in cool water, or cool water with 2 Tbsp baking soda or 1 cup of Aveeno powder (sold over the counter in drug stores).
3. Avoid using any medications other than those by your doctor, as even common medicines such as aspirin and ibuprofen can cause allergic reactions.
4. Medicines may help the itching. Take any medicine prescribed as directed.

\*\*Remember that most antihistamine medicines (such as Benadryl and Vistaril) may make you sleepy!!  
Do not drive when using these!

CALL YOUR DOCTOR OR THE PROVIDER YOU WERE REFERRED TO:

To make an appointment to be rechecked if not getting better in 1-2 days.

RETURN TO EMERGENCY DEPARTMENT OR CALL YOUR DOCTOR IMMEDIATELY IF...

1. You develop any difficulty breathing or feel short of breath.
2. You develop swelling of your lips or tongue, or if you feel your throat is becoming tight or swollen.

Mercy Hospital  
Emergency Department  
144 State Street  
Portland, Maine 04101  
207-879-3265

**EMERGENCY DEPARTMENT PATIENT INSTRUCTIONS**

|   |  |                         |           |          |                            |             |             |
|---|--|-------------------------|-----------|----------|----------------------------|-------------|-------------|
| PAT ID : M000905201<br>VISIT #: AH0000019220                                    | REGISTRATION DATE/TIME<br>09/08/03 00:29 | BIRTHDATE<br>04/09/1980 | AGE<br>23 | SEX<br>F | MODE OF ARRIVAL<br>WALK IN | TRIAGE<br>3 | LOC<br>BAY1 |
| NAME/ADDRESS<br>PARDUE, KYRA L.<br>27 VERANDA STREET<br>PORTLAND, ME. 041030000 | HOME PHONE<br>(207)774-5098              | REFERRING PHYSICIAN     |           |          |                            |             |             |
| CHIEF COMPLAINT<br>/ALLERGIC REACTION TO MOLD                                   |  |                         |           |          |                            |             | SITE NAME:  |

**DISCHARGE INSTRUCTIONS continued**  
**DISCHARGE INSTRUCTIONS**

Discharge Instructions: REST, AVOID STAYING AT THE APT. UNTIL ENVIRONMENTAL SERVICES HAS EVALUATE IT, CONTINUE THE BENADRYL EVERY 6 HRS FOR THE NEXT 4 DAYS, TAKE THE ZYRTEC -D EVERY 12 HRS, RETURN IF WORSE, FOLLOW WITH PORTLAND FREE CLINIC OR MERCY PRIMARY CARE---CALL FOR APPT IN THE NEXXT 2 DAYS.

**PREPRINTED DISCHARGE SHEET**

Patient given Mercy Emergency Department Discharge Instruction sheet and was informed as to proper follow-up and reasons to return to the emergency department.

The complete practice of medicine includes proper follow-up care. We have examined and treated you today on an emergency basis only. This is not a substitute for, or an effort to provide, complete medical care. If you have a primary care provider, such as a family doctor, this provider should be notified of this emergency visit as soon as possible. If you do not have a provider for follow-up, the name of a staff provider can be furnished. Let them know you have been referred from Mercy Emergency Department. It is sometimes impossible to recognize and treat all injuries or illnesses in a single Emergency Department visit. If you had special test such as EKG's and X-Rays, we will review them with a specialist within 24 hours. We may call you if there are any new findings or instructions. You may have had a culture done in the Emergency Department. A Culture is a test that takes at least 72 hours before the results are ready. If the Emergency department physician has already initiated treatment, we will call you ONLY if the culture indicates that your treatment needs to be changed or extended. If no treatment was begun by the Emergency Department doctor, we will call you ONLY if the culture indicates that you need treatment.

**IF THIS INJURY/VISIT IS WORK RELATED, PLEASE CHECK WITH YOUR EMPLOYER REGARDING THE EXPECTED FOLLOW UP PLAN.**

\_\_\_\_\_  
signature of patient/guardian

Owens, James M DO

M.D.

\_\_\_\_\_  
signature of physician

Acute Visit Record

Name: Tyler Pardue DOB: 10/3/00 Today's Date: 6/18/03  
 Weight: 42# Vital signs: T \_\_\_\_\_ HR \_\_\_\_\_ RR \_\_\_\_\_ B/P \_\_\_\_\_ O<sub>2</sub> Saturation \_\_\_\_\_

Reason for visit: alleges asthma - to mold M/ARN Initials: \_\_\_\_\_  
 HPI: Ø meds.

whole diet (milk, eggs, wheat) (since birth)

|   |  |
|---|--|
| <b>General appearance</b><br><input type="checkbox"/> NAD <input type="checkbox"/> responsive <input type="checkbox"/> fussy <input type="checkbox"/> smiling<br><input type="checkbox"/> other:  | <b>Lymphatics</b><br><input type="checkbox"/> no lymphadenopathy<br><input type="checkbox"/> other:  |
| <b>Skin</b><br><input type="checkbox"/> warm <input type="checkbox"/> pink<br><input type="checkbox"/> rash:<br><input type="checkbox"/> other:   | <b>Chest / Lungs</b> <input type="checkbox"/> PEF:<br><input type="checkbox"/> clear respirations: <input type="checkbox"/> unlabored <input type="checkbox"/> labored<br><input type="checkbox"/> wheezes:<br><input type="checkbox"/> other: |
| <b>Head</b><br><input type="checkbox"/> normocephalic<br><input type="checkbox"/> other:  | <b>Heart / Pulses</b><br><input type="checkbox"/> Regular rate <input type="checkbox"/> Regular rhythm <input type="checkbox"/> murmur:<br><input type="checkbox"/> other:   |
| <b>Eyes</b><br><input type="checkbox"/> conjunctivae clear <input type="checkbox"/> PERRL<br><input type="checkbox"/> discharge:<br><input type="checkbox"/> other:   | <b>Abdomen</b><br><input type="checkbox"/> soft <input type="checkbox"/> tender <input type="checkbox"/> bowel sounds<br><input type="checkbox"/> organomegaly:<br><input type="checkbox"/> masses:<br><input type="checkbox"/> other:         |
| <b>Ears : canals:</b> <input type="checkbox"/> R <input type="checkbox"/> L <input type="checkbox"/> clear <input type="checkbox"/> other:<br><b>TM's: R:</b> <input type="checkbox"/> translucent <input type="checkbox"/> mobile <input type="checkbox"/> red <input type="checkbox"/> bulging <input type="checkbox"/> perforation<br><b>L:</b> <input type="checkbox"/> translucent <input type="checkbox"/> mobile <input type="checkbox"/> red <input type="checkbox"/> bulging <input type="checkbox"/> perforation<br><input type="checkbox"/> other: | <b>Genitalia:</b> <input type="checkbox"/> Female <input type="checkbox"/> Male<br><input type="checkbox"/> normal appearance <input type="checkbox"/> discharge:<br><input type="checkbox"/> other:   |
| <b>Nose</b><br><input type="checkbox"/> rhinorrhea <input type="checkbox"/> color:<br>mucosa: <input type="checkbox"/> pink <input type="checkbox"/> pale <input type="checkbox"/> boggy<br><input type="checkbox"/> other:   | <b>Musculo-skeletal</b><br><input type="checkbox"/> ROM <input type="checkbox"/> normal tone<br><input type="checkbox"/> Stable  |
| <b>Mouth / Oropharynx</b><br>mucosa: <input type="checkbox"/> clear <input type="checkbox"/> other:<br>tonsils: <input type="checkbox"/> clear <input type="checkbox"/> enlarged <input type="checkbox"/> exudate <input type="checkbox"/> erythema<br><input type="checkbox"/> other:  | <b>Neurologic</b><br><input type="checkbox"/> Reflexes intact<br><input type="checkbox"/> Cranial nerves intact<br><input type="checkbox"/> Other:   |
| <b>Neck</b><br><input type="checkbox"/> supple <input type="checkbox"/> no masses <input type="checkbox"/> ROM<br><input type="checkbox"/> other:   |  |

Assessment: Ø, Allergic to mold

Plan: Ø - new home (no mold)

Rx: \_\_\_\_\_  
 Signature: \_\_\_\_\_



MERCY PRIMARY CARE ASSOCIATES  
MICHAEL CIAMPI, M.D.      KATHRYN LONDON-MALONE, PNP-C  
STEPHEN DONNELLY, D.O.      CHRISTOPHER PEZZULLO, D.O.  
LISA A. GOULDSBROUGH, D.O.      MAILE J. ROPER, D.O.  
HEIDI LARSON, M.D.      KATHY TRUGLOW, FNP-C  
616 FOREST AVENUE PORTLAND, MAINE 04101  
(207) 761-6910

Name Tyler Padua Age \_\_\_\_\_  
Address \_\_\_\_\_

R      DEA \_\_\_\_\_      Date 6/29/01

*Tyler's mom must be able to  
leave current apartment. The  
current mild fibrillation is  
unhealthy and dangerous  
for this child. Call me  
if you have any questions.*

Label with any questions.  
Refill \_\_\_\_\_ Times      PRN      NR

*[Signature]* \_\_\_\_\_ M.D./D.O./PA-C  
Any drug which is the generic or chemical equivalent of the drug specified above in this prescription may be dispensed provided that the drug dispensed is listed in the current edition of either the national Formulary or the United States Pharmacopeia and provided that no check mark (✓) has been handwritten in the box in the right-hand lower corner.

Director  
Lee D. Urban



Division Directors  
Mark B. Adelson  
Housing & Neighborhood Services

Alexander Q. Jaegerman  
Planning

John N. Lufkin  
Economic Development

DEPARTMENT OF PLANNING AND DEVELOPMENT

November 7, 2003

Terry P. Wyman & James Bennis Jr.  
329 Foreside Road  
Falmouth, ME 04105

RE: 27 Veranda St.  
CBL: 429-H-001

Dear Mr. Wyman and Mr. Bennis:

This office requires the following action take place prior to the reoccupancy of unit # 3:

1. That the services of a company capable of removing mold in a manner consistent with EPA accepted guidelines.
2. That the remediation occur and that testing occur from an accredited testing agency.
3. That the unit remain unoccupied until such time as results from the agency meet acceptable standards for human habitation.

