



HYGIENETECH

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July 31, 2008

California State Board of Equalization
450 N Street
Sacramento, California 94279

Document No. 20807001.2

Attention: David Gau

Regarding: Limited Fungal Growth Assessment Survey
1ST Floor – Print Room 135

Dear Mr. Gau:

On July 9, 2008, industrial hygienists with Hygiene Technologies International, Inc. (HygieneTech) conducted a limited fungal growth assessment survey in Print Room 135 on the 1ST Floor of the California State Board of Equalization building. Earlier that day, HygieneTech was informed that evidence of water intrusion had reportedly been observed on building materials adjacent to the storefront windows in the northeastern corner of the room. The survey findings, along with the analytical data, conclusions, recommendations, and a discussion of the recently recorded observations, appear below.

The interior building materials within Print Room 135 included, but were not limited to, gypsum board walls that were painted; glass and metal framed storefront windows; suspended 2' by 4' ceiling tiles; vinyl cove base on some lower walls; raised porous floor tiles; and concrete subfloors beneath the raised floor system. The room was occupied at the time of the survey and was used as a printing room. Items typical of a printing room were observed in the inspected areas including chairs, tables, and printing equipment.

Upon visual inspection, evidence of water intrusion was apparent in various areas within the room. In the northeastern portion of the room, water staining was observed on the eastern perimeter wall beneath the upper and storefront windows (Photos 1 through 3). Additionally, suspect fungal growth was observed on the lower portion of the northern perimeter wall in the northeastern corner (Photo 4). Beneath the raised floor system in the subfloor area, water staining and evidence of metal oxidation (rust) were observed on various building materials along the northern and eastern perimeter walls in both the northeastern and southeastern portions of the room (Photos 5 through 12). Additionally, efflorescence was observed on the concrete subfloor at the southern portion of the room (Photo 13). Odors characteristic of fungal growth were not evident in the inspected areas.

With the use of a Delmhorst moisture indicator, moisture content assessments were conducted in walls, ceilings, kitchen and bathroom cabinetry, and other materials in the residence. Generally, moisture level readings of up to 12 (percent scale relative to wood substrate) are considered *background* or *dry*, while moisture level readings between 15 and 20 are considered *moist*, and moisture level readings above 20



are considered *wet*. Without exception, all of the building materials and other surfaces tested in the home on the survey date were found to be *dry*.

At the time of the survey, air samples were collected for total (viable and nonviable) fungi analyses using a Zefon brand Bio-Pump™ equipped with Allergenco-D™ cassettes. Surface samples were collected for fungal growth assessment using Scotch® brand cellophane tape segments affixed to microscope slides. All such samples were subsequently analyzed for fungi (including yeasts, molds, rusts, smuts, and mushrooms) by trained and experienced microbiologists at a laboratory accredited by the American Industrial Hygiene Association (AIHA) and that successfully participates in the AIHA Environmental Microbiology Proficiency Analytical Testing (EMPAT) Program. The airborne fungi and surface assessment analytical data with supporting and background information appear in the enclosed tables.

As presented in Table 20807001-2, the airborne spore count data showed common spore types outdoors such as *Alternaria*, ascospores, basidiospores, *Cladosporium*, colorless spores typical of *Penicillium* and *Aspergillus* species, rusts, smuts, *Torula*, and unidentified mitosporic fungi, with *Cladosporium* predominating. Indoors, the distribution of fungal spore types detected was consistent with those found outdoors, and the overall data within the tested areas were well below the overall datum recorded outdoors. The data recorded were considered unremarkable and are not believed to pose a health risk beyond that posed by the outdoor environment where exposures to airborne fungi are expected.

The surface assessment data, which appear with supporting information in Table 20807001-3, indicated minimal fungal growth and loose fungal spores involving *Cladosporium* on the lower portion of the northern perimeter wall in the northwestern portion of the room.

Be advised that the data provided in this report only represent limited fungal growth and exposure potentials that existed at the time the survey was performed and at the precise sample locations indicated, the latter of which were selected based on the available background information provided. Note that fungal growth and exposure potentials may change due to changes in environmental conditions (such as those caused by water intrusion), use of mechanical systems, or other factors. Also be advised that additional fungal growth may exist at one or more locations in the structure that were not specifically assessed during the survey.

HygieneTech is providing general abatement recommendations below, which are offered based strictly on the assessment information and analytical data that were available to HygieneTech at the time this report was prepared.

