CHAMPAIGN COUNTY BOARD FACILITIES COMMITTEE AGENDA

County of Champaign, Urbana, Illinois
Monday, April 3, 2017 - 6:30 p.m.
Lyle Shields Meeting Room
Brookens Administrative Center, 1776 E. Washington St., Urbana

Committee Members:

Josh Hartke – Chair
Stan Harper – Vice-Chair
Jack Anderson
Shana Crews
Jim Goss
Giraldo Rosales
James Tinsley

I. Call to Order

II. Roll Call

III. Approval of Agenda/Addenda

IV. Approval of Minutes
   A. March 7, 2017 — 1 - 3

V. Public Participation

VI. Communications

VII. Request approval of updated FY17 Capital Asset Projects — 4

VIII. Request approval of Mental Health Board & Developmental Disabilities Board Lease — 5 - 12

IX. Facilities Director's Report
   A. Update on DCEO Grants for CCNH Boiler Replacement and Brookens Boiler Replacement — 13 - 14
   B. Update on Dobbins Downs playground removal
   C. Update on Coroner's Office, election Supply Storage, Physical Plant Generator Project
   D. Update on ILEASE mold report — 15 – 42

X. Other Business

XI. Chair's Report
   A. Future Meeting – Tuesday, May 2, 2017 at 6:30 p.m.
   B. Tour of Satellite Jail – Meet in the Satellite Jail parking lot. Tour will begin at 5:15 p.m. and conclude by 6:10 p.m.

XII. Designation of Items to be Placed on Consent Agenda

XIII. Adjournment

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Champaign County Board
Facilities Committee
County of Champaign, Urbana, Illinois

6

MINUTES – SUBJECT TO REVIEW AND APPROVAL

DATE:	Tuesday, March 7, 2017
TIME:	6:30 p.m.
PLACE:	Lyle Shields Meeting Room Brookens Administrative Center 1776 E. Washington, Urbana, IL 61802

Committee Members

Present:	Josh Hartke (Chair), Jack Anderson, Jim Goss, Stan Harper, Giraldo Rosales, James Tinsley
Absent:	Shana Crews
County Staff:	Rick Snider (County Administrator), Dana Brenner (Facilities Director), Linda Lane (Administrative Assistant)
Others Present:	C. Pius Weibel (County Board Chair), Pattsi Petrie (County Board)

MINUTES

I. Call to Order

Committee Chair Hartke called the meeting to order at 6:30 p.m.

II. Roll Call

A verbal roll call was taken and a quorum was declared present.

III. Approval of Agenda

MOTION by Mr. Rosales to approve the agenda; seconded by Mr. Tinsley. Upon vote, the **Motion Carried Unanimously.**

IV. Approval of Minutes – February 7, 2017

MOTION by Mr. Harper to approve the minutes of the February 7, 2017 meeting; seconded by Mr. Rosales. Upon vote, the **Motion Carried Unanimously.**

V. Public Participation

None

VI. Communications

None

VII. Facilities Director's Report

A. Update on CCNH hot water heaters for the kitchen and laundry

Mr. Brenner reminded everyone about the emergency with the larger boiler that supplies the kitchen and laundry. He commented that it was presented to this committee in February to replace the boiler for the water out of Capital Assets. Mr. Brenner stated that the nursing authorized Davis Houk to order a new heat exchanger over the weekend, which they did because of IDPH rules, and he didn't find out about it until after the fact. He said he tried to stop the order, but it had already been placed and the restocking fee was over 50% of the cost if installation. He said this is the third heat exchanger for this unit, and he would have rather spend a few thousand more to get a new unit. Mr. Brenner said it was agreed that the nursing home would pay for one unit and the Physical Plant would pay for the second unit. He noted that because they are not replacing the hot water heater, there is now

money freed up for water softeners. He said he will work with ECS Engineering to get an quick study to evaluate various system that will work with our hot water, and to develop a cost analysis.

Ms. Petrie wanted to know if in emergency situations such as this, how Mr. Brenner could be in the decision making loop. Mr. Brenner said he will be having a discussion with nursing home management about that. He said they were paying for it and felt they needed to expedite the decision quickly.

Mr. Anderson wanted to know what Mr. Brenner meant when he said they are paying for it. Mr. Brenner replied that he isn't responsible for their finances, but that the nursing home received the bill from Davis Houk and is responsible for covering the cost, including the overtime incurred on Sunday.

B. *Update on Coroner's Office, Election Supply, and Physical Plant generator purchase and installation*
Mr. Brenner explained that he worked with GHR on the next three projects and have done studies. He said they've been involved with various aspects of these projects or buildings for the last year and a half. He noted that all three projects are going to be going on at the same time. The biggest part is the development of specs, which will be done in March and April and draft the document. Mr. Brenner said he will present the documents to the committee in May for approval. He summarized the schedule and said this project should be completed by October 10. He noted there should be no inconvenience to the occupants of the building during the installation. Mr. Brenner said they have signed, not to exceed, agreements with GHR.

C. *Update on CCNH chiller compressor replacement*
Mr. Brenner said this project is to replace the chiller compressor that supplies the cold water for the air conditioning. He noted that it is one of four compressors and it has been down for three years and CCNH hasn't been able to afford the project. He thought it would be best to replace it now instead of waiting for emergency mode. He summarized the schedule and said they hope to get started in August and be done by October 10. He noted the GHR agreement is attached in the handout.

Mr. Goss asked where on the Capital Assets Project List this item is. Mr. Brenner replied it's not on there because he thought this project would be one that will be billed back to the nursing home for the replacement costs, but he will double-check.

D. *Update on Brooken's two RTU replacements*
Mr. Brenner said this project is the two multi-zone RTU replacement at Brookens, which are in horrible condition. He said it is of similar scope and schedule as the others, and the GHR agreement for this is also attached. He said this is the largest project in terms of estimated costs.

Mr. Anderson asked if these are the 48-year-old units. Mr. Brenner answered yes it's original. Mr. Anderson asked what the normal life is. Mr. Brenner said about 25 years. Mr. Anderson wanted to know if there have been extra costs to maintain it for so long. Mr. Brenner replied yes and that during peak time the maintenance staff will be working on it at least once a week. He said it is hard to find replacement parts.

Mr. Goss pointed out that the GHR estimate is $277,000 and the amount on the Capital Asset Project list is $274,000. He asked if the GHR estimate is the one they will be using. Mr. Brenner replied yes.

E. *Update on Dobbins Down playground removal*
Mr. Brenner summarized the history of the property and how the County came to own it. He said there was a neighborhood association that agreed to lease it for $50 per year so they could create a playground, but they only paid for the first year. He stated that a number of people on the association left the area and the playground was no longer being maintained. He said last year people in the neighborhood called Planning and Zoning because the property has become unsafe, unsightly and a nighttime hangout. A proclamation was put together by the County Board asking the County Administrator to look into getting rid of it. He noted that Planning and Zoning put a fence around it until it could be decided what could be done. Mr. Brenner commented that Mr. Snider talked to

Habitat and they aren't interested at this time. He said he talked to the park districts and Head Start but they have no interest in the playground equipment. He said he got an estimate from Dig It to have the playground equipment removed and noted the cost would be paid for by Planning and Zoning. Mr. Brenner stated the County would continue to mow until the County can get rid of the property.

Mr. Tinsley asked if children were still playing in the park before the fence went up. Mr. Brenner said he thought so but that the neighborhood is active in wanting the park gone. Mr. Tinsley asked if they could reach out to the community to make one last effort to preserve it. Mr. Brenner said the rent is not the problem, but maintaining the equipment, the graffiti, it being a nighttime hangout, and liability to the County are the issues.

Mr. Hartke asked if this is a County owned lot in a residential area if they've thought about selling it. Mr. Brenner replied that he and Mr. Snider had a conversation with the park district about maintaining it as a park and said they aren't interested. Mr. Snider stated the trend is to move away from smaller neighborhood parks in favor of larger community ones that can be used by more people.

Mr. Tinsley commented that Dobbins Downs is somewhat isolated from the rest of the city and he doesn't see residents being able to get to those other facilities.

Mr. Rosales gave a summary of how the Board at the time came to the decision to make the lot a park. He thought the association disbursed and no one wanted to assume responsibility and liability.

Mr. Anderson asked if Dig It is going to pull it up and dispose of it. Mr. Brenner felt they would be careful removing the equipment due to specialized nuts and bolts, and either sell or recycle them. He noted that there is a lot of concrete that needs to be pulled then filled with dirt and seed. Mr. Anderson said that Rantoul's park district has equipment that is 30 years old and asked about Dig Its schedule for removal. Mr. Brenner said he would check and get back to Mr. Anderson.

Ms. Petrie commented that when this started there was one woman that was part of the neighborhood association and was the driving force behind the park. She said the woman has since left the neighborhood and no one else has stepped up.

VIII. Other Business

A. Semi Annual Review of Closed Session Minutes

Mr. Hartke reported that per the State's Attorney there are no closed session minutes to review.

IX. Chair's Report

Mr. Hartke mentioned that there was a tour of the downtown facility before tonight's meeting and thanked those that attended.

Mr. Hartke informed everyone the next Facilities Committee meeting is scheduled for Monday, April 3, 2017. He said the meeting is on Monday because Tuesday is Election Day.

Mr. Hartke said ILEAS will be the tour before the next meeting.

X. Designation of Items to be Placed on the Consent Agenda

Mr. Hartke noted there are no items to be placed on the consent agenda.

XI. Adjournment

There being no further business, Mr. Hartke adjourned the meeting at 7:05 p.m.