Please feel free to contact me @ 874-8697, if you wish to discuss the matter or have any questions.

Yours truly,

Arthur Rowe

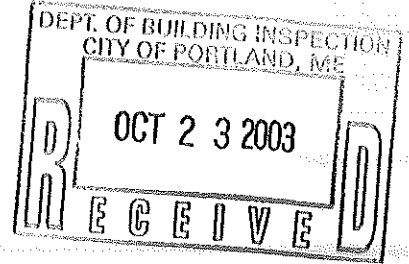
Urgent



COMMERCIAL & INDUSTRIAL ENVIRONMENTS

October 15, 2003

Ms. Kyra Pardue  
240 Danforth Street  
Apartment 204  
Portland, Maine 04101



Re: Microbial Assessment  
27 Veranda Street, Unit 3, Portland, Maine  
CIE # 1227-03  
429 H 001

Dear Ms. Pardue:

*Commercial and Industrial Environments (CIE)* was retained by Ms. Kyra Pardue to conduct a Microbial Assessment on September 30, 2003 at 27 Veranda Street, unit 3, located in Portland, Maine. Onsite personnel representing CIE was Jay Nadeau, Certified Indoor Environmentalist.

This Microbial Assessment was conducted to identify deficiencies associated with the building and conditions potentially affecting the indoor air quality in an adverse manner with regards to mold. This non-intrusive investigation is limited to the exposed surfaces of building components and non-destructive sampling methods. Occupants expressed current concerns regarding visible discoloration indicative of microbial activity and musty odors within multiple areas of the structure. The age of the occupants during this investigation ranged from infant, toddler to adult aged individuals.

**Structure Overview:**

This residential apartment structure is a three level wood frame structure located on a concrete foundation with a daylight style basement. The exterior building components consist of wood siding and a pitched asphalt-fiberglass shingled roof system. Basement apartments remain below grade with a concrete slab as the substrate flooring. The interior building components consist of vinyl linoleum/carpet/wood tile floor surfaces and gypsum wallboard on walls and ceilings throughout the apartment. Thermal conditioning is provided through radiant baseboard heat.

**Outside conditions during the investigation are as follows:**

**Portland, Maine**

September 30, 2003; clear skies, average temperature 60.80 °F, relative humidity 52 %, dew point 42.80 °F, average wind speed 10.4 miles per hour.

**Evaluation Equipment**

Dri-Eaz Hydrosensor II – Parameter: Evaluate Moisture Content.

COMMERCIAL & INDUSTRIAL ENVIRONMENTS

4 SUMAC DRIVE BRUNSWICK, MAINE 04011 PHONE/FAX (207) 725-9211

## COMMERCIAL &amp; INDUSTRIAL ENVIRONMENTS

Tramex Survey Encounter -- Parameter: Evaluate Moisture Content.

Values obtained during this investigation were compared to documentation and guidelines provided by the following agencies:

*U.S. Environmental Protection Agency (EPA)*  
*World Health Organization (WHO)*  
*American Industrial Hygiene Association (AIHA)*  
*The Occupational Safety and Health Administration (OSHA)*  
*The New York City Department Of Health*

*This document is not to be construed as absolute guidelines, but as a tool to assist in the remediation process of conditions discovered during the investigation that may adversely affect indoor air quality.*

## General Observations

### Unit 3

#### ***Rear Bedroom Adjacent To Living Room:***

- Multiple areas of discoloration indicative of microbial activity were observed on gypsum wallboard material along the perimeter wall in the closet area. Additionally, the carpeted floor surface contained multiple areas of discoloration indicative of microbial activity. Moisture content within these surfaces have been examined utilizing direct read instrumentation and found to contain slightly elevated concentrations as compared to adjacent areas not containing discoloration. Samples were collected of these areas to identify concentrations of fungal activity.

#### ***Bathroom Area:***

- Observations revealed evident moisture under the ceramic tile floor surface adjacent to the shower unit. Surfaces of building materials did not reveal discoloration indicative of microbial activity, however intrusive investigation could not be conducted to evaluate the inner portions of wall systems, etc.

#### ***Wall System:***

- Photographical evidence and interviews of occupants revealed historical flooding in unit 3 as well as discoloration within several areas of the perimeter and interior wall systems. As previously mentioned, intrusive investigation could not be performed to examine current conditions within the wall cavity.

## COMMERCIAL &amp; INDUSTRIAL ENVIRONMENTS

## Microbial Sampling Results

Microbial sampling is performed when microbial induced disease is present, and/or microbial reservoirs or amplification sites are observed or suspected during the indoor air quality evaluation. If microbial sources are present, knowledge of the precise nature and extent of the contamination is useful for determining remediation protocol. There are currently no published standards or regulations stipulating maximum allowable concentrations of bio-aerosols in occupied buildings. To determine whether areas of microbial reservoirs or amplifications sites exist within the indoor environment, one must consider the bio-diversity of the fungi indoors as compared to the outdoors. So samples collected indoors will be examined for fungal concentrations not identified within the outdoor environment.

Microbial sampling for airborne fungi was accomplished utilizing a two-plate protocol culture plate method and an Andersen N-6 impactor with a sampling time of five minutes each at 28.3 liters of air per minute. The culture plate agar media consisted of Malt Extract Agar (MEA) and Sabdex Agar. All microbial samples were submitted to an independent laboratory for analysis.

*Aerosol Samples (Andersen N-6 Impactor Onto MEA And Sabdex Agar Culture Plates –Viable)  
27 Veranda Street, Portland, Maine – Unit 3:*

*A-1 (428045);* was collected from the ambient air within the rear bedroom adjacent to the living room, in the approximate center of the room. The predominant fungal genus is Cladosporium sp. Additionally, the fungal genus Aspergillus Niger, Penicillium sp. Basidiomycetes sp. and Mucor sp. have also been identified in this sample.

*A-2 (428046);* was collected from the ambient air within the kitchen area. The sample location was the approximate center of the kitchen. The predominant fungal genus is Cladosporium sp. Additionally, the fungal genus Penicillium sp., Basidiomycetes sp., Fusarium sp., Aspergillus Niger, Mucor sp. and Aspergillus Ochraceus have also been identified in this sample.

*A-3 (438047);* was collected from the ambient outside air. The sample location was approximately 20 feet from the structure in the back yard. The predominant fungal genus is Cladosporium sp. Additionally, the fungal genus Chaetomium sp., Non-Sporulating-Fungi, Mucor sp., Epicoccum sp., Basidiomycetes sp. and Penicillium sp. have also been identified in this sample.

Again, as a general guideline the genus of fungi collected from the indoor environment should similarly match outdoor samples.

Comparison of the indoor samples to the samples collected outdoors indicates similar biodiversity of airborne microbial activity within the structure as compared to the outside conditions. However, concentrations outside remain lower with respect to the fungal genus Cladosporium sp., and Penicillium sp. Additional concentrations of fungal activity identified within the structure and not in

## COMMERCIAL &amp; INDUSTRIAL ENVIRONMENTS

the outside sample remain very low and currently cannot be attributed to a particular microbial amplification site due to the limited investigation.

***Tape Lift Sample***

*27 Veranda Street, Portland, Maine – Unit 3:*

*T-1 (428043);* was collected from the rear bedroom adjacent to the living room, discoloration on the corner molding the closet area. The tape lift sample identified highly abundant concentrations of the fungal genus *Cladosporium sp.* as well as *Aspergillus sp./ Penicillium sp.* that suggests a significant microbial amplification site. The qualified independent laboratory reports the results in a qualitative scale with ratings of Rare (*1 to 5 spores*) to Loaded (*too numerous to count*). This sample received a rating of Loaded, again suggesting current microbial amplification.

***Bulk Sample***

*27 Veranda Street, Portland, Maine – Unit 3:*

*B-1 (428044);* was collected from the rear bedroom adjacent to the living room, discoloration on the backing of the carpeted floor surface. The bulk sample identified highly abundant concentrations of the fungal genus *Cladosporium sp.* as well as *Aspergillus sp./ Penicillium sp.* that suggests a significant microbial amplification site. This sample received a rating of Loaded, again suggesting current microbial amplification.

The results of the bulk and tape lift samples collected do suggest significant microbial amplification on each area sampled and can be correlated to the elevated ambient air concentrations of *Cladosporium sp.* as well as *Penicillium sp.* and *Aspergillus sp.* within the structure.

## Remediation Of Microbial Activity

At this juncture, it is imperative that the deficiencies leading to the moisture infiltration are corrected and the building materials identified as containing microbial activity be cleaned and/or removed before the existing microbial activity is allowed to proliferate. Given the fact that each individual's susceptibility to exhibit health effects related to fungal species exposure varies, the remediation must be accomplished in a manner that does not render microbial activity airborne without first implementing engineering controls to limit the area contacted by microbial activity.

*Commercial & Industrial Environments* strongly recommends that all microbial remediation be conducted following guidelines established by the New York City Department of Health, Bureau of Environmental & Occupational Disease Epidemiology. This document entitled Guidelines on Assessment and Remediation of Fungi in Indoor Environments outlines engineering controls, work practices and guidelines to be implemented during remediation of microbial contaminated materials. Onsite supervision and monitoring is also recommended.

## COMMERCIAL &amp; INDUSTRIAL ENVIRONMENTS

## Summary And Recommendations

General observations revealed discoloration indicative of microbial activity in the closet perimeter wall gypsum wallboard in the rear bedroom adjacent to the living room area of unit 3, located at 27 Veranda Street, in Portland, Maine. Additionally, discoloration indicative of microbial activity was observed on the carpeted floor surface in this same area. Each material was sampled for fungal activity identification. The sample results indicate each area contains significant microbial amplification. The fungal activity within these building materials has been identified as the fungal genus *Cladosporium sp.* as well as *Aspergillus sp./Penicillium sp.* Samples collected from the ambient air also confirm the presence of *Cladosporium sp.* and *Aspergillus sp./Penicillium sp.* in concentrations elevated as compared to the ambient outside air.