- 1) Possible sources of the water intrusion should be identified or confirmed and the subsequent repairs made. If water intrusion occurs in the structure in the future, affected materials should be dried promptly so that fungal growth potentials are minimized.
- 2) Additional building investigative and/or remediation efforts should be performed in this room and any adjacent rooms as necessary.
- 3) All concrete surfaces beneath the raised floor system in the eastern portion of the room should be detail-cleaned with HEPA vacuum and/or other equipment, and sanitized with a suitable biocide.
- 4) Those portions of building materials showing evidence of fungal growth should be isolated using polyethylene sheeting until remediation can be performed.



- 5) Be advised that the exposure data recorded during this survey may not be sufficiently broad to adequately assess the suitability of the indoor air quality for all individuals, particularly those who are extremely sensitive to certain chemical and/or biological substances, or for those individuals with immune system deficiencies. Although not expected, if persons entering Print Room 135 do experience non-specific ill effects of unknown etiology, then those affected should be referred to a medical professional in order to determine or specify the possible cause(s) of such reactions. If more information becomes available, further investigation and air monitoring may be warranted.

If you have any comments or questions regarding the information contained in this correspondence, please feel free to contact our offices directly at (310) 370-8370.

Sincerely,

HYGIENE TECHNOLOGIES INTERNATIONAL, INC.

A handwritten signature in black ink, appearing to read "Kenny K. Hsi", is written over a horizontal line.

Kenny K. Hsi, CIH
Technical Director

HYGIENE TECHNOLOGIES INTERNATIONAL, INC.

APPENDIX A



CLIENT: California State Board of Equalization
450 N Street
Sacramento, California 94279

TABLE 20807001-2
SURFACE FUNGAL GROWTH POTENTIALS
1ST FLOOR – ROOM 135
SACRAMENTO, CALIFORNIA
JULY 9, 2008

Results reported in spores per cubic meter of air (spores/M³)

SAMPLE NUMBER	20807001-TM05OUTME	20807001-TM06ME	20807001-TM07ME	
SAMPLING LOCATION/ACTIVITIES	Outdoors; about 25 feet east of building; approximately five feet above floor/Normal outdoor activities	Print Room 135; about 10 feet west of eastern perimeter wall; about five feet south of northern perimeter wall; approximately five feet above floor/ Normal printing activities	Print Room 135; about ten feet west of eastern perimeter wall; about five feet north of southern partition wall; approximately five feet above floor/ Normal printing activities	This column intentionally left blank
START/STOP	13:20:00/13:25:00	13:30:00/13:35:00	13:41:00/13:46:00	
SAMPLE TIME	5 minutes	5 minutes	5 minutes	
Alternaria	P			
Ascospores	100		52	
Aureobasidium				
Basidiospores	620	52	P	
Bipolaris/Drechslera group				
Botrytis				
Chaetomium				
Cladosporium	1600	P		
Epicoccum				
Nigrospora				
Penicillium/Aspergillus types	100			
Pithomyces				
Rusts	100	52		
Scopulariopsis				
Smuts (Periconia, Myxomycetes)	420			
Stachybotrys				
Stemphylium				
Torula	52			
Ulocladium				
Unidentified mitosporic fungi	52	52		
Unidentified zygomycetes				
Background particulates*	Moderate	Light	Light	
TOTAL**	3,000	160	52	

P = Spores present

* Background particulates is an indication of the amount of non-biological particulate matter present on the media and is graded (from least to greatest) as very light, light, moderate, heavy and very heavy.

** Note that all reported counts have been rounded to no more than two significant figures based on the sampling and analytical methods used, and therefore the total count may not equal the sum of the individual counts in a column.

HYGIENE TECHNOLOGIES INTERNATIONAL, INC.

APPENDIX A



CLIENT: California State Board of Equalization
450 N Street
Sacramento, California 94279

TABLE 20807001-3
SURFACE FUNGAL GROWTH POTENTIALS
1ST FLOOR – ROOM 135
SACRAMENTO, CALIFORNIA
JULY 9, 2008

SAMPLE NUMBER	SAMPLING LOCATION	AMORPHOUS DEBRIS	MISCELLANEOUS FUNGI/POLLEN*	FUNGI SEEN WITH UNDERLYING MYCELIAL AND/OR SPORULATING STRUCTURES**	OTHER COMMENTS	GENERAL IMPRESSION
20807001-TL09ME	Print Room 135; northern perimeter wall; about two inches west of eastern perimeter wall; approximately six inches above floor; from vertical surface	Very light dander Very light fibers Very light particulates Very light wood fibers	Trace	Trace <i>Cladosporium</i>	Few <i>Cladosporium</i>	Minimal fungal growth

*Includes basidiospores (mushroom spores), myxomycetes, plant pathogens such as ascospores, rusts and smuts, and a mix of saprophytic genera with no particular spore type predominating (indicative of normal trapping).