***Please note the minutes reflect the order of the agenda and may not necessarily reflect the order of business conducted at the meeting.*

Champaign County

Physical Plant

April 3, 2017

2017 Capital Asset Dollars Available

2017 Budget Capital Asset Funds	$ 532,261.00
2016 Remaining Capital Asset Funds	$ 104,487.00
2016 DCEO Project Reimbursement Funds	$ 18,550.00
TOTAL	**$ 655,298.00**

Updated 2017 Proposed Capital Asset Projects

Priority	Project Description	Cost	Remaining FY17 $
1	Purchase and install a back-up electrical supply system to serve the entire Coroner's Office, Election Storage and Physical Plant. This emergency system would provide power back-up to all the building's electrical loads, including HVAC systems, coroner's office freezers and coolers, all receptacle circuits, I.T. space cooling, and all lighting.	**$ 199,878.00**	**$ 455,420.00**
2	Purchase and installation of two new rooftop multi-zone units at Brookens. These two units will replace the original 48-year-old Nesbitt rooftop units.	**$ 273,963.00**	**$ 181,457.00**
3* **	**Purchase and install a new refrigeration compressor in the CCNH Chiller.**	**$88,415.00**	**$ 93,042.00**
4 *	Reseal and restripe of the Courthouse Parking Lot *	**$ 24,078.00**	
5	Reseal and restripe the Satellite Jail parking lots and drive.	**$ 19,331.00**	**$ 73,711.00**
6	Reseal and restripe METCAD and Physical Plant parking lots and access drives.	**$ 31,000.00**	**$ 42,711.00**
7**	Research and Purchase Soft Water Softener System for CCNH laundry and kitchen hot water heaters.	**Conducting a study, $'s are unknown yet**	
8	Replace one PVI water heater in south penthouse of Satellite Jail with two A. O. Smith gas-fired water heaters.	$ 44,500.00	
	TOTAL	**$ 612,587.00**	**$ 42,711.00**

*Courthouse Parking Lot to be charged to the Courthouse Construction Fund

**Per Direction of Committee added CCNH Soft Water Softener System for Laundry and Kitchen at February 7, 2017 Facilities Committee Meeting

***CCNH chiller compressor needed to added to FY 17 Capital Asset Projects in order to have CCNH billed for the expense

LEASE AGREEMENT BETWEEN THE COUNTY OF CHAMPAIGN AND THE CHAMPAIGN COUNTY MENTAL HEALTH BOARD & DEVELOPMENTAL DISABILITIES BOARD

THIS LEASE AGREEMENT is and entered into this **first day of April, 2017**, by and between the County of Champaign (hereinafter referred to as "Landlord") and the Champaign County Board Mental Health Board and Developmental Disabilities Board (hereinafter referred to as "Tenant").

ARTICLE I

Premises

Landlord does hereby lease to Tenant office space located in Rooms 260-269 of Pod 200 of the Champaign County Brookens Administrative Center, which is located at 1776 East Washington Street, Urbana, Illinois. The Tenant will lease 1,744 square feet of office space during the period of **April 1, 2017 – March 31, 2019**. The office space leased is identified in the floor plan of the Brookens Administrative Center, which is attached as Exhibit "A".

ARTICLE II

Term

This lease shall be for a two-year period commencing on **April 1, 2017 and ending on March 31, 2019.** The Tenant is required to give the Landlord notice at least ninety (90) days prior to the end of each lease period if the Tenant does not wish to renew the lease. Landlord shall give Tenant written notice of the availability of other space in the Brookens Administrative Center as it becomes available, and shall give Tenant the first option to renew that available space, which said option must be exercised by the Tenant within ninety (90) days of the written notice of availability.

ARTICLE III

Rent

Rent for said premises shall be at the following rates:

a) From April 1, 2017 to March 31, 2018 – The rent for this term shall be **$20,875.68** annually ($11.97 x 1,744 sq ft) with a monthly payment of **$1,739.64** due on the first day of each calendar month.

b) From April 1, 2018 to March 31, 2019 - Rent as charged April 1, 2017 to March 31, 2018 plus CPI (as documented to Champaign County by the Illinois Department of Revenue in January 2018, to determine the maximum extension under the Property Tax Extension Limitation Law), except if the CPI is negative, then the rent shall be adjusted by 0%, and if the CPI exceeds 5%, the rent increase shall be capped at 5%.

ARTICLE IV

Utilities

At no additional cost to Tenant, Landlord shall provide electric current, plumbing, and heat and air conditioning, during the appropriate seasons. Landlord shall not be liable for failure to furnish or for suspension or delays in furnishing any utilities caused by breakdown, maintenance or repair work, strike, riot, civil disturbance, or any cause or reason whatsoever beyond the control of the Landlord.

ARTICLE V

Use of Premises

a) Tenant shall use and occupy the leased premises as a business office for the Champaign County Mental Health Board & Developmental Disabilities Board and the Champaign County Mental Health Board Access Initiative Project and for no other purpose whatsoever without the prior written consent of Landlord. Tenant shall not use or permit the leased premises or any part thereof to be used for any disorderly, unlawful, or extra hazardous purpose.

b) Tenant shall commit no act of waste and shall take good care of the leased Premises and the fixtures and appurtenances therein, and shall, in the use and occupancy of the leased premises, conform to all laws, orders, and regulations of the federal, state, and municipal or local governments or any of their departments. Tenant further agrees to save Landlord harmless from all fines, penalties, and costs for violations of or non-compliance with the same.

c) Tenant shall not use or permit the use of machinery or equipment which shall cause an unreasonable consumption of utilities within the leased premises beyond that made known to Landlord at the time of execution of this lease.

d) Tenant shall not use any equipment or engage in any activity on the leased premises which shall cause an increase in the insurance rate of the Brookens Administrative Center or which shall create or cause undue expense to Landlord for maintenance and/or utilities.

e) At the expiration or other termination of this lease, Tenant shall surrender and deliver the leased premises in as good a condition as when Tenant first received possession of the leased premises, ordinary wear and tear, and damage by the elements, fire, and other unavoidable casualty excepted. Tenant shall serve upon Landlord within ninety (90) days of the commencement of this lease written notice specifying what parts, if any, of the leased premises are not in good order.

ARTICLE VI

Subletting and Assignment

Tenant shall not, without first obtaining the written consent of Landlord, assign, mortgage, pledge, or encumber this lease, or sublet the leased premises or any part thereof.

ARTICLE VII

Alterations

a) Tenant will not make any alterations, installations, changes, replacements, additions or improvements (structural or otherwise) in or to the leased premises or any part thereof, without the prior written approval of Landlord of the design, plans and specifications therefore, which approval shall not unreasonable be withheld. Tenant shall keep the leased premises and the building and grounds of which it is a part free and clear of liens arising out of any work performed, materials furnished, or obligations incurred by Tenant, including mechanic's liens.

b) It is distinctly understood that all alterations, installations, changes, replacement, additions, or improvements upon the leased premises made by the Tenant pursuant to (a) herein, shall at the election of Landlord, remain upon the leased premises and be surrendered with the leased premises at the expiration of this lease without disturbance or injury. Should Landlord elect that same be removed upon termination of this lease or any extension thereof, Tenant hereby agrees to cause same to be removed at the sole cost and expense of Tenant. Should Tenant fail to remove same, then Landlord may cause same to be removed, and Tenant hereby agrees to reimburse Landlord for the cost of such removal together with any and all damages that Landlord may suffer and sustain by reason of the failure of Tenant to remove the same.

c) Maintenance and repair of any items installed pursuant hereto shall be the sole responsibility of Tenant, and Landlord shall have no obligation in connection therewith.

d) Tenant shall promptly repair any and all damage caused to the leased premises or to the building and grounds of which the leased premises are a part occasioned by the installation or removal of any alteration made pursuant hereto.

ARTICLE VIII

Parking

a) At no additional cost to Tenant, Tenant's employees may park in the rear parking lot, located at the northern and northeastern portion of the property. Parking spaces shall be available on first-come-first-served basis.

b) Tenant's temporary business guests and visitors will be permitted to use the visitors' reserved parking spaces available off Washington Avenue and in the northeast parking

lot off of Lierman Avenue. Parking spaces shall be available on a first-come-first-served basis.

ARTICLE IX

Signs, Notices, Advertisements, Etc.

a) Landlord shall place a sign with Tenant's name on the exterior of the building of which the leased premises is a part.

b) Tenant shall not inscribe, print, affix, or otherwise place any sign, advertisement, or notice on the grounds, or the exterior or interior of the building of which the leased premises is a part, except on the doors of leased premises and only in a size, color and style approved by Landlord.

ARTICLE X

Services

At no additional cost, Landlord agrees to furnish custodial services that are customary in the building of which the leased premises are a part. Landlord shall furnish adequate lavatory supplies and normal and usual maintenance, Mondays through Fridays, except that, during weeks having a legal holiday during the normal work week, such services shall not be available on such holidays.

ARTICLE XI

Damage to Premises

If, without the fault of Tenant, the leased premises is damaged by fire or other casualty to such extent that the leased premises if totally destroyed or if the damage occurs during the last six (6) months of the term of this lease, this lease shall cease and rent shall be apportioned to the time of the damage. In all other cases when the leased premises is damaged by fire or other casualty, without the fault of Tenant, Landlord shall repair the damage with reasonable dispatch, and if the damage has rendered the leased premises untenable, in whole or in part, there shall be an apportionment of the rent until the damage has been repaired. However, should the leased premises not be restored to tenantable condition within three (3) months from the date of said damage, then Tenant may, at is option, cancel and terminate this lease in its entirety. In determining what constitutes reasonable dispatch, consideration shall be given to delays caused by strikes, adjustment of insurance, and other causes beyond Landlord's control. If the damage results from the fault of Tenant, or Tenant's agents, servants, visitors, or licensees, Tenant shall not be entitled to any abatement or reduction of rent.

No compensation, claim, or diminution of rent shall be allowed or paid by Landlord, by reason of inconvenience, annoyance, or injury to business, arising from the necessity of repairing the leased premises or any portion of the building of which it is a part, however, the necessity may occur.

Landlord shall not be liable for damages for, nor shall this lease be affected by, conditions arising or resulting from construction on contiguous premises which may affect the building of which the leased premises is a part.

ARTICLE XII

Access

Landlord, its agents and employees, shall have the right to enter the leased premises at all reasonable hours and necessary times to inspect the premises and to make necessary repairs and improvements to the premises and the building in which the premises is located.

ARTICLE XIII

Landlord's Remedies on Default

If Tenant defaults in the payment of rent or defaults in the performance of any of the other covenants or conditions of this lease agreement, Landlord may give Tenant notice of the default. If Tenant does not cure any rent default within fifteen (15) days, or other default within twenty-one (21) days, after the giving of the notice, or if such other default is of such nature that it cannot be completely cured within such period, and Tenant does not commence such curing within fifteen (15) days and thereafter proceed with reasonable diligence and in good faith to cure such default, then Landlord may terminate this lease on not less fifteen (15) days' notice to Tenant. On the date specified in the notice, the term of this lease will terminate and Tenant will then quit and surrender the premises to Landlord, but Tenant will remain liable for any deficiencies in rent or damage to the property. If this lease is so terminated by Landlord, Landlord may at any time thereafter resume possession of the premises by any lawful means and remove Tenant or other occupants and its or their effects.

ARTICLE XIV

Cumulative Remedies and Waiver

The specified remedies to which Landlord may resort under the terms of this lease are cumulative and are not intended to be exclusive of any other remedies or means of redress to which Landlord may be lawfully entitled in case of any breach or threatened breach by Tenant of any provision of this lease. The failure of Landlord to insist on strict performance of any covenant or condition of this lease, or to exercise any option herein contained, shall not be construed as a waiver of such covenant, condition, or option in any other instance. No waiver by Landlord of any provision of this lease shall be deemed to have been made unless expressed in writing and signed by Landlord.