Building materials harboring microbial amplification sites should be properly remediated. The remediation must be accomplished in a manner that does not render microbial activity airborne without first implementing engineering controls to limit the area contacted by microbial activity. The guidelines established by the *New York City Department of Health, Bureau of Environmental & Occupational Disease Epidemiology* outlines engineering controls, work practices and personal protective equipment to be implemented during remediation of microbial contaminated materials. Additionally, the New York City Department of Health Guidelines recommends individuals most susceptible to microbial activity (e.g. infants, children, pregnant women) be relocated during remediation/renovation projects involving mold.

Personal items within the structure should also be addressed due to the ambient concentrations of microbial activity and the proximity of significant microbial amplification. According to the New York City Department of Health Guidelines, non-porous (e.g. metals, glass and hard plastics) and semi-porous (e.g. wood, etc.) materials that contain visible mold should be cleaned unless structurally unsound (damaged by microbial activity). Porous items (e.g., fabrics, etc.) can be cleaned, but should be discarded if possible.

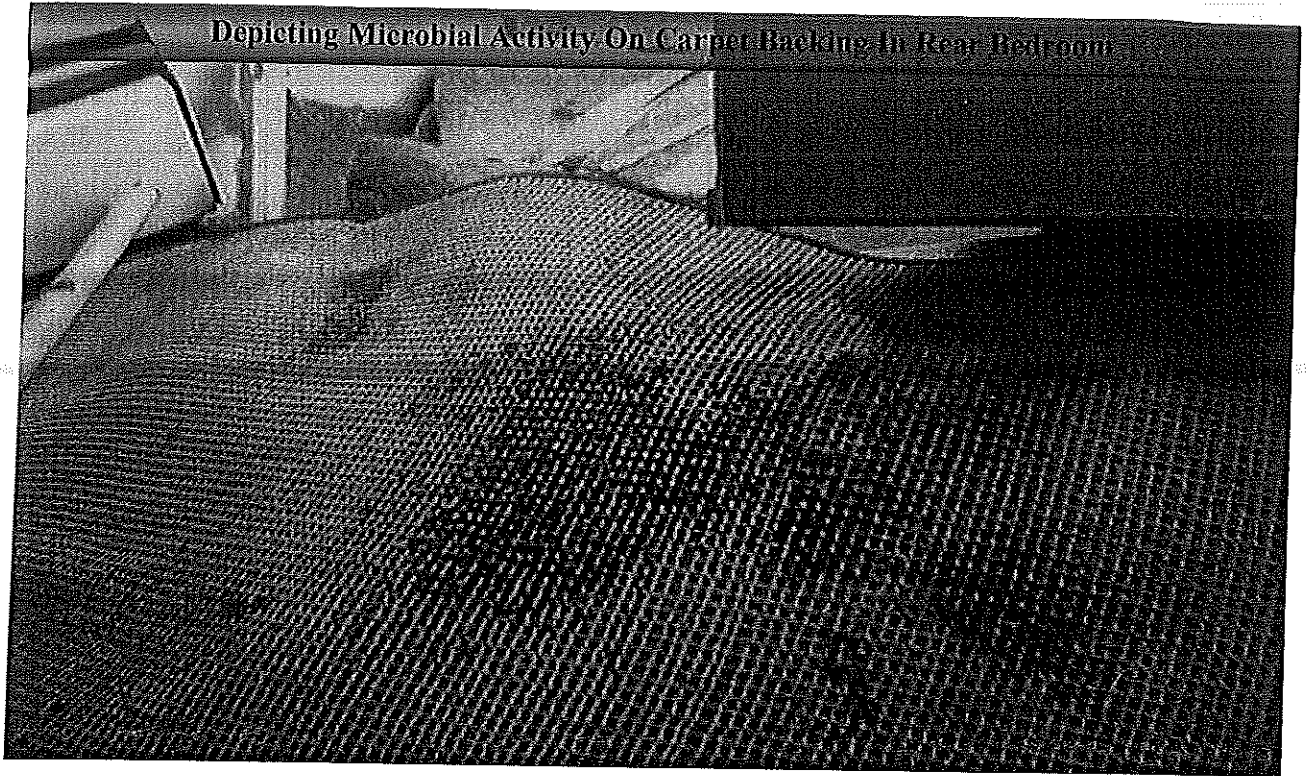
If you have any questions or concerns regarding this report, please contact me at (207) 725-9211. We appreciate the opportunity to assist you with your environmental needs. Thank you for your time.

Sincerely,

Jay A. Nadeau  
Certified Indoor Environmentalist



COMMERCIAL & INDUSTRIAL ENVIRONMENTS





COMMERCIAL & INDUSTRIAL ENVIRONMENTS  
**MICROBIAL AEROSOL ANALYSIS**

*27 Veranda Street, Unit 3, Portland, Maine*

Date: September 30, 2003

Analysis Method: Microbial Aerosol Culture In MEA & Sabdex Plates For Fungal Genus Identification  
Independent Laboratory: Pure Earth Environmental Laboratory AIHA Accredited, AOAC Proficiency Testing Program

Sampling Device: High Volume Air Pump, 28.3 Liters Per Minute, Total 5 Minutes

| LAB #   | LOCATION     | COUNT | PARAMETER              |
|---|--------------|-------|------------------------|
| 428045<br>(H-1)                                   | Unit 3, Rear |       |                        |
|   | Bedroom,     | 4     | Penicillium sp.        |
|   | Center       | 55    | Cladosporium sp.       |
|   |              | 1     | Basidiomycetes sp.     |
|   |              | 1     | Aspergillus Niger      |
|   |              | 1     | Mucor sp.              |
| Total Colony Forming Units Per Cubic Meter Of Air |              |       | 473 CFU/M <sup>3</sup> |
| 428046<br>(H-2)                                   | Unit 3,      |       |                        |
|   | Kitchen,     | 50    | Cladosporium sp.       |
|   | Center       | 10    | Penicillium sp.        |
|   |              | 4     | Basidiomycetes sp.     |
|   |              | 1     | Fusarium sp.           |
|   |              | 1     | Aspergillus Niger      |
|   |              | 1     | Mucor sp.              |
|   |              | 1     | Aspergillus Ochraceus  |
| Total Colony Forming Units Per Cubic Meter Of Air |              |       | 544 CFU/M <sup>3</sup> |
| 428047<br>(H-3)                                   | Unit 3,      |       |                        |
|   | Outside Air  | 38    | Cladosporium sp.       |
|   | South Wall   | 1     | Chaetomium sp.         |
|   |              | 7     | Non-Sporulating Fungi  |
|   |              | 1     | Mucor sp.              |
|   |              | 4     | Penicillium sp.        |
|   |              | 2     | Epicoccum sp.          |
|   |              | 1     | Basidiomycetes sp.     |
| Total Colony Forming Units Per Cubic Meter Of Air |              |       | 410 CFU/M <sup>3</sup> |

Note: The samples collected were submitted to an independent laboratory for analysis.

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# MICROBIAL BULK SAMPLE ANALYSIS

*27 Veranda Street, Unit 3, Portland, Maine*

Date: September 30, 2003

Analysis Method: Microscopic Exam For Fungal Species

Independent Laboratory: Pure Earth Environmental Laboratory AIHA Accredited, AOAC Proficiency Testing Program

| <u>LAB #</u> | <u>LOCATION</u>                                | <u>QR</u> | <u>PARAMETER</u>                                |
|--------------|--|-----------|---|
| 428044       | Unit 3,<br>Bedroom,<br>Discoloration On Carpet | Loaded    | Aspergillus/Penicillium sp.<br>Cladosporium sp. |

KEY:

QR = QUANTIFICATION RATING

QR SCALE: Rare = 1-5 Spores  
Few = 6-10 Spores  
Moderate = 11-50 Spores  
Many = >50 Spores  
Loaded = Too Numerous To Count Spores

Note: The samples collected were submitted to an independent laboratory for analysis.

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# MICROBIAL TAPE LIFT SAMPLE ANALYSIS

*27 Veranda Street, Unit 3, Portland, Maine*

Date: September 30, 2003

Analysis Method: Microscopic Exam For Fungal Species

Independent Laboratory: Pure Earth Environmental Laboratory AIHA Accredited, AOAC Proficiency Testing Program

| <u>LAB #</u> | <u>LOCATION</u>                                | <u>QR</u> | <u>PARAMETER</u>                                |
|--------------|--|-----------|---|
| 428043       | Unit 3,<br>Bedroom,<br>Discoloration In Closet | Loaded    | Aspergillus/Penicillium sp.<br>Cladosporium sp. |

KEY:

QR = QUANTIFICATION RATING

QR SCALE: Rare = 1-5 Spores  
Few = 6-10 Spores  
Moderate = 11-50 Spores  
Many = >50 Spores  
Loaded = Too Numerous To Count Spores

Note: The samples collected were submitted to an independent laboratory for analysis.

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## COMMERCIAL &amp; INDUSTRIAL ENVIRONMENTS

## Fungal Glossary

*Aspergillus Niger*

*Aspergillus niger* is the third most common *Aspergillus* species associated with invasive pulmonary aspergillosis. It is a very common environmental isolate found in a great variety of substrates including textiles, grains, fruits and vegetables, and soil. It is commonly associated with "fungus ball", a condition where the fungus actively grows in the human lung forming a ball, without invading lung tissue. *Aspergillus niger* and *Aspergillus fumigatus* have been reported to cause skin diseases and are a common cause of fungal related ear infections (otomycosis). *Aspergillus niger* generates many types of secondary metabolites including malformin C and some of the naphtho-y-quinones. (Aw 0.77 - >0.97) Culture - Potato dextrose agar or Malt extract agar, 20° - 25°C.