**Quantities of fungi are graded (from least to greatest) as none, trace, few, numerous, and massive.



1



Date	Address	Photo Location – Description	Up
07/09/08	450 N Street Sacramento, California	First floor; Print Room 135; northeastern portion of room; looking northeast; view of northeastern corner; general view of area	↑

2



Date	Address	Photo Location – Description	Up
07/09/08	450 N Street Sacramento, California	First floor; Print Room 135; northeastern portion of room; looking east and up; view of eastern perimeter wall; showing water staining	↑



3			
			
Date	Address	Photo Location – Description	Up
07/09/08	450 N Street Sacramento, California	First floor; Print Room 135; northeastern portion of room; looking east and down; view of eastern perimeter wall; showing water staining	↑

4			
			
Date	Address	Photo Location – Description	Up
07/09/08	450 N Street Sacramento, California	First floor; Print Room 135; northeastern portion of room; looking northeast and down; view of northern perimeter wall; showing suspect fungal growth	↑



5			
			
Date	Address	Photo Location – Description	Up
07/09/08	450 N Street Sacramento, California	First floor; Print Room 135; southeastern portion of room; looking east and up; view of eastern perimeter wall; showing staining	↑

6			
			
Date	Address	Photo Location – Description	Up
07/09/08	450 N Street Sacramento, California	First floor; Print Room 135; northeastern portion of room; looking north and down; view of subfloor area beneath northern storefront window; showing water staining on absorbent pad and rust on metal base plate	↑



7



Date	Address	Photo Location – Description	Up
07/09/08	450 N Street Sacramento, California	First floor; Print Room 135; northeastern portion of room; looking northeast and down; view of subfloor area beneath eastern storefront window; showing water staining on absorbent sock	↑

8



Date	Address	Photo Location – Description	Up
07/09/08	450 N Street Sacramento, California	First floor; Print Room 135; southeastern portion of room; looking east and down; view subfloor area beneath eastern storefront window; showing water staining northern perimeter wall and on absorbent sock	↑



9



Date	Address	Photo Location – Description	Up
07/09/08	450 N Street Sacramento, California	First floor; Print Room 135; southeastern portion of room; looking east and down; view of subfloor area beneath eastern storefront window; showing staining on absorbent sock	↑

10



Date	Address	Photo Location – Description	Up
07/09/08	450 N Street Sacramento, California	First floor; Print Room 135; southeastern portion; looking east and down; view of subfloor area beneath eastern storefront window; showing water staining on absorbent sock and northern perimeter wall	↑



11



Date	Address	Photo Location – Description	Up
07/09/08	450 N Street Sacramento, California	First floor; Print Room 135; southeastern portion of room; looking east and down; view of subfloor area beneath eastern storefront window; showing water staining on absorbent sock and concrete subfloor	↑

12



Date	Address	Photo Location – Description	Up
07/09/08	450 N Street Sacramento, California	First floor; Print Room 135; southeastern portion of room; looking east and down; view of subfloor area beneath eastern storefront window; showing staining on eastern perimeter wall	↑



13



Date	Address	Photo Location – Description	Up
07/09/08	450 N Street Sacramento, California	First floor; Print Room 135; southern portion of room; looking down; view of southern portion of subfloor area; showing staining and efflorescence on concrete subfloor	↑

FINAL REPORT: Total Fungal Spore Trap Count
PROJECT NUMBER: 20807001
LABORATORY ID NUMBER: 0807020
Hygiene Technologies International, Inc.
Received Date: July 10, 2008

Attention: Wes Frey

Report Date: July 10, 2008

4330 Auburn Blvd. Suite 1850

Sacramento, CA 95841

Customer Sample Number: -TM05OUTME Method: M101.1 Date Of Analysis: 10-Jul-08 Detection Limit: 52 Spores/M³
Background: Moderate particulates
Sample Intact: Yes

Genus (species)	Raw Count	Total Spores / M ³	Comment
<i>Alternaria</i>		P	
<i>Ascospores</i>	2	100	
<i>Basidiospores</i>	12	620	
<i>Cladosporium</i>	30	1600	
<i>Penicillium/Aspergillus types</i>	2	100	
<i>Pollen</i>	1	52	
<i>Rusts</i>	2	100	
<i>Smuts/Myxomycetes</i>	8	420	
<i>Torula</i>	1	52	
<i>Unidentified mitosporic fungi</i>	1	52	
TOTAL	58	3000	