ARTICLE XV

Partial Invalidity

Should any provision of this lease be or become invalid or unenforceable, the remaining provisions shall be and continue to be fully effective.

ARTICLE XVI

Successors

All of the terms and provisions of this lease shall be binding upon and inure to the benefit of and be enforceable by and upon the representatives, successors, and assigns of Landlord and Tenant.

ARTICLE XVII

Notices and Payments

All rent or other payments under this lease shall be paid to Landlord at Champaign County Treasurer's Office, 1776 East Washington Street, Urbana, Illinois, 61802, or at such other place as Landlord may from time to time designate by written notice to Tenant. All notices required or desired to be furnished to Landlord by Tenant shall be in writing and shall be furnished by mailing the same by certified mail to Landlord addressed to Champaign County Administrator/Facilities & Procurement, 1776 East Washington Street, Urbana, Illinois 61802. All notices to Tenant shall be in writing and shall be furnished by Landlord by mailing the same by certified mail addressed to Champaign County Mental Health Board, 1776 East Washington Street, Urbana, Illinois 61802.

ARTICLE XVIII

Governing Law

This lease shall be construed, enforced, and considered made in accordance with the laws of the State of Illinois.

ARTICLE XIX

Titles

All titles, captions, and headings contained in this lease are for convenience only and shall not be taken into consideration in any construction or interpretation of this lease or any of its provisions.

ARTICLE XX

Entire Agreement

The terms of this lease constitute the whole and entire agreement between the parties and supersede any and all prior understandings, discussions, agreements or otherwise between the parties hereto with respect to the subject matter hereof.

ARTICLE XXI

Amendment

No amendment to this lease shall be effective unless it is in writing and signed by the parties hereto.

IN WITNESS WHEREOF, the parties hereto have hereunto set their hands and seals the day and year first above written, in duplicate documents, each of which shall be considered to be an original.

Landlord:

COUNTY OF CHAMPAIGN, ILLINOIS

By: _____ Date: _____
C. Pius Weibel, Chair
Champaign County Board

ATTEST: _____
Gordy Hulten, County Clerk and
Ex-Officio Clerk of the County Board

Tenant:

CHAMPAIGN COUNTY DEVELOPMENTAL DISABILITIES BOARD

By: _____ Date: 3/22/17

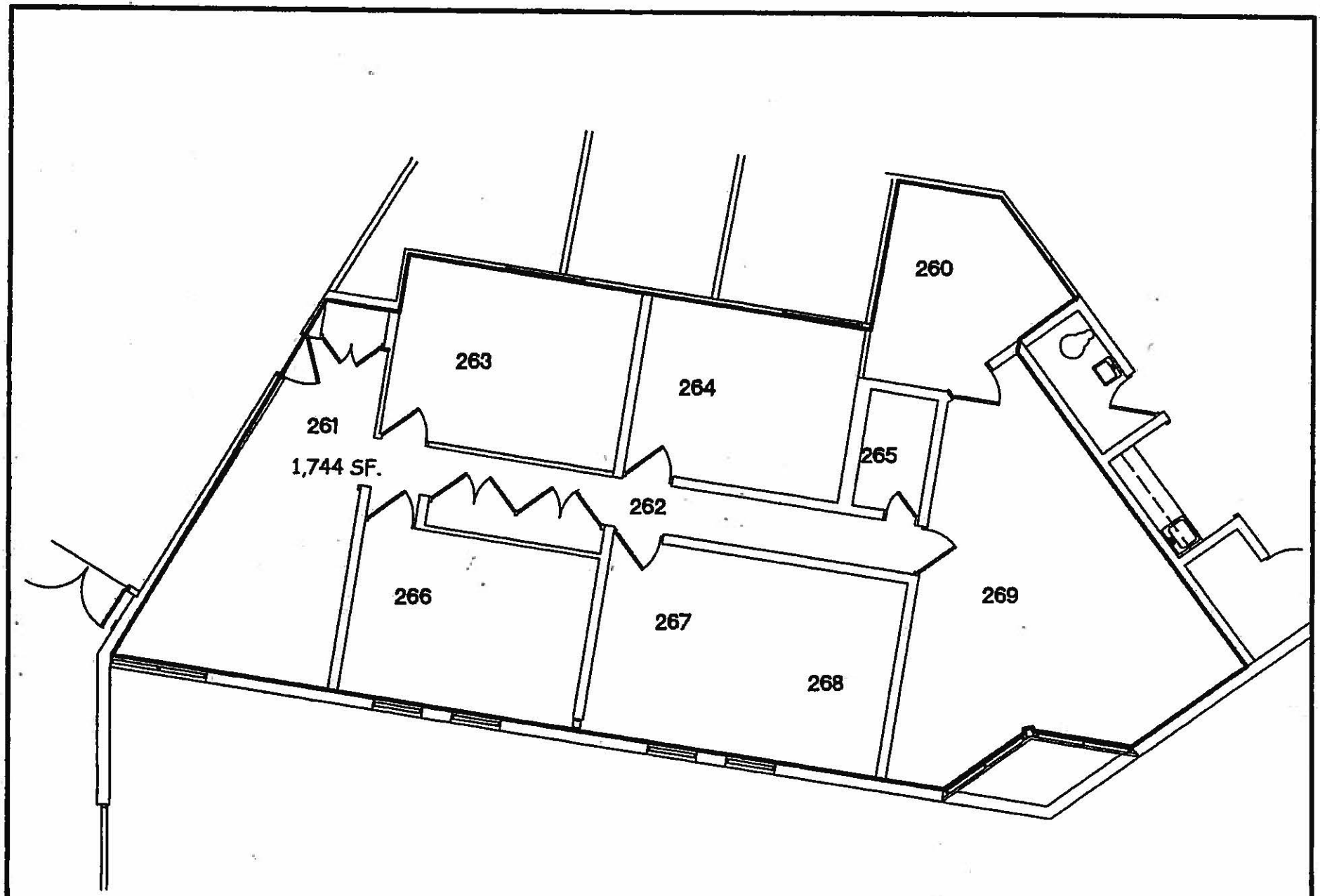
ATTEST: _____

Tenant:

CHAMPAIGN COUNTY MENTAL HEALTH BOARD

By: _____ Date: 3/22/17

ATTEST: _____



CHAMPAIGN COUNTY ADMINISTRATIVE SERVICES PHYSICAL PLANT DIVISION 1776 E. WASHINGTON, URBANA, IL	Mental Health Board & Developmental Disabilities Board	POD 200 Not To Scale DATE: 5-2013	Exhibit A

AB6026330

SUSANA A. MENDOZA
COMPTROLLER - STATE OF ILLINOIS

CHAMPAIGN COUNTY

1776 E WASHINGTON ST
URBANA IL 61802-4578

Vendor Number ********* Q

Agency # COMMERCE AND ECONOMIC OPPORTUN
Warrant Number AB6026330
Warrant Amount $18,550.00
Warrant Date 03-20-2017
Voucher Number PV4207A0003032

Payment Description: PUBLIC SECTOR ENERGY EFFICIENCY PROGRAM REBATE
9447

Invoice Number	Inv. Date	Customer ID	Billing Account Number	Net Amount
314	030617			18550.00

DO YOU NEED HELP OR HAVE QUESTIONS ABOUT THIS PAYMENT?

For questions regarding this payment, please contact the Vouchering Agency at the number listed below:

COMMERCE AND ECONOMIC OPPORTUN 217-524-5415

Payment of interest may be available if the State fails to comply with the Illinois Prompt Payment Act (30 ILCS 540/1).

www.illinoiscomptroller.gov/contact

114846572

AB6026330
REFER TO THIS NUMBER

DRAWN BY SUSANA A. MENDOZA
ON THE TREASURER OF THE STATE OF ILLINOIS

COMPTROLLER 70-2186
711

PAY THIS AMOUNT: Eighteen Thousand Five Hundred Fifty**********00/100 $*******18550.00

VOID AFTER TWELVE MONTHS

DATE ISSUED: 03-20-2017

TO THE ORDER OF
CHAMPAIGN COUNTY
1776 E WASHINGTON ST
URBANA IL 61802-4578

AB6026330

COUNTERSIGNED AND REGISTERED
Michael Frerichs
Michael Frerichs, Treasurer, State of Illinois

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GRANTED, DRAWN AND RECORDED
Susana A. Mendoza
Susana A. Mendoza, Comptroller, State of Illinois

⑈012⑈:071121866⑆ ⑈6026330⑈

AB6026331

SUSANA A. MENDOZA
COMPTROLLER - STATE OF ILLINOIS

CHAMPAIGN COUNTY

1776 E WASHINGTON ST
URBANA IL 61802-4578

Vendor Number ********* Q

Agency # COMMERCE AND ECONOMIC OPPORTUN
Warrant Number AB6026331
Warrant Amount $56,000.00
Warrant Date 03-20-2017
Voucher Number PV4207A0003033

Payment Description: PUBLIC SECTOR ENERGY EFFICIENCY PROGRAM REBATE 9492

Invoice Number	Inv. Date	Customer ID	Billing Account Number	Net Amount
365	030617			56000.00

DO YOU NEED HELP OR HAVE QUESTIONS ABOUT THIS PAYMENT?

For questions regarding this payment, please contact the Vouchering Agency at the number listed below:

COMMERCE AND ECONOMIC OPPORTUN 217-524-5415

Payment of interest may be available if the State fails to comply with the Illinois Prompt Payment Act (30 ILCS 540/1).

www.illinoiscomptroller.gov/contact

1148465731

AB6026331
REFER TO THIS NUMBER

DRAWN BY SUSANA A. MENDOZA, COMPTROLLER ON THE TREASURER OF THE STATE OF ILLINOIS

COMPTROLLER 70-2186
711

PAY THIS AMOUNT: Fifty-Six Thousand **********00/100 $*******56000.00

VOID AFTER TWELVE MONTHS

DATE ISSUED 03-20-2017

TO THE ORDER OF
CHAMPAIGN COUNTY
1776 E WASHINGTON ST
URBANA IL 61802-4578

AB6026331

COUNTERSIGNED AND REGISTERED
Michael Frerichs
Michael Frerichs, Treasurer, State of Illinois

This document has a colored background and contains an artificial watermark on the reverse side.

GRANTED, DRAWN AND RECORDED
Susana A. Mendoza
Susana A. Mendoza, Comptroller, State of Illinois

⑈0121⑈ ⑆071121866⑆ ⑈6026331⑈

346 Williams Lane
P O Box 252
Chatham, IL 62629

OEHS
Occupational Environmental Health Solutions, Inc.