*Aspergillus sp.*

*Aspergillus* is a common type I & III allergen. They are frequently isolated from forest products, soils, grains, nuts, cotton, organic debris, and water damaged building materials. Spores can also be found in moist ventilation systems and house dust. There are more than 160 different species of *Aspergillus*, sixteen of which have been documented as etiological agents of human disease but rarely occur in individuals with normally functioning immune systems. However, due to the substantial increase in populations of individuals with HIV, chemotherapy patients and those on corticosteroid treatment, contamination of building substrates with fungi, particularly *Aspergillus* is of concern. Aspergillosis is now the second most common fungal infection requiring hospitalization in the United States. Many *Aspergillus* species produce mycotoxins that may be associated with diseases in humans and other animals. Toxin production is dependent on the species or strain within the species and on the food source for the fungus. Some of these toxins are carcinogenic including aflatoxins and ochratoxin. *Aspergillus* is a common cause of extrinsic asthma with symptoms including edema and bronchospasms, and chronic cases may develop pulmonary emphysema. These fungi are frequently secondary opportunistic pathogens in patients with bronchiectasis, carcinoma, other mycosis, sarcoid, and tuberculosis. Some species can also cause onychomycosis (infection of the nail). (Aw - 0.71 - 0.94). Culture - Potato dextrose agar or Malt extract agar, 20° - 25°C, 7 - 10 days. Speciation of *Aspergillus* requires the culture of the fungus under different conditions of media, humidity, and temperature.

*Basidiospore (Basidiomycetes)*

Basidiospores are a general category of sexual spores that have been released from the basidium of a fungus. A ubiquitous type I & III allergen, saprobe and plant pathogen, mainly found in gardens, forests, and woodlands. Spores disseminate during rain or in times of high humidity. Rarely opportunistic pathogens, Basidiospores may produce toxins, including amanitins, monomethyl-hydrazine, muscarine, ibotenic acid, and psilocybin. Basidiospores are an agent of dry wood rot, which may destroy the structure wood of buildings.

*Chaetomium sp.*

*Chaetomium sp.* is found on a variety of substrates containing cellulose including paper and plant compost. Several species have been reported to play a major role in decomposition of cellulose-made materials. These fungi are able to dissolve the cellulose fibers in cotton and paper and thus cause the materials to disintegrate. The process is especially rapid under moist conditions. During the Second World War countries lost a great deal of equipment to these species. It is reported to be allergenic. It is an ascomycete, in most species, the spores are lemon-shaped, with a single germ pore. The spore column results from the breakdown of the asci within the body of the perithecium. The perithecia of *Chaetomium* are superficial and barrel-shaped, and they are clothed with dark, stiff hairs. It can produce an *Acremonium*-like state (imperfect stage) on fungal media. Cultivation - Potato dextrose agar, 24° to 26°C.

*Cladosporium sp.*

*Cladosporium sp.* - (Aw - 0.84 - 0.88). *C. herbarum* is the most frequently found species in outdoor air in temperate climates. It is often found indoors, usually in lesser numbers than outdoors. The dry conidia become easily airborne and are

## COMMERCIAL &amp; INDUSTRIAL ENVIRONMENTS

transported over long distances. This fungus is often encountered in dirty refrigerators, especially in reservoirs where condensation is collected. On moist window frames, it can easily be seen covering the whole painted area with a velvety olive-green layer. Cladosporium often discolors interior paint, paper, or textiles stored under humid conditions. Houses with poor ventilation, houses with thatched straw roofs and houses situated in low damp environments may have heavy concentrations of Cladosporium, which will be easily expressed when domestic mold is analyzed. It is commonly found on the surface of fiberglass duct liner in the interior of supply ducts. It is also found on dead plants, woody plants, food, straw, soil, paint, and textiles. The ability to sporulate heavily, ease of dispersal, and buoyant spores makes this fungus the most important fungal airway allergen; and together with *Alternaria*, it commonly causes asthma and hay fever in the Western hemisphere. A few species of this genus cause disease, which range from phaeohyphomycosis, a group of mycotic infections characterized by the presence of demataceous septate hyphae. Infections of the eyes and skin by black fungi (also classified as phaeohyphomycosis), and chromoblastomycosis, chronic localized infection of the skin and subcutaneous tissue that follows the traumatic implantation of the etiologic agent are also caused by this fungus. Chromoblastomycosis lesions are verrucoid, ulcerated, and crusted. Skin abscesses, mycotic keratitis and pulmonary fungus ball have been recorded in immuno-compromised patients. It may also cause corneal infections and mycetoma, characterized by localized infections that involve cutaneous and subcutaneous tissue, fascia, and bone consisting of abscesses, granulomata, and draining sinuses, usually in immuno-compromised hosts. Fungal colonies are powdery or velvety olive-green to olive-brown. Other characteristics include dark conidia 1- or 2-celled, variable in shape and size, ovoid to cylindrical and irregular, typically lemon-shaped. Cultivation - Potato dextrose agar, 24°C.

*Epicoccum sp.*

*Epicoccum sp.* - It is commonly found as a secondary invader in plants, soil, grains, textiles and paper products where Cladosporium and Aureobasidium are present. It is mostly saprophytic, or weakly parasitic. *Epicoccum* is frequently isolated from air and occasionally occurs in house dust. Reported to be an allergen but not in a high frequency. Due to the ability of this fungus to grow at 37°C, it can cause infection of skin in humans. Morphological characteristics are production of dark conidia, several-celled (15-celled), globose, verrucose, 15-25 microns in diameter, and in a fruiting body (sporodochium). Cultivation - Potato dextrose agar, 24°C.

*Fusarium sp.*

*Fusarium sp.* - (Aw 0.90). Commonly found in soil, plants, grains, and often times it is found in humidifiers. This fungus is the most common cause of mycotic keratitis. This mold has been isolated from skin lesions on burn patients, nail infections, ear infections, varicose ulcer, mycetoma, osteomyelitis following trauma, and disseminated infection. This fungus produces very harmful toxins, especially in storage of infected crops. These toxins, known as trichothecene (scierpene) toxins target the circulatory, alimentary, skin, and nervous systems. *Fusarium* can also produce 1). Vomotoxin on grains which has been associated with outbreaks of acute gastrointestinal illness in humans. 2). T-2 Toxin and related trichothecenes are some of the deadliest known toxins. If ingested in sufficient quantity, T-2 toxin can severally damage the entire digestive tract and cause rapid death due to internal hemorrhage. 3). Fumusin, commonly found in corn and corn based products, with recently outbreaks of veterinary mycotoxicosis causing "crazy horse disease". 4). Zearalenone toxin which is similar in chemical structure to the female sex hormone estrogen and targets the reproductive organs. Morphological characteristics of this fungus include extensive cotton-like mycelium in culture, often with some tinge of pink, purple or yellow. Cultivation - Potato dextrose agar, 24°C.

*Mucor sp.*

*Mucor sp.* Often found in soils, dead plant material (hay), horse dung, fruits and fruit juice. It is also found in leather, meat, dairy products, animal hair, and jute. It is almost always in house dust, frequently in air samples and old dirty carpets. Wood chips and sawdust are often attacked by *M. plumbeus* causing "wood chips disease" and "furrier's lung". Accumulated dust in ventilation ducts may contain high concentrations of viable *Mucor* spores. Asthmatic reactions to *Mucor* have been described. It is a Zygomycete fungus that may be allergenic (skin and bronchial tests). It is an opportunistic pathogenic organism and it may cause mucorosis in immune compromised individuals. The sites of infections are the lung, nasal sinus, brain, eye, and skin. Infection may have multiple sites. This organism and other Zygomycetes will grow rapidly on most fungal media. Conidia (aplanospores) are globose to ellipsoidal, 7-8 microns in diameter, yellowish

## COMMERCIAL &amp; INDUSTRIAL ENVIRONMENTS

brown and slightly rough-walled, and are produced in sporangia that are developed around a piriform columella with typical projections. Identification is based on the way sporangia are formed. Cultivation - Potato dextrose agar, 24°C.

**Penicillium sp.**

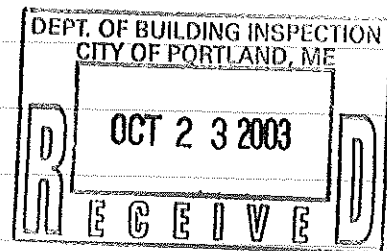
*Penicillium sp.* - (Aw 0.78). A wide number of organisms belong to this genus. Identification to species is difficult. Often found in aerosol samples. Commonly found in soil, food, cellulose, paint, grains, and compost piles. It is commonly found in carpet, wallpaper, and in interior fiberglass duct insulation. Although this fungus is less allergy-provoking than the other molds, *Penicillium* is reported to be allergenic (skin) and it may cause hypersensitivity pneumonitis and allergic alveolitis in susceptible individuals. It can cause other infections such as keratitis, penicilliosis, and otomycosis. Some species can produce mycotoxins including 1). Ochratoxin which is damaging to the kidneys and liver and is also a suspected carcinogen; there is also evidence that impairs the immune system. 2). Citrinin that can cause renal damage, vasodilatation, and bronchial constriction. 3). Gliotoxin which is an immunosuppressive toxin, and 4). Patulin that is believed to cause hemorrhaging in the brain and lungs and is usually associated with apple and grape spoilage. It can also cause extrinsic asthma. *P. camemberti* has been responsible for inducing occupational allergies among those who work with soft white cheeses on which the fungus grows. *P. chrysogenum* has been found on building materials, including paints, chip boards, and wallpaper. Cultivation - Potato dextrose agar or Malt extract agar, 24°C.

Aerotech Laboratories, Inc.

Dear Mr. Nugent,

This is Kya Pardue of  
27 Veranda Street Apt #3 Portland  
Maine. As you requested once I've  
had testing done and you've  
had results: You could take  
steps do do something with the  
location as far as it being  
hazardous to people's health.  
As you read it is definitely  
harmful to people's health. So  
Please take appropriate action and  
please call me back.