Customer Sample Number: -TM06ME
Method: M101.1
Date Of Analysis: 10-Jul-08
Detection Limit: 52 Spores/M³
Background: Light particulates
Sample Intact: Yes

Genus (species)	Raw Count	Total Spores / M ³	Comment
<i>Basidiospores</i>	1	52	
<i>Cladosporium</i>		P	
<i>Pollen</i>		P	
<i>Rusts</i>	1	52	
<i>Unidentified mitosporic fungi</i>	1	52	
TOTAL	3	160	

P = Spores Present

< (less than) = measurement below the reporting limit

Rounding: Note that all reported counts have been rounded to two significant figures based on the sampling and analytical methods used. BioHygiene Labs rounds such that if the last significant digit is an even number, then the result is rounded down to that digit; if the last significant digit is an odd number, then it is rounded up to the nearest even number. Thus the TOTAL may not equal the sum of the individual counts per column. TOTAL rows do not include pollen.

Background is graded as Very Light (0 - 10%), Light (>10 - 30%), Moderate (>30 - 70%), Heavy (>70 - 90%), and Very Heavy (>90%) Particulates as a percentage of the trace area.

APPROVED:
DATE:

Name

Title:

R. Gallegos
Rancho Gallegos
Lab Analyst
07.10.08

Results reported relate only to the sample items tested. This test report shall not be reproduced (except in full), corrected or added to without written approval from BioHygiene Laboratories, Inc.



FINAL REPORT: Total Fungal Spore Trap Count

PROJECT NUMBER: 20807001

LABORATORY ID NUMBER: 0807020

Hygiene Technologies International, Inc.

Received Date: July 10, 2008

Attention: Wes Frey

Report Date: July 10, 2008

4330 Auburn Blvd. Suite 1850

Sacramento, CA 95841

Customer Sample Number: -TM07ME

Method: M101.1

Date Of Analysis: 10-Jul-08

Detection Limit: 52 Spores/M³

Background: Light particulates

Sample Intact: Yes

Genus (species)

Raw Count

Total Spores / M³

Comment

Ascospores

1

52

Basidiospores

P

TOTAL

1

52

P = Spores Present

< (less than) = measurement below the reporting limit

Rounding: Note that all reported counts have been rounded to two significant figures based on the sampling and analytical methods used. BioHygiene Labs rounds such that if the last significant digit is an even number, then the result is rounded down to that digit; if the last significant digit is an odd number, then it is rounded up to the nearest even number. Thus the TOTAL may not equal the sum of the individual counts per column. TOTAL rows do not include pollen.

Background is graded as Very Light (0 - 10%), Light (>10 - 30%), Moderate (>30 - 70%), Heavy (>70 - 90%), and Very Heavy (>90%) Particulates as a percentage of the trace area.

APPROVED:

R. Gallegos

DATE:

07.10.08

Name

Ramondi Gallegos

Title:

Lab Analyst

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FINAL REPORT: Direct Microscopic Exam Of Tape Lift Samples

PROJECT NUMBER: 20807001

LABORATORY ID NUMBER: 0807020

Hygiene Technologies International, Inc.

Received Date: July 10, 2008

Attention: Wes Frey

Report Date: July 10, 2008

4330 Auburn Blvd. Suite 1850

Sacramento, CA 95841

Customer Sample Number	Date of Analysis	Method	Sample Intact	Amorphous Debris	Miscellaneous Fungi/Pollen ¹	Fungi with hyphal and /or sporulating structures ²	Loose spores/ Other comments ²
-TL09ME	07/10/08	M102.1	Yes	Very light dander, Very light fibers, Very light particulates, Very light wood fibers	Trace	Trace Cladosporium	Few Cladosporium

1 - Includes basidiospores (mushroom spores), myxomycetes, plant pathogens such as ascospores, rusts and smuts, and a mix of saprophytic genera with no particular spore type predominating (indicative of normal trapping).

2 - Quantities of fungi are graded (from least to greatest) as a percentage of coverage of the slide area examined: none (0%), trace (0 - 10%), few (10 - 40%), numerous (40 - 80%), and massive (>80%).

APPROVED:

R. Gallegos

DATE:

07.10.08

Name

Randii Gallegos

Title:

Lab Analyst

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