Phone (217) 483-9296
Fax (217) 483-4196
Toll Free (877)-OEHSINC (634-7462)

February 24, 2017

Dana M. Brenner
Administrator
Champaign County Physical Plant
1776 E. Washington Street
Urbana, Illinois 61802

Re: Indoor Air Quality
Environmental Follow-Up Survey
Former Champaign County Nursing Home
1701 East Main Street
Urbana, Illinois

Dear Mr. Brenner:

Occupational Environmental Health Solutions, Inc. (OEHS, Inc) was retained to conduct an Indoor Environmental Quality Follow-Up Investigation at the above-referenced location. Aspects of the investigation included the collection of culturable fungal swab and non-culturable fungal spore air samples from locations within the building and inspection of the property. The purpose of the investigation was to evaluate the Indoor Air Quality within the building to determine if fungal contamination is present.

Background

The building, located at 1701 East Main Street in Urbana, Illinois consists of a two story stick built structure over a full basement that was constructed in about 1940's. The property contains approximately 68,950 ft^2 of floor space. The Champaign County Physical Plant Department is concerned about possible fungal growth in the building.

The purpose of this evaluation was to assess the building ground floor and basement for suspect fungi and to determine if fungal amplification was becoming worse in the building. At the Client's request OEHS did not evaluate the second floor or attic of the building.

SUMMARY OF DATA COLLECTION ACTIVITIES

On January 6, 2017, OEHS, Inc. conducted an inspection assessment of the building, examined the property for the presence of microbiological growth, and collected air and swab samples from areas on the ground floor, and basement.

OEHS, Inc. collected ten (10) non-culturable fungal spore air samples in the property, one (1) ambient outdoor sample to serve as a control and one (1) blank sample for quality assurance purposes for a total of twelve (12) samples. In addition, three (3) culturable swab samples were collected.

Sampling Methodology

Invasive Sampling

Due to the potential for the distribution of fungal spores and subsequent contamination of the contents of the occupied space, invasive sampling techniques (i.e. penetration of wall & ceiling interstitial spaces) was not conducted during this investigation.

Assessment Observations

The interior and exterior of the building were inspected for the presence of microbiological growth and related issues which could precipitate amplification of fungi.

Environmental Parameters

An Environmental Parameters survey (i.e. temperature, relative humidity, dew point, absolute humidity) was conducted with a Delmhorst Model HT-3000 Thermo-Hygrometer. The purpose of the survey was to determine if environmental parameter levels of the building were of sufficient quantity to promote fungal growth. Environmental parameter readings were also collected from the ambient atmosphere to serve as a control.

Microbiological Fungal Spore Air, and Swab Sampling

Microbiological non-culturable fungal spore air and culturable fungal swab sampling were conducted in the property on January 6, 2017.

Non-Culturable Fungal Spore Air Sampling Procedure

Air-O-Cell air quality particle-sampling cassettes were used to collect the non-culturable fungal spore air samples. The Air-O-Cell cassette operates on the principle of inertial impaction. The principle of operation consists of a pump that pulls air at a fixed flow rate of 15 L/min. through the tapered slit. The pump is pre- and post-calibrated with a rotameter. The rotameter is calibrated quarterly utilizing a primary standard. The air is deflected 90 degrees by an optically clear sampling media surface below the slit. Smaller particles will follow the gas streamlines; however, larger particles with sufficient inertia will deviate from the streamlines and impact onto the adhesive gel strip surface while the remainder of the particles exit the back of the cassette.

Immediately after impactor sampling, the cassettes were stored with the sticky media side up in an insulated container. The insulated container maintained the impactor cassettes at room temperature during storage and shipment. The cassettes were shipped next day air under chain-of-custody to an American Industrial Hygiene Association (AIHA) Environmental Microbiology (EMLAP) accredited analytical laboratory.

Non-culturable fungal spore air samples were collected from the following locations on January 6, 2017:

1. Blank
2. Ambient
3. Ground Floor – West Wing Mat Room
4. Basement
5. Basement
6. Basement

7. Basement
8. Ground Floor – West Day Room
9. Ground Floor – Center Day Room
10. Ground Floor – Training Room
11. Ground Floor – Nurse's Station
12. Ground Floor – Workout Room

Culturable Fungal Swab Sample Procedure

The surface of the suspect fungal amplification was collected using a sterile swab and sterile techniques. The collection media was wetted with sterile water to enhance particle collection; the sample was collected aseptically through the use of gloves and touching only the bare end of the swab stick to the sample surface. The collected swab sample was placed in a sterile container and stored at about 41°F for shipment under chain-of-custody to an American Industrial Hygiene Association (AIHA) Environmental Microbiology (EMLAP) accredited analytical laboratory.

The culturable fungal swab samples were collected from the following locations on January 6, 2017:

1. Basement – West Central Folding Room
2. Basement – Speaker Outside Old Boiler
3. Detached Door Beneath Electrical Panel

The sampling protocol followed the guidelines established by the American Industrial Hygiene Association (AIHA) Biosafety Committee. The swab samples collected on January 6, 2017 were to be analyzed for fungi. The three most predominant of each type of microorganism were to be identified.

DISCUSSION

Indoor Air Quality Complaints

Indoor Air Quality complaints result in symptoms, which are the direct consequences of an inadequate indoor climate. Typically, building occupants complain of headaches and irritation of eyes, nose and throat. Indoor Air Quality concerns can be due to several types of building problems, which include: sick building syndrome (SBS), building-related illnesses (BRI), and mass psychogenic illness (MPI).

Sick Building Syndrome (SBS)

Sick Building Syndrome is a condition associated with complaints of discomfort that include: headache, nausea, dermatitis, eye, nose, throat, and respiratory irritation, coughing, difficulty concentrating, sensitivity to odors, muscle pain and fatigue. The specific causes of these symptoms are often not known, but are sometimes attributed to the consequence of a combination of substances or individual susceptibility to low concentrations of contaminant. The symptoms are associated with periods of occupancy, and often disappear after the resident leaves the building site.

Building-Related Illnesses (BRI)

Building-Related Illnesses are those for which there is a clinically defined illness of known etiology, and includes infections such as Legionellosis and allergic reactions such as hypersensitivity diseases. Physical symptoms and laboratory findings often document these illnesses.

Mass Psychogenic Illness (MPI)

Mass Psychogenic Illness refers to an apparent epidemic of complaints for which the probable source is social/psychological rather than toxicological. Symptoms might include headaches, fatigue, nausea, hyperventilation, and fainting. MPI is characterized by a sudden onset of symptoms, frequently coinciding with an unusual odor, and spreading by contact like a contagious disease.

Microbiological Contamination

In recent years, bioaerosols (the term given to airborne microorganisms and their products) have become an important health issue in the areas of agriculture, biotechnology, non-industrial and residential indoor environments. Much of the concern regarding exposure to bioaerosols has focused on the ability of certain microorganisms to illicit inappropriate immunological responses in susceptible individuals. Adverse health effects to microorganisms are ultimately determined by the immunological state of the exposed individual, the affecting agent (i.e., fungi, bacteria, viruses, cell wall constituents, protozoas, and metabolic products such as mycotoxins), the airborne concentration, and the associated disease outcome (infection versus a sensitization reaction).

Microorganisms (including fungi and bacteria) are normal inhabitants of the environment. The saprophytic varieties (those utilizing non-living organic material as a food source) inhabit soil, vegetation, water, or any reservoir that can provide an ample supply of nutrients. Under the appropriate conditions (optimum temperature, and pH, sufficient moisture, and available nutrients) saprophytic microorganisms' populations can be amplified. Through various mechanisms, these microorganisms can then be disseminated as individual cells or in association with soil, dust, or water particles. In the outdoor environment, the level of bioaerosols will vary according to the geographic location, climatic conditions, and surrounding activity. In a well-maintained indoor environment, where there is no unusual source of microorganisms, their level may vary somewhat as a function of HVAC system filtration, the overall cleanliness of the HVAC system, and the number and activity level of occupants. Typically, the indoor levels of fungal bioaerosols are expected to be below the outdoor levels with a consistently similar ranking among the individual microorganisms. Acceptable levels of bioaerosols have not been established. This is primarily because allergic reactions can occur even with relatively low airborne concentrations of allergens, and because individuals differ with respect to immunogenic susceptibilities, and the diversity of the microorganisms to which we may be exposed is immense. It is unlikely that evaluation criteria for bioaerosols will be established in the near future given the lack of scientifically valid epidemiological and toxicological data to establish dose-response relationships. Because of this, the current strategy for the evaluation of environmental microbiological contamination involves an inspection to identify sources (reservoirs) of microbial growth and potential routes of dissemination (pathways). In those locations where contamination is either visible or suspect, bulk/surface samples and/or air samples may be collected to identify the predominant microorganisms (fungi, bacteria, and thermoactinomycetes).

Dose-response data are not available for most microorganism exposures. In addition, health organizations have established no exposure limit for bioaerosols. Because of this, indoor bioaerosol levels must be compared to outdoor levels and/or to an asymptomatic control area. In general, indoor levels are lower than outdoor levels, and the taxa are similar. Until guidelines on acceptable concentrations of biological agents are developed for particular environments and human populations, it is imperative that knowledge, experience, and good industrial hygiene practice be used to interpret biological data information and to design remediation strategies.

Indicator Species

Fungi whose presence indicates excessive moisture or a health hazard are described as indicator species (i.e. those recognized toxigenic fungi that are uncommon in outdoor air) and require the ability to identify fungi to the species level and knowledge of the prevalence of various fungal species in indoor and outdoor environments. The mere presence of a few colony forming units (CFUs) or spores of an indictor species should be interpreted with caution. Identification of the presence of a particular fungus in an indoor environment does not allow investigators to conclude that building occupants are exposed to antigenic or toxic agents. It is also important to note that fungi which are named as indicator species are not the only fungi of significance. Many fungi other than those specifically listed by various groups may cause problems for building occupants exposed through inhalation of fungal aerosols or via other contact.

The following are the recommendations from Europe and North America for fungi that should be considered indicator organisms.

Netherlands

1. *Aspergillus fumigatus*
2. *Aspergillus versicolor*
3. *Eurotium*
4. *Exophiala*
5. *Penicillium*
6. *Rhodotorula*
7. *Trichoderma*
8. *Wallemia*

Canada

Health Canada

1. *Aspergillus*
2. *Aspergillus fumigatus*
3. *Cryptococcus neoformans*
4. *Fusarium*
5. *Histoplasma*
6. *Penicillium*
7. *Stachybotrys chartarum*

United States

American Industrial Hygiene Association (AIHA)

1. *Stachybotrys chartarum*
2. *Aspergillus versicolor*
3. *Aspergillus flavus*
4. *Aspergillus fumigatus*
5. *Fusarium moniliforme*
6. *Histoplasma capsulatum*

7. *Cryptococcus neoformans*

American Conference of Governmental Industrial Hygienists (ACGIH)

The ACGIH has taken the position that active fungal growth in indoor environments is inappropriate and may lead to unacceptable exposure and adverse health effects, rather than focusing on specific kinds of fungi or on quantitative measures of fungal prevalence. The following is a summary of ACGIH guidelines for assessing fungal issues in non-industrial indoor environments:

1. The presence of visible fungal growth confirmed by source sampling in occupied indoor environments is strong evidence that exposure may occur. The conditions leading to such growth should be corrected and the growth removed, using appropriate precautions.