Sincerely,  
Kya S. Pardue  
207 774-5098

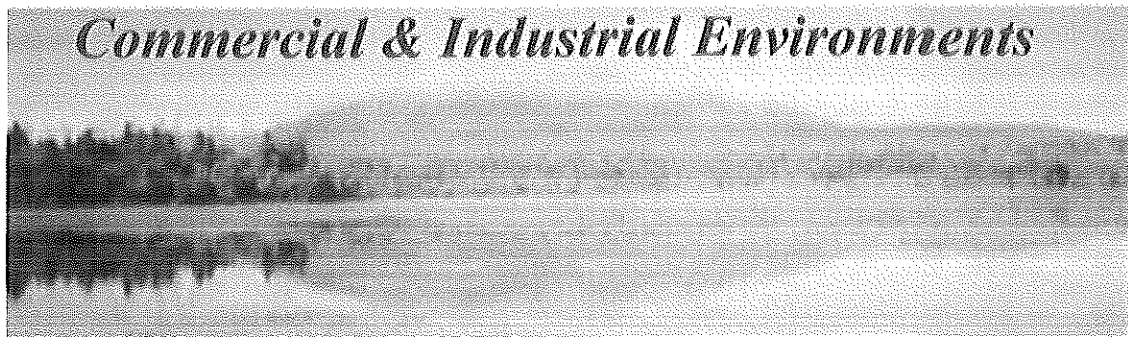




4 Sumac Drive  
Brunswick, Maine

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## Indoor Air Quality Investigation Microbial Sampling

27 Veranda Street  
Unit 3  
Portland, Maine 04101

*Prepared For:*

*Mr. Joseph Marchetti  
1322 High Street  
Bath, Maine 04530*

429 H 001



## COMMERCIAL &amp; INDUSTRIAL ENVIRONMENTS

December 3, 2003

Mr. Joseph Marchetti  
1322 High Street  
Bath, Maine 04530

Re: Microbial Assessment  
27 Veranda Street, Unit 3, Portland, Maine  
CIE # 1247-03

Dear Mr. Marchetti:

*Commercial and Industrial Environments (CIE)* was retained by Mr. Terry Wyman and Mr. Joe Marchetti to conduct a Microbial Assessment on November 25, 2003 at 27 Veranda Street, unit 3, located in Portland, Maine. Onsite personnel representing CIE was Jay Nadeau, Certified Indoor Environmentalist.

This Microbial Assessment was conducted to identify deficiencies associated with the building and conditions potentially affecting the indoor air quality in an adverse manner with regards to mold. This intrusive investigation exposed interior wall surfaces of building components to evaluate for microbial contamination. Previous microbial assessments identified visible discoloration indicative of microbial activity on wall surfaces in the bedroom adjacent to the living room.

***Structure Overview:***

This residential apartment structure is a three level wood frame structure located on a concrete foundation with a daylight style basement. The exterior building components consist of wood siding and a pitched asphalt-fiberglass shingled roof system. Basement apartments remain below grade with a concrete slab as the substrate flooring. The interior building components consist of vinyl linoleum/ wood tile floor surfaces and gypsum wallboard on walls and ceilings throughout the apartment. Thermal conditioning is provided through radiant baseboard heat.

***Outside conditions during the investigation are as follows:***

***Portland, Maine***

***November 25, 2003:*** mostly cloudy skies, average temperature 42.80 °F, relative humidity 76 %, dew point 35.60 °F, average wind speed 11.5 miles per hour, wind direction wnw.

**Evaluation Equipment**

***Dri-Eaz Hydrosensor II*** – Parameter: Evaluate Moisture Content.

***Tramex Survey Encounter*** – Parameter: Evaluate Moisture Content.

## COMMERCIAL &amp; INDUSTRIAL ENVIRONMENTS

Values obtained during this investigation were compared to documentation and guidelines provided by the following agencies:

*U.S. Environmental Protection Agency (EPA)*  
*World Health Organization (WHO)*  
*American Industrial Hygiene Association (AIHA)*  
*The Occupational Safety and Health Administration (OSHA)*  
*The New York City Department Of Health*

*This document is not to be construed as absolute guidelines, but as a tool to assist in the remediation process of conditions discovered during the investigation that may adversely affect indoor air quality.*

### General Observations

#### Unit 3

##### ***Rear Bedroom Adjacent To Living Room:***

• Multiple areas of discoloration indicative of microbial activity were observed on gypsum wallboard material along the perimeter wall in the closet area. Six inch by six inch portions of the gypsum wallboard were removed in areas containing discoloration to evaluate interior wall cavities. Each area identified only surface discoloration and interior wall conditions did not display evidence of microbial amplification. Moisture content within the gypsum wallboard surfaces and structural building components have been examined utilizing direct read instrumentation and found to contain uniform concentrations of moisture as compared to adjacent areas not containing discoloration. The concrete floor substrate did not contain flooring but did contain areas of minor discoloration in need of cleaning with a sanitizing solution.

##### ***Kitchen Wall System:***

• No surface areas of discoloration indicative of microbial activity were observed, however intrusive investigation was implemented in the perimeter wall of the kitchen area to evaluate interior wall conditions. Again, Six inch by six inch portions of the gypsum wallboard were removed in areas to evaluate interior wall cavities. In, each area, interior wall conditions did not display evidence of microbial amplification. Moisture content within the gypsum wallboard surfaces and structural building components have been examined utilizing direct read instrumentation and found to contain uniform concentrations of moisture as compared to adjacent areas.

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## Microbial Sampling Results

Microbial sampling is performed when microbial induced disease is present, and/or microbial reservoirs or amplification sites are observed or suspected during the indoor air quality evaluation. If microbial sources are present, knowledge of the precise nature and extent of the contamination is useful for determining remediation protocol. There are currently no published standards or regulations stipulating maximum allowable concentrations of bio-aerosols in occupied buildings. To determine whether areas of microbial reservoirs or amplifications sites exist within the indoor environment, one must consider the bio-diversity of the fungi indoors as compared to the outdoors. So samples collected indoors will be examined for fungal concentrations not identified within the outdoor environment.

Microbial sampling for airborne fungi was accomplished utilizing Cyclex-D spore trap cassettes with a sampling time of five minutes each at 20.0 liters of air per minute. All microbial samples were submitted to an independent laboratory for analysis.

***Aerosol Samples (Cyclex-D Spore Trap Cassettes –Non-Viable)***  
***27 Veranda Street, Portland, Maine – Unit 3:***

*A-1 (MC26330)*; was collected from the ambient outside air. The sample location was approximately 20 feet from the structure in the back yard on the grass. The predominant fungal genus is *Basidiospores*. Additionally, the fungal genus *Aspergillus/Penicillium sp.*, *Ascospores*, *Cladosporium sp.*, *Smuts/Myxomycetes/Periconia sp.*, *Unidentified Spores* and *Mycelial Fragments* have also been identified in this sample.

*A-2 (MC26331)*; was collected from the ambient air within the rear bedroom adjacent to the living room, in the approximate center of the room. The sample location was the approximate center of the kitchen. The predominant fungal genus is *Basidiospores*. Additionally, the fungal genus *Alternaria sp.*, *Aspergillus/Penicillium sp.*, *Ascospores*, *Cladosporium sp.*, *Smuts/Myxomycetes/Periconia sp.*, *Torula sp.*, *Unidentified Spores* and *Mycelial Fragments* have also been identified in this sample.

*A-3 (MC26332)*; was collected from the ambient air within the kitchen area, in the approximate center of the room. The predominant fungal genus is *Basidiospores*. Additionally, the fungal genus *Aspergillus/Penicillium sp.*, *Ascospores*, *Cladosporium sp.*, *Epicoccum sp.*, *Smuts/Myxomycetes/Periconia sp.*, *Rusts sp.* and *Mycelial Fragments* have also been identified in this sample.

Again, as a general guideline the genus of fungi collected from the indoor environment should similarly match outdoor samples.

Comparison of the indoor samples to the samples collected outdoors indicates similar biodiversity of airborne microbial activity within the structure as compared to the outside conditions. However, concentrations outside remain lower with respect to the fungal genus *Basidiospores* and

## COMMERCIAL &amp; INDUSTRIAL ENVIRONMENTS

*Cladosporium sp.* Additional concentrations of fungal activity identified within the structure and not in the outside sample remain very low.

## Summary And Recommendations

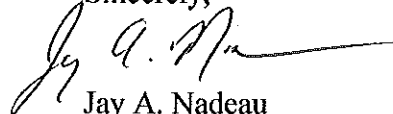
General observations revealed discoloration indicative of microbial activity in the closet perimeter wall gypsum wallboard in the rear bedroom adjacent to the living room area of unit 3, located at 27 Veranda Street, in Portland, Maine. Intrusive investigation was conducted to verify the discoloration remained on exposed surfaces and not within the wall cavity and structural building components. The intrusive investigation did not revealed discoloration indicative of microbial amplification within the wall cavity or on structural building components. Additionally, the interior wall cavity was examined utilizing moisture evaluation equipment to determine if areas of excessive moisture existed, potentially harboring microbial amplification sites. All areas examined remained consistent with adjacent homogeneous building materials. Utilizing these results and recommendations within guidelines established by the *New York City Department of Health, Bureau of Environmental & Occupational Disease Epidemiology*, the area was treated with a sanitizing agent and an encapsulating paint was applied.

Additional intrusive investigations into the perimeter wall system of the kitchen area did not revealed discoloration indicative of microbial amplification on structural building materials. These materials have recently been replaced due to moisture intrusion from drainage issues associated with the adjacent below grade concrete deck. Further investigation within this interior wall cavity was conducted utilizing moisture evaluation equipment to determine if areas of excessive moisture existed. Again, all areas examined remained consistent with adjacent homogeneous building materials.

Microbial aerosol sample results indicate similar biodiversity of airborne microbial activity within the structure as compared to the outside conditions. However, concentrations outside remain lower with respect to the fungal genus *Basidiospores* and *Cladosporium sp.* Neither *Basidiospores* nor *Cladosporium sp.* have been documented as eliciting adverse health effects in non-immune compromised individuals. Additional concentrations of fungal activity identified within the structure and not in the outside sample remain very low. The microbial sample results in conjunction with the intrusive investigation do not indicate additional remediation is necessary with regards to microbial activity within apartment #3 at 27 Veranda Street, in Portland, Maine.

If you have any questions or concerns regarding this report, please contact me at (207) 725-9211. We appreciate the opportunity to assist you with your environmental needs. Thank you for your time.

Sincerely,



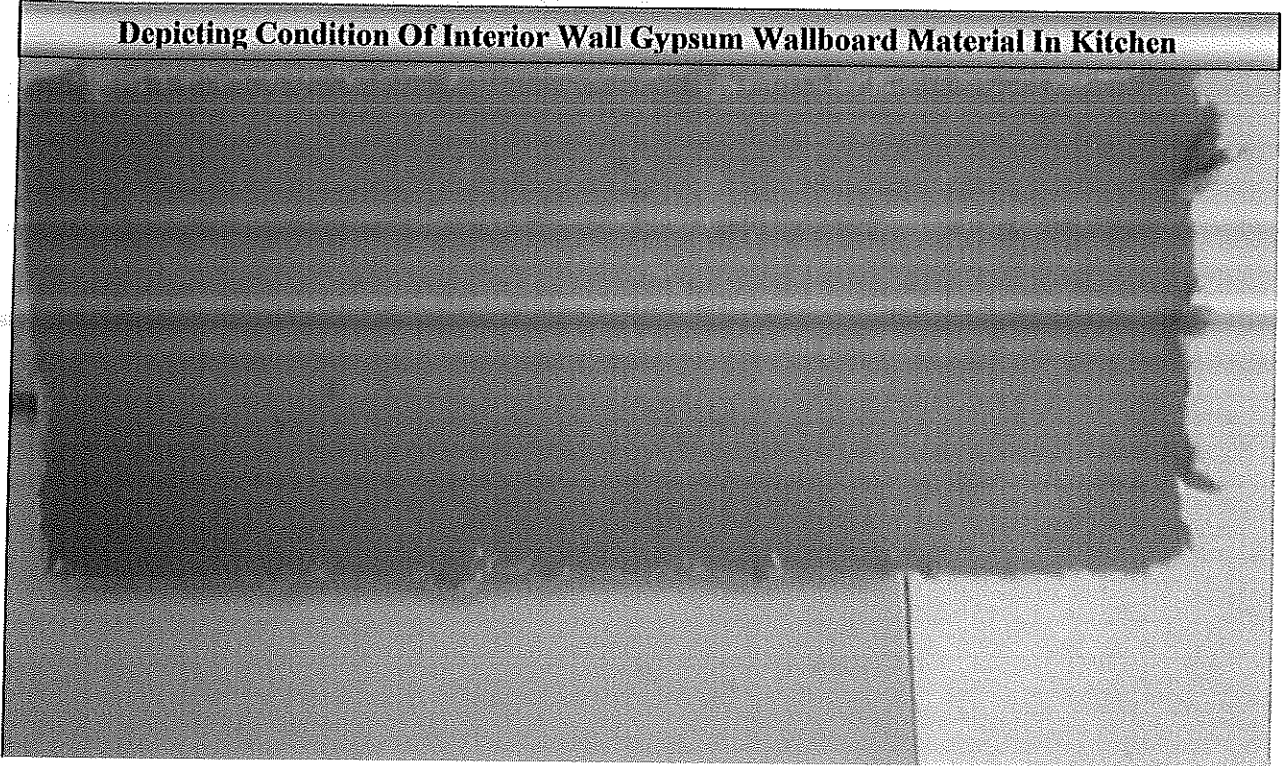
Jay A. Nadeau

Certified Indoor Environmentalist

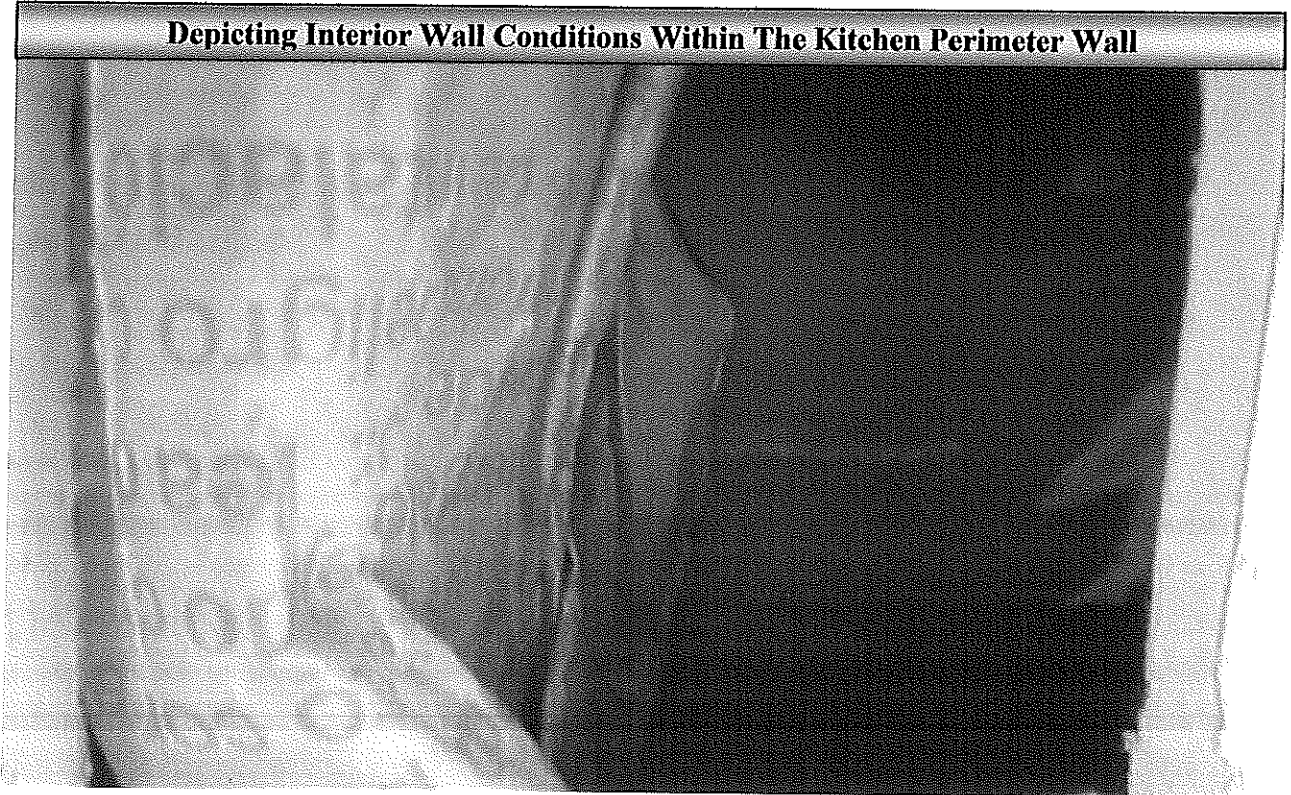
**CIE**

**COMMERCIAL & INDUSTRIAL ENVIRONMENTS**

**Depicting Condition Of Interior Wall Gypsum Wallboard Material In Kitchen**



**Depicting Interior Wall Conditions Within The Kitchen Perimeter Wall**

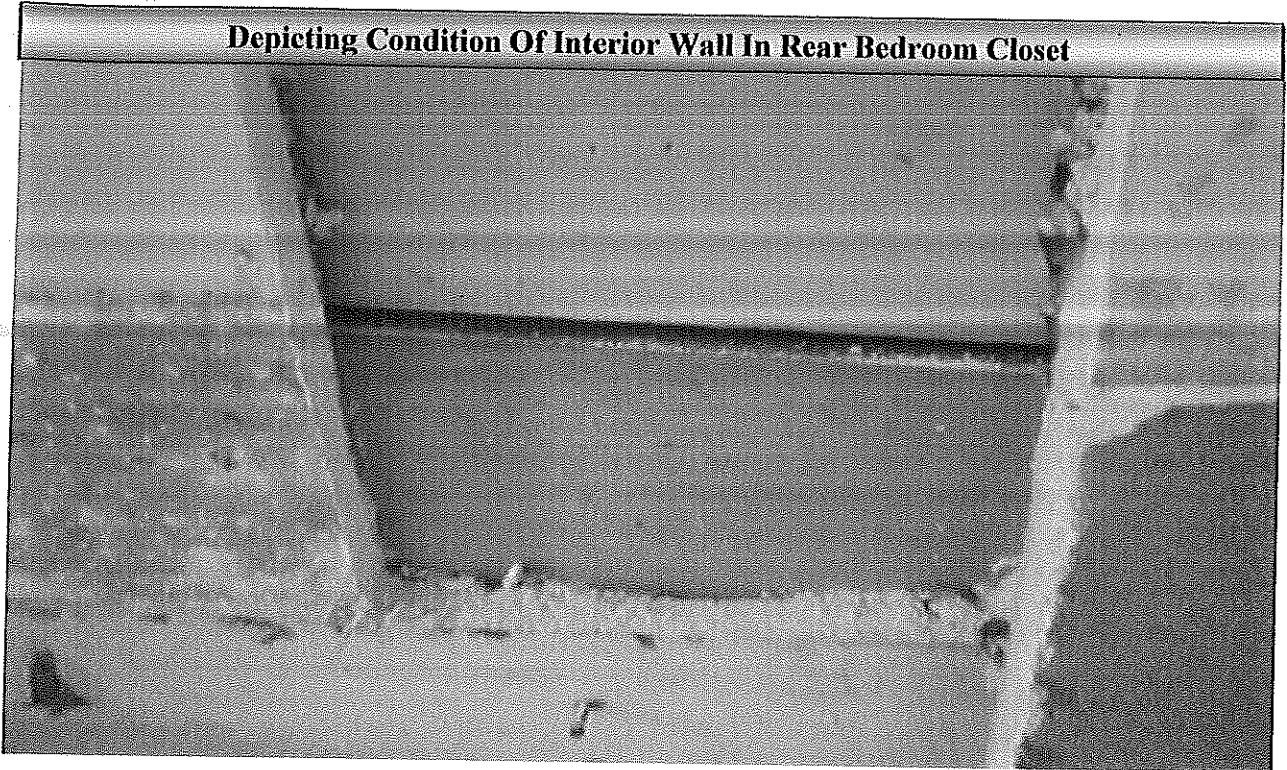




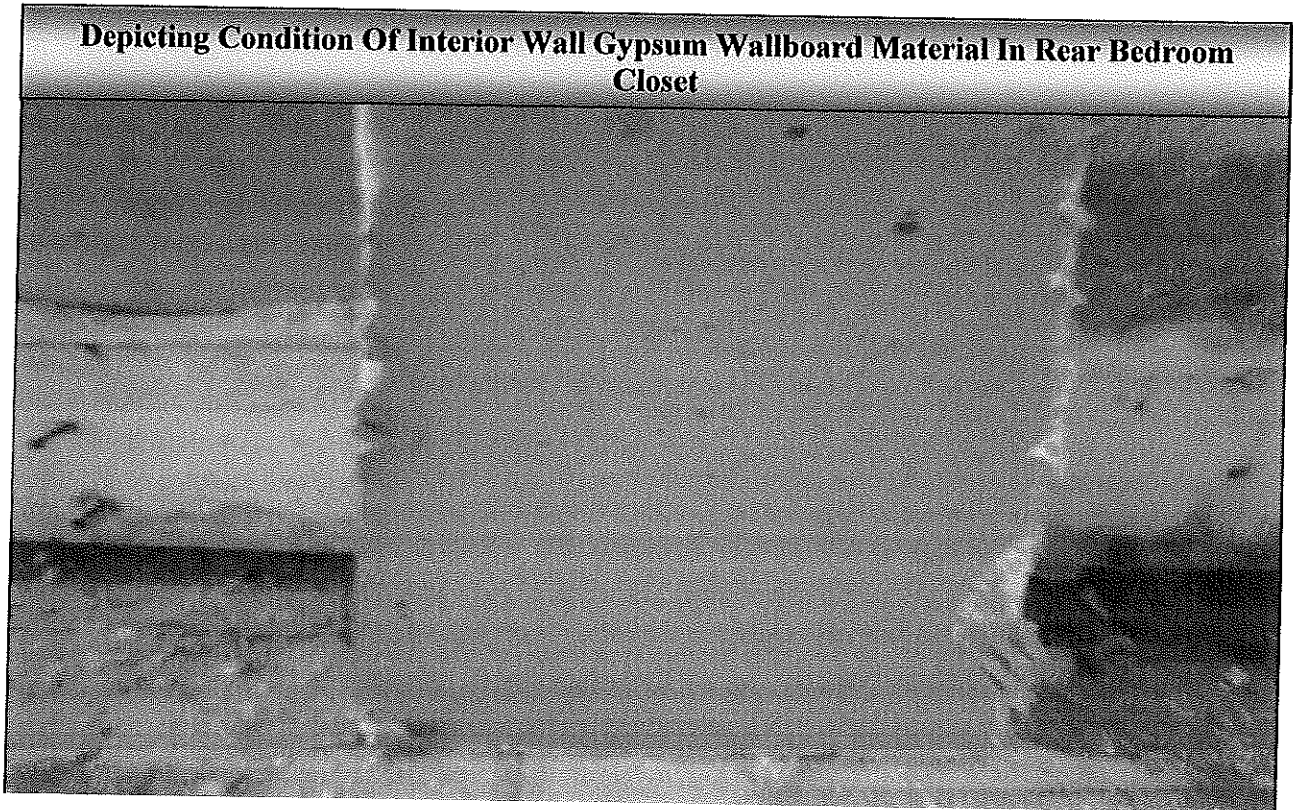
**CIE**

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**Depicting Condition Of Interior Wall In Rear Bedroom Closet**



**Depicting Condition Of Interior Wall Gypsum Wallboard Material In Rear Bedroom Closet**



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COMMERCIAL & INDUSTRIAL ENVIRONMENTS  
MICROBIAL AEROSOL ANALYSIS

27 Veranda Street, Unit 3, Portland, Maine

Date: November 25, 2003

Analysis Method: Microbial Aerosol For Fungal Genus Identification

Independent Laboratory: Northeast Laboratory AIHA EMPAT #102960, NELAP Accredited

Sampling Device: Cyclex-D Spore Trap, 20.0 Liters Per Minute, Total 5 Minutes

| <u>LAB #</u>     | <u>LOCATION</u>                            | <u>CT/M<sup>3</sup></u> | <u>PARAMETER</u>                |
|------------------|--|-------------------------|---------------------------------|
| MC26330<br>(A-1) | Unit 3,<br>Outside Control                 | 120                     | Ascospores                      |
|                  |  | 860                     | Aspergillus/Penicillium sp.     |
|                  |  | 1,060                   | Basidiospores                   |
|                  |  | 80                      | Cladosporium sp.                |
|                  |  | 180                     | Smuts/Myxomycetes/Periconia sp. |
|                  |  | 40                      | Unidentified Spores             |
| 20               | Mycelial Fragments                         |                         |                                 |
| MC26331<br>(A-2) | Unit 3,<br>Rear Bedroom,<br>Approx. Center | 20                      | Alternaria sp.                  |
|                  |  | 40                      | Ascospores                      |
|                  |  | 400                     | Aspergillus/Penicillium sp.     |
|                  |  | 1,940                   | Basidiospores                   |
|                  |  | 160                     | Cladosporium sp.                |
|                  |  | 140                     | Smuts/Myxomycetes/Periconia sp. |
|                  |  | 40                      | Torula sp.                      |
|                  |  | 20                      | Unidentified Spores             |
| 120              | Mycelial Fragments                         |                         |                                 |
| MC26332<br>(A-3) | Unit 3,<br>Kitchen,<br>Approx. Center      | 20                      | Ascospores                      |
|                  |  | 200                     | Aspergillus/Penicillium sp.     |
|                  |  | 1,660                   | Basidiospores                   |
|                  |  | 80                      | Cladosporium sp.                |
|                  |  | 20                      | Epicoccum sp.                   |
|                  |  | 40                      | Rusts sp.                       |
|                  |  | 80                      | Smuts/Myxomycetes/Periconia sp. |
| 40               | Mycelial Fragments                         |                         |                                 |

**KEY:**

CT = Counts

CT/UNIT = Counts Per Cubic Meter Of Air

\*Note: The samples collected were submitted to an independent laboratory for analysis.



Client: CIE, Inc.  
 Date Received: 11/26/2003  
 Date Reported: 12/2/2003  
 Project Number: none

1-800-244-8378 Phone  
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 Route 137, China Rd., Winslow,  
 Maine 04901  
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| Sample Type:                           | Spore Trap Cassette |                   | 100 A-1 |                   | 100 A-2           |                   | 100 A-3           |                   |                   |                   |
|--|---------------------|-------------------|---------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Volume Sampled (L):                    | MC26330             | MC26331           | MC26332 | Raw Ct.           | Ct/m <sup>3</sup> | Raw Ct.           | Ct/m <sup>3</sup> | Raw Ct.           | Ct/m <sup>3</sup> |                   |
| Category                               | Raw Ct.             | Ct/m <sup>3</sup> | Raw Ct. | Ct/m <sup>3</sup> | Raw Ct.           | Ct/m <sup>3</sup> | Raw Ct.           | Ct/m <sup>3</sup> | Raw Ct.           | Ct/m <sup>3</sup> |
| Total Mold Spores & Fragments          | 118                 | 2,360             | 144     | 2,880             | 107               | 2,140             |                   |                   |                   |                   |
| Alternaria                             |                     |                   | 1       | 20                |                   |                   |                   |                   |                   |                   |
| Ascospores                             | 6                   | 120               | 2       | 40                | 1                 | 20                |                   |                   |                   |                   |
| Aspergillus/Penicillium-like           | 43                  | 860               | 20      | 400               | 10                | 200               |                   |                   |                   |                   |
| Basidiospores                          | 53                  | 1,060             | 97      | 1,940             | 83                | 1,660             |                   |                   |                   |                   |
| Bipolaris/Dreschiera/Helminthosporium  |                     |                   |         |                   |                   |                   |                   |                   |                   |                   |