2. The presence of moldy odors in occupied indoor environments is strong evidence that fungal growth is occurring. Such growth should be located and confirmed by source sampling. The conditions leading to the growth should be corrected and the growth removed, using appropriate precautions.

3. The persistent presence of water in indoor environments (except in places designed for the carriage or storage of water) is likely to lead to fungal growth. The conditions allowing such water to accumulate should be corrected.

4. Interpretation of source or air sampling data in the absence of any of the above conditions requires a sufficient number of samples (including controls) to ensure that results are not due to random chance. If these data requirements are met, an investigator may consider sampling results in light of the following:

   Indoor/outdoor relationships are assessed both by comparing concentrations and species composition of comparably collected samples. In non-problem environments, the concentration of fungi in indoor air typically is similar to or lower than the concentration seen outdoors, except when outdoor air concentrations are near zero (i.e., during periods of snow cover). If fungal concentrations indoors are consistently higher than those outdoors, the indoor sources are indicated. However, indoor fungal growth may also be present in situations where indoor concentrations of airborne fungi are equal to or lower than those outdoors, and interpretation of data depends on knowledge of the kinds of fungi present in the two environments.

FINDINGS

Building Interior

Microbiological samples were collected from the interior and exterior of the building. The purpose of the sample collection was to determine if the odor complaints represent suspect fungal growth that is the result of fungal microorganisms inhabiting the space.

Assessment Observations

During the inspection on January 6, 2017, the following issues were identified:

1. There was visible suspect fungal growth throughout ground floor and basement of the building.
2. The roof was deteriorated and allows water intrusion.
3. The basement has visible suspect fungal amplification throughout the space.

Environmental Parameters Survey

The environmental parameters survey for relative humidity was negative for moisture concentrations which can precipitate fungal amplification in the building. Relative humidity levels which exceed 60% are known to provide moisture conditions suitable to precipitate fungal amplification (i.e. growth) of fungal organisms. The dew point temperature is the temperature at which moisture will begin to condense from the air. When the temperature of the air cools to the same value as the dew point temperature, the air is said to be "saturated", it has reached 100% relative humidity. In this survey, the following levels were observed in the building (See Table 1).

Culturable Microbiological Swab Sampling

Microbiological swab sampling was conducted in the building to determine the potential source of odors and suspect fungal amplification in the structure. The samples were collected in the above-captioned locations.

Based on the sampling and analytical results, Tables 2 & 2a were used to interpret the data. Table 2 may be used to evaluate fungi and bacteria, while table 2a is used only for the evaluation of fungi.

Row five of Table 2 (i.e. samples with greater than 100,000 colony-forming units (CFU) per gram/square inch of fungi) is considered a high level of biological contamination. This Table was used to evaluate the culturable fungi swab samples. These criteria have been developed by PathCon Laboratory and are based on thousands of sample analyses.

Row five column two of Table 2a (i.e. samples with greater than 10,000 CFU/in^2) represents guidelines published by the American Industrial Hygiene Association (AIHA). These guidelines have been established by practicing industrial hygienists from across the United States. It should be noted, that these guidelines were developed for addressing concerns regarding fungal and fungi assessment and abatement and would not necessarily apply to health effects. In addition, they should not be used as the only means of decision-making in the remediation of fungal contamination.

Swab Samples

The analytical results for the culturable swab samples collected from the basement were considered to be at a high level of fungal contamination as described in Table 2. Also, Table 2a describes the result of the sample location as the probable source of contamination of fungi. See Table 3 for the analytical results and Appendices A & B for the chain-of-custody form and the laboratory analytical report, respectively.

Non-Culturable Spore Air Sampling

Dose-response data are not available for most microorganism exposures. In addition, health organizations have established no exposure limit for bioaerosols. Because of this, indoor bioaerosol levels must be compared to outdoor levels and/or to an asymptomatic control area. In general, indoor levels are lower than outdoor levels, and the taxa are similar.

Table 1
Environmental Parameters
Champaign County Former Nursing Home
1701 East Main Street
Urbana, Illinois
January 6, 2017

Sample Location	Relative Humidity (%)	Temperature (°F)	Absolute Humidity (gpp)*	Dew Point (°F)
Ambient	15	25.2	38.1	41.0
Ground Floor Mat Room	1.1	63.1	0.9	-7
Ground Floor Corridor Adjacent Mat Room	5.5	61.0	4.7	-7
Ground Floor West Day Room	7.4	61.0	5.8	-3

* - Relative humidity also measures water vapor but relative to the temperature of the air. It is expressed as the amount of water vapor in the air as a percentage of the total amount that could be held at its current temperature.
** - Absolute humidity is the measure of water vapor (moisture) in the air, regardless of temperature. It is expressed as grams of moisture per pound of air (gpp)

By comparing the microbiological profiles at the contaminated sites with those at uncontaminated sites, it is possible to determine if amplification of microorganisms has occurred in the contaminated areas of the building. If interior fungal spore counts are about 3 times the ambient it is considered to be a statistically significant amplification issue.

It is significant to note that the mean ambient levels of *Aspergillus/Penicillium* were 13 spores per cubic meter (S/m^3) *Stachybotrys* 0 (S/m^3) and *Chaetomium* 0 (S/m^3) while the building had the following concentrations of *Aspergillus/Penicillium*, *Stachybotrys* and *Chaetomium* (See Table 4).

The analytical results for the non-culturable fungal spore air samples collected in ten (10) of the ten (10) locations on the ground floor and basement locations did indicate elevated levels of *Aspergillus/Penicillium*. In addition, *Stachybotrys* was identified in three (3) locations and *Chaetomium* was identified in two (2) locations of the building. See Table 4 for analytical results.

Spores are identified by direct microscopic examination. The size and shape of the spores are used for this purpose. When viewed under the microscope *Aspergillus* and *Penicillium* spores are of similar size and shape. Because of this, laboratories cannot differentiate between the two genera of fungi and they are reported as *Aspergillus/Penicillium*. In this investigation *Aspergillus* and *Penicillium* were both identified during the culturable swab sampling.

Stachybotrys fungus is a slow growing slime mold. Because of this, the spores from these fungi are not released in the air in elevated concentrations. However, in this investigation elevated concentrations of *Stachybotrys* were identified in the ground floor and basement ambient environment of the building. One swab sample did identify *Stachybotrys*.

Table 2
Path Con Laboratories
Interpretation of Findings with Bulk and Swab Samples
Colony-Forming Units (CFU) per gram or Square Inch

CFU	Fungi
<1,000	Low
1,000<10,000	Moderate
10,000<100,000	Moderate
100,000<1,000,000	High
1,000,000 or greater	High

Table 2a
American Industrial Hygiene Association
Guidelines for Fungal/Fungi Contamination

Type	Normal Background*	Possible Contamination Source	Probable Contamination Source
Air Samples from Residential Building	<5,000 spores/m^3 <500 cfu/m^3	5,000-10,000 spores/m^3 500-1,000 cfu/m^3	>10,000 spores/m^3 >1,000 cfu.m^3
Air Samples from Commercial Building	<2,500 spores.m^3 <250 cfu/m^3	2,500-10,000 spores/m^3 250-1,000 cfu/m^3	>10,000 spores/m^3 >1,000 cfu/m^3
Dust Samples	<100,000 spores/g <10,000 cfu/g <50,000 mycelial frags/g	100,000-1,000,000 sporesm^2 >10,000-100,000 cfu/g 50,000-100,000 mycelial frags/g	1,000,000 spores/g >100,000 cfu/g >100,000 mycelial frags/g
Bulk Samples	<100,000 spores/g <10,000 cfu/g <50,000 mycelial frags/g	100,000-1,000,000 spores/g 10,000-100,000 cfu/g 50,000-100,000 mycelial frags/g	>1,000,000 spores/g >100,000 cfu/g >100,000 mycelial frags/g
Swab Samples	<10,000 cfu/in^2 <1,500 cfu/cm^2	---	>10,000 cfu/in^2 >1,500 cfu/cm^2
Tape Samples	NSFM or NSFB ** 1-5%	5-25%	25-100%

- *Types and relative proportions of fungal spores should be similar to outdoors.
- **NSFM = no significant fungal material; NSFB = no significant fungal biomass

These guidelines were developed for the purpose of addressing concerns regarding fungal assessments and abatement and would not necessarily apply to health effects. In addition, they should not be used as the only means of decision-making in the remediation of fungal contamination.

Table 3
Culturable Swab Sample Analytical Results
Champaign County
Former Nursing Home
1701 East Main Street
Urbana, Illinois
Samples Collected January 6, 2017

Sample Number	Sample Location	Sample Description	Fungi Analytical Results (CFU)[1] Interpretation[2] Taxa[3]
1	Basement West Central Folding Room	Swab	18,000,000 *Stachybotrys chartarum* (17,191,011) *Acremonium* (505,618) *Tritirachium* (202,247) *Aureobasidium* (101,124) *Cladosporium* (<101,124) *Aspergillus sydowii* (<101,124) *Penicillium* (<101,124) *Aspergillus ochraceus* group (<101,124) *Fusarium* (<101,124)
2	Basement Speaker Outside of Old Boiler Room	Swab	3,900,000 Unidentified fungus (3,800,000) *Tritirachium* (100,000) *Cladosporium* (<100,000) *Aspergillus versicolor* group (<100,000) *Aspergillus sydowii* (<100,000) *Penicillium* 1 (<100,000) *Penicillium* 2 (<100,000) *Penicillium* 3 (<100,000)
3	Basement Detached Door Beneath Electric Panel	Swab	32,000 Yeast (11,000) *Cladosporium* (8,000) *Geotrichum*-like (8,000) *Alternaria* (2,000) *Aspergillus ustus* group (2,000) *Penicillium* (1,000) *Aspergillus niger* group (<1,000) *Trichoderma* (<1,000)

1 - Colony forming units of fungi on Malt Extract Agar per swab.
2 - Genera listed in descending order of occurrence.
3 - ( ) = Taxon Count/Total Count.