| Botrytis                               |                     |                   |         |                   |                   |                   |                   |                   |                   |                   |
| Chaetomium                             |                     |                   |         |                   |                   |                   |                   |                   |                   |                   |
| Cladosporium                           | 4                   | 80                | 8       | 160               | 4                 | 80                |                   |                   |                   |                   |
| Curvularia                             |                     |                   |         |                   |                   |                   |                   |                   |                   |                   |
| Epicoccum                              |                     |                   |         |                   | 1                 | 20                |                   |                   |                   |                   |
| Erysiphe/Oidium                        |                     |                   |         |                   |                   |                   |                   |                   |                   |                   |
| Fusarium                               |                     |                   |         |                   |                   |                   |                   |                   |                   |                   |
| Nigrospora                             |                     |                   |         |                   |                   |                   |                   |                   |                   |                   |
| Peronospora                            |                     |                   |         |                   |                   |                   |                   |                   |                   |                   |
| Pitheomyces                            |                     |                   |         |                   |                   |                   |                   |                   |                   |                   |
| Rusts                                  |                     |                   |         |                   |                   |                   |                   |                   |                   |                   |
| Smuts/Myxomycetes/Periconia            | 9                   | 180               | 7       | 140               | 2                 | 40                |                   |                   |                   |                   |
| Stachybotrys                           |                     |                   |         |                   | 4                 | 80                |                   |                   |                   |                   |
| Stemphium                              |                     |                   |         |                   |                   |                   |                   |                   |                   |                   |
| Forula                                 |                     |                   | 2       | 40                |                   |                   |                   |                   |                   |                   |
| Ulocladium                             |                     |                   |         |                   |                   |                   |                   |                   |                   |                   |
| Unidentified Spores                    | 2                   | 40                | 1       | 20                |                   |                   |                   |                   |                   |                   |
| Mycelial Fragments                     | 1                   | 20                | 6       | 120               | 2                 | 40                |                   |                   |                   |                   |
| Particulates                           |                     |                   |         |                   |                   |                   |                   |                   |                   |                   |
| Skin cell fragments (7,500-10,000) (1) |                     |                   |         |                   |                   |                   |                   |                   |                   |                   |
| Fiberglass fibers (50-75)              |                     |                   |         |                   |                   |                   |                   |                   |                   |                   |
| Other fibers (1,000-2,500)             |                     |                   |         |                   |                   |                   |                   |                   |                   |                   |
| Black opaque particles (2,500-5,000)   |                     |                   |         |                   |                   |                   |                   |                   |                   |                   |
| Insect parts (<27)                     |                     |                   |         |                   |                   |                   |                   |                   |                   |                   |
| Pollen grains (<27)                    |                     |                   |         |                   |                   |                   |                   |                   |                   |                   |
| Background Debris rating (0-5) (2)     | 2                   |                   | 2       |                   | 2                 |                   |                   |                   |                   |                   |

Note: Values may not appear to be additive due to rounding of numbers.

Comments:

(1) Values in parentheses indicate typical indoor levels. (2) Debris Rating Scale: 0 = No trace visible; 5 = Contiguous debris. Background debris levels greater than 3 indicate poor visibility for the analyst reading the slide, which can result in under-counting of small spores such as those from members of the Aspergillus/Penicillium-like group.

*Christopher D. Mylott*

Reviewed by: Christopher D. Mylott, Director, Microbiology Division



## COMMERCIAL &amp; INDUSTRIAL ENVIRONMENTS

## Fungal Glossary

**Alternaria sp.**

*Alternaria* is a large and widespread genus, the conidia of which are easily carried by the wind, with peak concentrations in the summer and early fall. *Alternaria* is commonly found in house dust, carpets, textiles, on horizontal surfaces in building interiors, and window frames. It is one of the main fungal causes of allergy, being a common type I & III allergen. Outdoors, it may be isolated from samples of soil, seeds and plants, and is frequently reported in air. The large spore size suggests that this fungus will deposit in the nose, mouth and upper respiratory tract causing nasal septum infections. It has also been associated with hypersensitivity pneumonitis. It is a common cause of extrinsic asthma. Acute symptoms include edema and bronchospasms; chronic cases may develop pulmonary emphysema. Baker's asthma is associated with inhalation of *Alternaria* conidia present in flour. Other diseases caused by *Alternaria* include: Farmer's lung, mycotic keratitis, skin infections, and osteomyelitis. Also, the species *A. alternata* is capable of producing tenuazonic acid and other toxic metabolites that may be associated with disease in humans or animals. Several species are pathogenic to plants and contribute to the spoilage of agricultural products. *Alternaria* has been isolated from substrates such as sewage, leather, stone monuments, optical instruments, cosmetics, computer disks, and jet fuel. Morphological characteristics include abundant production of conidia that are large (18-83 x 7-18 microns) and multicellular with both transverse and longitudinal septa; conidiophores are dark, mostly simple. Colonies grow fast, are suede-like to floccose, and black to olivaceous-black or grayish in color. (Aw-0.85-0.89) Culture - Potato dextrose agar or Malt extract agar, 20° - 25°C, 7 - 10 days.

**Ascospore**

Ascospores are a general category of spores that have been produced by means of sexual reproduction (in a sack-like structure called an ascus). These are ubiquitous saprobes and plant pathogens, many of which are easily identifiable (i.e. *Chaetomium*). This group contains potential opportunistic pathogens, toxin producers, and allergens depending on the genus and species. A rupture in the top portion of the ascus disperses the spores during rain or in times of high humidity. Some asexual fungi, such as *Aspergillus* and *Penicillium* can become sexual under specific conditions, these are then considered ascomycetes and are given distinct names.

**Aspergillus sp.**

*Aspergillus* is a common type I & III allergen. They are frequently isolated from forest products, soils, grains, nuts, cotton, organic debris, and water damaged building materials. Spores can also be found in moist ventilation systems and house dust. There are more than 160 different species of *Aspergillus*, sixteen of which have been documented as etiological agents of human disease but rarely occur in individuals with normally functioning immune systems. However, due to the substantial increase in populations of individuals with HIV, chemotherapy patients and those on corticosteroid treatment, contamination of building substrates with fungi, particularly *Aspergillus* is of concern. Aspergillosis is now the second most common fungal infection requiring hospitalization in the United States. Many *Aspergillus* species produce mycotoxins that may be associated with diseases in humans and other animals. Toxin production is dependent on the species or strain within the species and on the food source for the fungus. Some of these toxins are carcinogenic including aflatoxins and ochratoxin. *Aspergillus* is a common cause of extrinsic asthma with symptoms including edema and bronchospasms, and chronic cases may develop pulmonary emphysema. These fungi are frequently secondary opportunistic pathogens in patients with bronchiectasis, carcinoma, other mycosis, sarcoid, and tuberculosis. Some species can also cause onychomycosis (infection of the nail). (Aw - 0.71 - 0.94). Culture - Potato dextrose agar or Malt extract agar, 20° - 25°C, 7 - 10 days. Speciation of *Aspergillus* requires the culture of the fungus under different conditions of media, humidity, and temperature.

**Basidiospore (Basidiomycetes)**

Basidiospores are a general category of sexual spores that have been released from the basidium of a fungus. A ubiquitous type I & III allergen, saprobe and plant pathogen, mainly found in gardens, forests, and woodlands. Spores disseminate during rain or in times of high humidity. Rarely opportunistic pathogens, Basidiospores may produce toxins, including

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amanitins, monomethyl-hydrazine, muscarine, ibotenic acid, and psilocybin. Basidiospores are an agent of dry wood rot, which may destroy the structure wood of buildings.

**Cladosporium sp.**

*Cladosporium sp.* - (Aw - 0.84 - 0.88). *C. herbarum* is the most frequently found species in outdoor air in temperate climates. It is often found indoors, usually in lesser numbers than outdoors. The dry conidia become easily airborne and are transported over long distances. This fungus is often encountered in dirty refrigerators, especially in reservoirs where condensation is collected. On moist window frames, it can easily be seen covering the whole painted area with a velvety olive-green layer. *Cladosporium* often discolors interior paint, paper, or textiles stored under humid conditions. Houses with poor ventilation, houses with thatched straw roofs and houses situated in low damp environments may have heavy concentrations of *Cladosporium*, which will be easily expressed when domestic mold is analyzed. It is commonly found on the surface of fiberglass duct liner in the interior of supply ducts. It is also found on dead plants, woody plants, food, straw, soil, paint, and textiles. The ability to sporulate heavily, ease of dispersal, and buoyant spores makes this fungus the most important fungal airway allergen; and together with *Alternaria*, it commonly causes asthma and hay fever in the Western hemisphere. A few species of this genus cause disease, which range from phaeohyphomycosis, a group of mycotic infections characterized by the presence of demataceous septate hyphae. Infections of the eyes and skin by black fungi (also classified as phaeohyphomycosis), and chromoblastomycosis, chronic localized infection of the skin and subcutaneous tissue that follows the traumatic implantation of the etiologic agent are also caused by this fungus. Chromoblastomycosis lesions are verrucoid, ulcerated, and crusted. Skin abscesses, mycotic keratitis and pulmonary fungus ball have been recorded in immuno-compromised patients. It may also cause corneal infections and mycetoma, characterized by localized infections that involve cutaneous and subcutaneous tissue, fascia, and bone consisting of abscesses, granulomata, and draining sinuses, usually in immuno-compromised hosts. Fungal colonies are powdery or velvety olive-green to olive-brown. Other characteristics include dark conidia 1- or 2-celled, variable in shape and size, ovoid to cylindrical and irregular, typically lemon-shaped. Cultivation - Potato dextrose agar, 24°C.

**Epicoccum sp.**

*Epicoccum sp.* - It is commonly found as a secondary invader in plants, soil, grains, textiles and paper products where *Cladosporium* and *Aureobasidium* are present. It is mostly saprophytic, or weakly parasitic. *Epicoccum* is frequently isolated from air and occasionally occurs in house dust. Reported to be an allergen but not in a high frequency. Due to the ability of this fungus to grow at 37°C, it can cause infection of skin in humans. Morphological characteristics are production of dark conidia, several-celled (15-celled), globose, verrucose, 15-25 microns in diameter, and in a fruiting body (sporodochium). Cultivation - Potato dextrose agar, 24°C.

**Myxomycetes**

Ubiquitous, type I allergen. Often found on decaying plant material, however occasionally found indoors. Dispersed by wind in the dry phase, while the wet amoebic phase is motile. Myxomycetes exhibit characteristics of protozoans and fungi. Indistinguishable from smuts under 600x microscopy.

**Penicillium sp.**

*Penicillium sp.* - (Aw 0.78). A wide number of organisms belong to this genus. Identification to species is difficult. Often found in aerosol samples. Commonly found in soil, food, cellulose, paint, grains, and compost piles. It is commonly found in carpet, wallpaper, and in interior fiberglass duct insulation. Although this fungus is less allergy-provoking than the other molds, *Penicillium* is reported to be allergenic (skin) and it may cause hypersensitivity pneumonitis and allergic alveolitis in susceptible individuals. It can cause other infections such as keratitis, penicilliosis, and otomycosis. Some species can produce mycotoxins including 1). Ochratoxin which is damaging to the kidneys and liver and is also a suspected carcinogen; there is also evidence that impairs the immune system. 2). Citrinin that can cause renal damage, vasodilatation, and bronchial constriction. 3). Gliotoxin which is an immunosuppressive toxin, and 4). Patulin that is believed to cause hemorrhaging in the brain and lungs and is usually associated with apple and grape spoilage. It can also cause extrinsic asthma. *P. camemberti* has been responsible for inducing occupational allergies among those who work with soft white cheeses on which the fungus grows. *P. chrysogenum* has been found on building materials, including paints, chip boards,

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and wallpaper. Cultivation - Potato dextrose agar or Malt extract agar, 24°C.

### *Smuts*

Ubiquitous, type I allergen. They are parasitic plant pathogens that require a living host. Most often found on corn, grass, weeds, flowering plants and other fungi; usually disseminated by wind. Indistinguishable from myxomycetes under 600x microscopy.

### *Torula sp.*

*Torula sp.* Reported to be allergenic. Found as a saprophyte. Morphological characteristics - Conidiophores short, dark, simple, branched or absent; conidia 1-to several-celled, round, dark, and in chains. Cultivation - Potato dextrose agar, 24°C.

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