Table 4
Non-Culturable Fungal Spore Air Sample Analytical Results
Indoor Environmental Air Quality Evaluation
Former Champaign County Nursing Home
1701 East Main Street
Urbana, Illinois
Samples Collected January 6, 2017

Sample Number	Sample Location	Sample Time (Minutes)	Sample Description	Fungi Analytical Results[1] Taxa[2] Number[3]
1	Blank	N/A	N/A	No Spores Detected <7
2	Ambient	10	Air Sample	27 *Penicillium/Aspergillus* group (13) *Epicoccum* (7) Smuts/*Periconia*/Myxomycetes (7)
3	Ground Floor West Wing Mat Room	10	Air Sample	213 *Penicillium/Aspergillus* group (53) Hyphal elements (20) *Pithomyces* (20) basidiospores (13) *Cercospora* (13) Smuts/*Periconia*/Myxomycetes (13)
4	Basement	10	Air Sample	880 *Penicillium/Aspergillus* group (720) *Cladosporium* (100) basidiospores (47) *Cercospora* (7) Smuts/*Periconia*/Myxomycetes (7)
5	Basement	10	Air Sample	27,227 *Penicillium/Aspergillus* group (25,707) *Cladosporium* (1,067) basidiospores (140) Hyphal elements (127) ascospores (80) *Stachybotrys* (60) Smuts/*Periconia*/Myxomycetes (27) *Alternaria* (13) *Epicoccum* (7)
6	Basement	10	Air Sample	313 *Penicillium/Aspergillus* group (173) *Cladosporium* (127) basidiospores (13)

Table 4 (Continued0
Non-Culturable Fungal Spore Air Sample Analytical Results
Indoor Environmental Air Quality Evaluation
Former Champaign County Nursing Home
1701 East Main Street
Urbana, Illinois
Samples Collected January 6, 2017

Sample Number	Sample Location	Sample Time (Minutes)	Sample Description	Fungi Analytical Results[1] Taxa[2] Number[3]
7	Basement	10	Air Sample	7,633 *Penicillium/Aspergillus* group (7,040) basidiospores (173) *Stachybotrys* (100) *Cladosporium* (93) Hyphal elements (67) *Chaetomium* (60) ascospores (53) *Cercospora* (20) Smuts/*Periconial*Myxomycetes (20) *Alternaria* (7)
8	Ground Floor West Day Room	10	Air Sample	453 *Penicillium/Aspergillus* group (373) *Cladosporium* (47) *Epicoccum* (13) ascospores (7) Hyphal elements (7) *Pithomyces* (7)
9	Ground Floor Center Day Room	10	Air Sample	227 *Penicillium/Aspergillus* group (133) *Cladosporium* (47) basidiospores (20) *Alternaria* (7) ascospores (7) Hyphal elements (7) Smuts/*Periconial*Myxomycetes (7)
10	Ground Floor Training Room	10	Air Sample	133 *Penicillium/Aspergillus* group (87) *Cladosporium* (27) basidiospores (20)

Table 4 (Continued0
Non-Culturable Fungal Spore Air Sample Analytical Results
Indoor Environmental Air Quality Evaluation
Former Champaign County Nursing Home
1701 East Main Street
Urbana, Illinois
Samples Collected January 6, 2017

Sample Number	Sample Location	Sample Time (Minutes)	Sample Description	Fungi Analytical Results[1] Taxa[2] Number[3]
11	Ground Floor Nurse Station	10	Air Sample	1,487 *Penicillium/Aspergillus* group (1,373) basidiospores (47) *Cladosporium* (47) ascospores (7) Hyphal elements (7) *Stachybotrys* (7)
12	Ground Floor Workout Room	10	Air Sample	167 *Cladosporium* (53) *Penicillium/Aspergillus* group (47) ascospores (27) basidiospores (13) Hyphal elements (13) *Chaetomium* (7) Smuts/*Periconia*/Myxomycetes (7)

1 - Estimated fungal spore concentration per Cubic Meter of Air. Counts may include other fungal fragments if present.
2 - Number of spores identified for the individual taxa.

Fungi

The most predominate or significant fungal organisms that were identified were:

1. ***Penicillium***

   Members of the genus *Penicillium* are the common blue-green moulds that exist ubiquitously in nature, and are among the most common of all laboratory contaminants. They colonize relatively dry materials (i.e., house dust at high RH). *Penicillium* species are generally cold temperature molds and predominate in temperate and colder regions.
   Many species produce antibiotics of value as chemotherapeutic agents in human medicine, while other species produce mycotoxins, which have serious deleterious effects on humans and animals.

   In general *Penicillium* species are regarded as low temperature molds. Because of this physiological limitation, they are not regarded as important clinical pathogens of humans and animals. However, there are exceptions to any biological rule. Some strains of *Penicillium* are rare opportunistic pathogens in humans, causing infections of the eyes, ears, lungs, urinary tract, and membrane lining of the heart.

   Many species, such as *P. notatum* (penicillin) and *P. griseofulvum* (griseofulvin), produce antibiotics of value as chemotherapeutic agents in human medicine. Many other species produce mycotoxins, which have serious deleterious effects on humans and animals throughout the world, e.g., ochratoxins, citrinin, and patulin. *Penicillium brevicompactum* can produce the mycotoxins brevianamide A and mycophenolic acid.

2. *Aspergillus*

   Aspergillus is a genus of fungi containing over 100 species, approximately 15 of which are commonly encountered in dwellings. All naturally occurring *aspergilli* are toxigenic. Aspergillosis is now considered the second most common fungal infection requiring hospitalization in the U.S. *Aspergillus* is routinely isolated from respiratory secretions, and skin scrapings. These opportunistic molds grow in most body tissues and fluids.

   However, colonization or invasion is common, but not solely, associated with subcutaneous soft tissue and mucous membranes.

   Indoor growth occurs in water-damaged building materials and may occur in damp linings of heating systems in fall and winter. They are commonly recorded in indoor and outdoor air sampling.

   Most fungi require free water for growth. There are some species of *Aspergillus*, however, that can absorb water molecules directly from humid air. These xerophilic *Aspergillus* species can grow when the relative humidity of the air exceeds 60%. This humidity is commonly exceeded in the lower level of many homes and, in these cases;

   Aspergillus then becomes a domestic hazard as an allergen. Species of the same genus can also grow in high substrate (low moisture) concentrations and are said to be osmotolerant. Several *Aspergillus* species are found as some of the most predominant fungi in indoor and outdoor air.

3. ***Basidiomycetes (Basidiospores)***

Bisidiomycota is a Division of fungi which include mushrooms, shelf fungi, puffballs, and rusts. Basidiomycetes are important decomposers of wood and other plant material. The division also includes mycorrhiza-forming mutualists and plant parasites. Of all fungi, the saprobic basidiomycetes are best at decomposing the complex polymer lignin, an abundant component of wood. Two of the groups of basidiomycetes, the rusts and smuts, include particularly obnoxious plant parasites. Basidiospores are asexual spores from mushrooms. They are found worldwide in soil and decaying vegetation. Many are plant pathogens. Some species are an agent of dry rot.

4. ***Cladosporium***

In most parts of the world Cladosporium is the most abundant genus identified from atmospheric sampling. Cladosporium is known as the dry air spora. During crop harvesting or mowing, incredible levels of Cladosporium spores (10^9 spores/m^3) may be dispersed into the atmosphere. Cladosporium is routinely the most prevalent spore found during indoor air monitoring.

Allergic rhinitis, bronchitis and asthma typically occur in atopic individuals and are characteristic of an immediate upper-airway response within minutes of exposure to the relevant allergen. This is predominantly a type I IgE-mediated immune response. Cladosporium is one of the commonest genera causing seasonal mold allergies of this type.

5. ***Chaetomium***

Chaetomium is a large genus with over eighty species worldwide. *Chaetomium* species are perithecial members in the phylum Ascomycota. *Chaetomium globosum* is the most common and widespread species, but other species are frequently encountered. As a group, *Chaetomium* species are strongly cellulolytic and are commonly found growing on all types of cellulose materials. They also like fairly wet conditions. Thus, *Chaetomium* species are often found growing on water-soaked wood, especially laminated forms, such as plywood, and can cause soft rot. Most species of *Chaetomium* are saprophytes and frequently recovered from soil, rotting plants, straw, dung, cotton, and any source where there is an abundance of cellulose and water. Although not common, *Chaetomium* species are recorded from time to time from environmental samples, more often in association with cellulose-containing materials.

Chaetomium species are not generally regarded as common agents of human disease. Several species, however, (C. atrobrunneum, C. funicola, and C. globosum) have been implicated in mycotic infections of the nails, skin, and brain and as agents of peritonitis.

6. ***Stachybotrys chartarum***

Species of *Stachybotrys* are distributed worldwide. Most species are strongly cellulolytic and are commonly found on damp substrates where cellulose is available. Thus, they are commonly found in soil and on dead plant material. *Stachybotrys* is also detected in leaf litter; moldy hay; and the nests, feathers and feces of free-living birds. They have been isolated frequently from the roots of many plants. There are about 10 recognized species, but the most important of these is *S. chartarum*. *Stachybotrys chartarum* is a relatively common species in domestic environments where there is available moisture. *Stachybotrys* species are not as commonly reported from environmental samples as other fungi, such as *Alternaria, Aspergillus, Cladosporium,* and *Penicillium* species.

A genus of toxigenic molds (Hyphomycetes) characterized by producing limy heads of warted, ellipsoidal, usually black conidia from cluster of inflated phialides (flask-shaped fertile cells). The toxins produced by *Stachbotrys* chartarum are extremely potent macrocyclic trichothecenes. *Stachybotrys* lives primarily on damp cellulose. Stachybotrys is known as black mold.

The illness is suggestive of trichothecene toxicosis, a mycotoxin of *Stachybotrys*. Contaminated materials are highly irritating to the skin and respiratory system.

Some investigators have suggested that *Stachybotrys chartarum* is responsible for symptoms ranging from Chronic Fatigue Syndrome to pulmonary hemorrhage in infants and that special risk management action should be taken when building materials are contaminated with this organism. More research is needed to clarify the hazard potential of the organism.

Fungi

A kingdom of organisms defined technically as a parasitic or saprobic, filamentous or single-celled eucaryotic organism devoid of chlorophyll and characterized by heterotrophic growth, production of extracellular enzymes, and a distinctive L-lysine biosynthesis pathway. Fungi (i.e. mold, yeasts, and mushrooms) may cause indoor environmental quality problems through the dissemination of conidia, spores, toxins or cell wall constituents.

Over 60 species of fungi are known to produce allergens that cause allergic rhinitis (hay fever) and asthma.

Fungi digest their food outside of the fungal cell. To accomplish this, they excrete enzymes into the environment. Many of these enzymes are unique to the fungi, and allow degradation of extremely resistant substances (i.e. lignin, cellulose, and polyethylene).

In addition to enzymes, the fungi produce secondary metabolites that either accumulate in the environment, or are stored within the fungus. These metabolites may be involved in the pathogenesis of fungal invasive disease. On the negative side, the most carcinogenic natural substance known is aflatoxin B1, a fungal metabolite. Fungi also produce many volatile compounds during active growth that can be odoriferous, and cause irritation.

The fungi have evolved primarily as decay organisms, and are responsible for most aerobic decay in nature. There are fungi that will utilize almost any non-living organic substrate, and a few that will invade plant and animal (including human) tissue.

The majority of fungi are found on dead plant materials. All fungal spores found in indoor environments are ultimately derived from outdoor sources.

There are three classifications of infection caused by fungi:

1. **Systemic Infection**: The systemic fungal infections include *Histoplasmosis, Coccidioidomycosis, Blastomycosis* and *Paracocidioidomycosis*. In most cases, infection is initiated when spores of the fungi that cause these diseases are inhaled. A large majority of these infections are self-limiting and produce minimal or no symptoms. Immune suppressed individuals may develop a chronic localized infection or the disease may disseminate throughout the body, which generally proves to be fatal.

2. **Opportunistic Infection**: Opportunistic infections are generally limited to individuals with impaired immunological defenses, where infection is secondary to a primary disease or condition. The opportunistic fungi are facultative parasites, meaning they can use both living and dead substrates for nutrients. Common opportunistic fungi include species of *Aspergillus, Cladosporium, Mucor, Rhizopus* and *Cryptococcus.*

3. **Dermatophytes**: Dermatophytes are a group of fungi that infect the hair, skin and nails. Infection usually occurs through direct contact with an infected individual or indirectly by sharing clothes, grooming utensils, towels, etc. Transmission to humans from an environmental source is extremely rare, although outbreaks from soil have been reported.

Conditions in the indoor environment that are especially conducive to the growth of fungi are high relative humidity (which allows condensation and absorption of water by hygroscopic materials), moisture that accumulates in appliances, and leaks and floods. In general, fungi prefer dampness rather than standing water, although some (i.e. *fusarium, phialophora*, and yeasts) will grow in standing water and have been recovered from humidifier reservoirs.

Mycotoxins

The fungi produce many agents that can be toxic with sufficient exposure. In general, these agents fall into two classes: (a) secondary products of metabolism (i.e., mycotoxins, antibiotics, and VOC's), and (b) structural components [i.e., β- (1→3)-D-glucans]. Mycotoxins are nonvolatile; relatively low-molecular-weight secondary metabolic products that may affect exposed persons in a variety of ways, the best known of, which are deleterious. β-1, 3-glucan is a constituent of fungal cell walls suggested as one of the possible causative agents of adverse effects in buildings with a history of water damage. Glucans comprise the bulk of the cell walls of most fungi. Glucans have anti-tumor activity and modulate the endotoxin-stimulated release of cytokines in Gram-negative bacterial infections. Glucans have irritant effects similar to, although less potent than, those of endotoxin. Exposure to glucans in dust has been associated with BRIs. Whether the glucans, some other fungal agent, or other factors associated with conditions leading to fungal growth actually mediated the effect remains to be investigated.

Mycotoxins are y-products of fungal metabolic processes. These compounds are considered secondary metabolites because they are natural products not necessary for fungal growth and are derived from a few precursors formed during primary metabolism. The function of fungal toxins has not been clearly established. However, they are considered to play a role in regulating competition with other microorganisms, and mycotoxins probably help parasitic fungi invade host tissues.

Fungi that have been shown to produce mycotoxins are:

Aspergillus
Alternaria
Fusarium
Penicillium
Stachybotrys
Mrothecium

Trichothecene

A class of toxins produced by certain fungal species such as *Fusarium* sporotrichoides and *Stachybotrys chartarum*. These mycotoxins cause severe health effects in humans and other animals (i.e., T-2; HT-t; diacetoxyscirpenol, or DAS).

Mycotoxigenic

The production of mycotoxins, which are known as specialized fungal toxins. Many different types of toxins are included in this broad category. Most are small, non-volatile molecules such as polyketides, amino acid derivatives, alkaloids, and trichothecenes.

Antigens/Allergens

Fungi produce a variety of antigen and allergen compounds. In most cases, sensitization to antigens and allergens occurs via the airborne route. Two types of diseases that are caused by airborne fungal antigens are allergic diseases (asthma and rhinitis/hypersensitivity pneumonitis). In addition, some fungi can grow in the thick secretions that can build up in the lungs of some asthmatic patients. These fungi do not actually invade the human tissue, but grow in the mucus and produce antigens (and possibly toxins) that cause disease. The most common fungus causing this disease is *Aspergillus fumigatus*, a ubiquitous environmental fungus that is also an opportunistic infectious agent.

Irritants

The fungi produce volatile organic compounds during degradation of substrates that cause the typical "moldy" odor associated with fungal growth, as well as a wide variety of other odors. These substances can be irritating to the mucous membranes and some evidence is accumulating that they may cause headaches and possibly other kinds of acute toxic symptoms.

Only a few fungi (i.e., *Histoplasma, Blastomyces, and Cryptococcus*) are considered primary, systemic, human pathogens that can infect healthy persons. A large number of fungal species are known to cause infection in immunocompromised persons, such as those with AIDS or those receiving chemotherapy. These infections are known as opportunistic infections, and frequently involve fungi from the genera *Aspergillus* and *Fusarium*. Exposure to *Aspergillus* in this population may lead to respiratory or systemic forms of aspergillosis. *Fusarium* infections are rare, and normally cause local skin infections, although lethal invasive cases have been documented.

Allergic respiratory diseases resulting from exposure to fungi have been documented in agricultural and industrial biotechnology settings, offices, and home environments. These include allergic rhinitis (nasal allergy), allergic asthma, allergic bronchopulmonary aspergillosis, and hypersensitivity pneumonitis (HP). Allergic rhinitis is characterized by sneezing, itching of the mucous membranes, and nasal congestion.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Non-Culturable Air Samples

Dose-response data are not available for most microorganism exposures. In addition, health organizations have established no exposure limit for bioaerosols. Because of this, indoor bioaerosol levels must be compared to outdoor levels and/or to an asymptomatic control area. Comparison of the diversity of indoor fungi to that of outdoors is of primary importance to the interpretation of an indoor air quality study. If no reservoirs or amplification sites of fungi are located indoors, then it is anticipated that the same biodiversity will be found as outdoors. In general, indoor levels are lower than outdoor levels, and the taxa are similar. By comparing the microbiological profiles at the contaminated sites with those at uncontaminated sites, it is possible to determine if amplification of microorganisms has occurred in the contaminated areas of the building. It is important to note the differences in taxa between the building interior and ambient levels.

Culturable Swab Samples

Based on the sampling and analytical results, Tables 3 & 3a were used to interpret the data. Table 3 may be used to evaluate fungi and bacteria, while Table 3a is used only for the evaluation of fungi.

Culturable swab samples that are identified as having concentrations of fungi greater than 10,000 colony-forming units (CFU) per gram/square inch of fungi are considered to be a high level of biological contamination. These criteria have been developed by PathCon Laboratory and the American Industrial Hygiene Association (i.e. see Tables 3 and 3a) and are based on thousands of sample analyses.

The sampling and analytical results for the air and swab samples indicate that there is currently significant fungal amplification present in the sampled areas of the ground floor and basement of the building. The contamination identified in the basement is beginning to migrate into the air of the space. The fungal amplification identified appears to be a result of water intrusion issues with the roof, windows and occasional flooding of the basement. Currently, the identified fungal contamination has migrated into the ambient air of the building. Based on the sampling and analytical data, the areas with fungal amplification do appear to represent a contamination issue and should be remediated by a professional organization.

Recommendations

Contract with a licensed builder, to correct the moisture intrusion issues, associated with the roof, windows and basement of the building prior to beginning abatement activities.

At the Client's request the following options are being provided. Consideration should be given to one of the following recommendations for dealing with the contamination identified in the building.

1. Discontinue utilization of the building until fugal abatement is conducted. If demo is chosen over abatement a lead based paint and asbestos sampling survey should be conducted to determine the presence of the materials.
2. Close the older three story building and isolate from the remainder of the property.

3. Close the basement of the building and isolate from the remainder of the property. Employees not enter this space without the benefit of personal protective equipment (i.e. respiratory protections and coveralls).

4. If fungal abatement is not completed, consideration should be given to limited use of the ground floor of the newer building. Continuous or greater than (4) four hour occupancy should be prohibited due to the potential for exposure to fungal contamination which can produce adverse health effects in humans. If this option is contemplated, periodic evaluations of the property should be conducted to determine if the fungal amplification and contamination accumulation has continued to amplify resulting in further potential for adverse health effects for occupants. Re-evaluation should be considered on a quarterly basis until it is determined that fungal amplification is not increasing. However, if the fungal amplification is found to be increasing for the genus of fungi that are known to cause adverse health effects in humans it may be necessary to close this portion of the building to occupancy. If the fungal amplification remains static over a year, the evaluations can be reduced to a semi-annual basis.

5. In addition, to the above, consideration should be given to conducting fungal evaluations in the basement of the newer building. This area cannot be closed to occupancy because mechanical equipment situated there must be periodically serviced. Employees not enter this space without the benefit of personal protective equipment (i.e. respiratory protections and coveralls).

The United States Environmental Protection Agency (EPA) and the Occupational Safety and Health Administration (OSHA) have issued guidelines entitled "Mold Remediation in Schools and Commercial Buildings". In addition, the New York City Department of Health (NYCHD) has issued guidelines entitled "Guidelines on Assessment and Remediation of Fungi in Indoor Environments".

The Institute of Inspection, Cleaning and Restoration Certification (IICRC) has published as document "Standard and Reference Guide for Professional Mold Remediation". The guidelines should also be followed during the remediation process. The Occupational Safety and Health Administration (OSHA) has promulgated a guideline for employee protection and work practices for use during fungal abatement projects which should be followed while completing this project.

The following actions are recommended for consideration to address the above listed issues:

Follow the guidelines established by the U.S. Environmental Protection Agency (EPA) Occupational Safety and Health Administration (OSHA) the New York City Health Department (NYCHD), and the Institute of Inspection, Cleaning and Restoration Certification (IICRC) for the remediation of fungal contamination.

1. SHEET PLASTIC

   A. Polyethylene Sheet: Provide flame-resistant polyethylene film that conforms to requirements set forth by the National Fire Protection Association Standard 701, Small Scale Fire Test for Flame-Resistant Textiles and Films. Provide largest size possible to minimize seams, 6.0 mil (0.15 mm) thick frosted or black as indicated.

2. TEMPORARY ENCLOSURES - The area of contamination should be isolated during the remediation and decontamination process.

A. Work Area: The location where Microbiological abatement work occurs. The work area is a variable of the extent of work of the contract. It may be a portion of a room, a single room, or a complex of rooms. A "Work Area" is considered contaminated during the work, and must be isolated from the balance of the building, and decontaminated at the completion of the Microbiological control work.

B. Completely isolate the work area from other parts of the building to prevent Microbiological containing dust or debris from passing beyond the isolated area. Should the area beyond the work area(s) become contaminated with Microbiological-containing dust or debris because of the work, clean those areas in accordance with the procedures indicated in Paragraphs 7, & 8. Perform all such required cleaning or decontamination at no additional cost to owner.

C. Construct enclosures to provide an airtight seal around ducts and openings into existing ventilation systems and around penetrations for electrical conduits, telephone wires, water lines, drain pipes, etc. Construct enclosures to be both airtight and watertight except for those openings designed to provide entry and/or air flow control.

D. Size: Construct enclosure with sufficient volume to encompass all of the working surfaces yet allow unencumbered movement by the worker(s), provide unrestricted air flow past the worker(s), and ensure walking surfaces can be kept free of tripping hazards.

E. Shape: The enclosure may be any shape that optimizes the flow of ventilation air past the worker(s).

F. Structural Integrity: The walls, ceilings, and floors must be supported in such a manner that portions of the enclosure will not fall down during normal use.

G. Barrier Supports: Provide frames as necessary to support all unsupported spans of sheeting.

H. Openings: It is not necessary that the structure be airtight; openings may be designed to direct airflow. Such openings are to be located at a distance from active removal operations. They are to be designed to draw air into the enclosure under all anticipated circumstances. In the event that negative pressure is lost, they are to be fitted with either HEPA filters to trap dust or automatic trap doors that prevent dust from escaping the enclosure. Openings for exits are to be controlled by an airlock or a vestibule.

I. Place all tools, scaffolding, staging, etc. necessary for the work in the area to be isolated prior to completion of work area isolation.

J. Areas within an Enclosure: Each enclosure consists of a work area, a decontamination area, and waste storage area. The work area where the Microbiological removal operations occur are to be separated from both the waste storage area and the contamination control area by physical curtains, doors, and/or airflow patterns that force any airborne contamination back into the work area.

K. Removing Mobile Objects: Clean movable objects and remove them from the work area before an enclosure is constructed unless moving the objects creates a hazard. Mobile objects will be assumed to be Microbiological contaminated and are to be either cleaned with

amended water and a HEPA vacuum and then removed from the area or wrapped and then disposed of as Microbiological-contaminated waste.

L. Disabling HVAC Systems: The power to the heating, ventilation, and air conditioning systems that service the regulated area must be deactivated and locked out. All ducts, grills, access ports, windows, and vents must be sealed off with two layers of plastic to prevent entrainment of contaminated air.

M. Lockout power to work area by switching off all breakers serving power or lighting circuits in work area. A lock and tag shall be placed on each breaker used to de-energize circuits and equipment with notation "DANGER circuit being worked on." Lock panel and have all keys under control of authorized person who has applied the locks.

N. Lockout power to circuits running through work area wherever possible by switching off all breakers or removing fuses serving these circuits. Label breakers with tape over breaker with notation "DANGER circuit being worked on." Lock panel and have all keys under control of authorized person who applied locks. If circuits cannot be shut down for any reason, label at intervals four ft (1-22 in) on center with signs reading, "DANGER live electric circuit. Electrocution hazard." Label circuits in hidden locations, but which may be affected by the work in a similar manner.

3. CRITICAL BARRIERS

A. Completely separate the work area from other portions of the building, and the outside by closing all openings with sheet plastic barriers at least 6 mil (0.15 mm) in thickness, or by sealing cracks leading out of work area with duct tape.

B. Individually seal all ventilation openings (supply and exhaust), lighting fixtures, clocks, doorways, windows, convectors and speakers, and other openings into the work area with duct tape alone or with polyethylene sheeting at least 6 mil (0.15 mm) in thickness, taped securely in place with duct tape. Maintain seal until all work including project decontamination is completed. Take care in sealing of lighting fixtures to avoid melting or burning of sheeting.

C. Provide sheet plastic barriers at least 6 mil (0.15 mm) in thickness as required to seal openings completely from the work area into adjacent areas. Seal the perimeter of all sheet plastic barriers with duct tape or spray cement.

D. Mechanically support sheet plastic independently of duct tape or spray cement seals so that seals do not support the weight of the plastic. Following are acceptable methods of supporting sheet plastic barriers. Alternative support methods may be used if approved in writing by the designer.

1. Plywood squares 6 in. x 6 in. x 3/8 in. (152 mm x 152 mm x 9.53 mm) held in place with one 6d smooth masonry nail or electro-galvanized common nail driven through center of the plywood and duct tape on plastic so that plywood clamps plastic to the wall. Locate plywood squares at each end, corner and at maximum 4 ft (1.22 in) on centers.

2. Nylon or polypropylene rope or wire with a maximum unsupported span of 10 ft (3.05 m), minimum 1/4 in. (6.35 mm) in diameter suspended between supports securely

fastened on either side of opening at maximum 1 ft (304.8 mm) below ceiling. Tighten rope so that it has 2 in. (50.8 mm) maximum dip. Drape plastic over rope from outside work area so that a 2 ft long flap of plastic extends over rope into work area. Staple or wire plastic to itself 1 in. (25.4 mm) below rope at maximum 6 in. (152 mm) on centers to form a sheath over rope. Lift flap and seal to ceiling with duct tape or spray cement. Seal loop at bottom of flap with duct tape. Erect entire assembly so that it hangs vertically without a "shelf' upon which debris could collect.

E. Provide pressure-differential system per Paragraph 7.

1. Clean housings and ducts of all overspray materials prior to erection of any critical barrier that will restrict access.

4. PRIMARY BARRIER

A. Protect building and other surfaces in the work area from damage from water and high humidity or from contamination from Microbiological-containing debris, slurry or high airborne organism levels by covering with a primary barrier as described below.

1. Sheet Plastic: Protect surfaces in the work area with two (2) layers of plastic sheeting on floor and walls, or as otherwise directed on the contract drawings or in writing by the designer. Perform work in the following sequence.
   a. All seams in the sheeting should overlap, be staggered, and not be located at corners or wall-to-floor joints.

5. ISOLATION AREA

A. Maintain isolation areas between the work area and adjacent building area.

1. In unoccupied areas located between work area and adjacent occupied portions of the building.

2. In locations where separation between work area and occupied portions of building is formed by sheet plastic and/or temporary barriers.

3. Floor below work area.

B. Form isolation area by controlling access to the space in the same manner as a work area. Physically isolate the space from the work area and adjacent areas. Accomplish physical isolation by:

1. Installing critical barriers in unoccupied space.

2. Erecting a second critical barrier a minimum of 3 ft (1.0 m) away from work area.

6. The area of contamination should be placed under a negative pressure with a high efficiency particulate air (HEPA) filtered negative air machine.

A. Isolate the work area from all adjacent areas or systems of the building with a pressure differential that will cause a movement of air from outside to inside at any breach in the physical isolation of the work area.

B. Relative Pressure in Work Area: Continuously maintain the work area at an air pressure that is lower than that in any surrounding space in the building, or at any location in the immediate proximity outside of the building envelope. This pressure-differential when measured across any physical or critical barrier must equal or exceed a static pressure of-

1. 0.02 in. (0.5 mm) of water.

C. Accomplish the pressure-differential by exhausting a sufficient number of HEPA-filtered fan units from the work area. The number of units required will depend on machine characteristics, the seal at barriers, and required air circulation. The number of units will increase with increased make-up air or leaks into the work area. Determine the number of units required for pressure isolation by the following procedure:

1. Establish required air circulation in the work area, personnel and equipment decontamination units.

2. Establish isolation by increased pressure in adjacent areas or as part of seals where required.

3. Exhaust a sufficient number of units from the work area to develop the required pressure-differential.
4. The required number of units is the number determined above plus one additional unit.

5. Vent HEPA-filtered fan units to outside of building unless authorized in writing by designer.

6. Vent each HEPA-filtered fan unit to inlet of second unit. Vent second unit to a controlled area in the building. Insure that controlled area is isolated from balance of building by critical barriers at all times that units are in operation.

7. Mount units to exhaust directly or through disposable ductwork.

8. Use only new ductwork except for sheet metal connections and elbows.

9. Use ductwork and fittings of same diameter or larger than discharge connection on fan unit.

10. Use inflatable, disposable plastic ductwork in lengths not greater than 100 ft (30 meters).

11. Use spiral wire-reinforced flex duct in lengths not greater than 50 ft (15 meters).

12. Arrange exhaust as required to inflate duct to rigidity sufficient to prevent flapping.

13. If direction of discharge from fan unit is not aligned with duct, use sheet metal elbow to change direction. Use 6 ft (2 meters) of spiral wire reinforced flex duct after direction change.

Ground Floor/Basement

8. The walls, floor and ceiling should have of porous building construction materials removed and the underlying construction lumber cleaned of fungal growth by washing with a strong detergent solution [(i.e. Trisodium Phosphate) (one cup in two gallons of water)] to remove gross contamination, and HEPA vacuumed to remove any remaining fungi and/or fungal spores. When utilizing this cleaning method, caution is advised due to the corrosive nature of TSP. Adequate Personal Protective Equipment (PPE) should be provided and used to protect the eyes and skin of workers. If contamination is found to extend past the surface of these construction materials, (i.e. >1/16"), the construction material should be removed or the contamination should be removed by sanding or other mechanical method. The removed material should be discarded as contaminated.

   Subsequent to abatement and cleaning activities, a HEPA filtered negative air machine should be allowed to operate in the ground floor for forty-eight hours to eliminate any contamination. During the period that the negative air machines are operating, the HVAC air conditioning systems should not be operated. This is because of the potential of back-drafting (pulling carbon monoxide) from gas fired equipment into the occupied space of the building.

   Subsequent to completion of remediation activity, commercial dehumidification equipment should be operated in the abated areas until post abatement verification testing has been completed.

   The contents of the ground floors and basement should be cleaned in place by a commercial cleaning firm.

   Subsequent to completion of remediation activity, commercial dehumidification equipment should be operated in the ground floor and basement until post abatement verification testing has been completed.

10. Personnel entering the space to conduct decontamination work should be provided with negative pressure air purifying full face respirators equipped with HEPA cartridges. Prior to placing employees in respiratory protection devices, comply with U.S. Department of Labor Occupational Safety and Health Administration, Safety and Health Standards Section 29 CFR 1910.134.

11. Provide and require the use of protective clothing, such as coveralls or similar whole body clothing, head covering, gloves and foot covering for any employee exposed to airborne concentrations of microbiological organisms. Require that workers change out of coveralls in the equipment room of the personnel decontamination unit. Dispose of coveralls as microbiological waste at completion of all work.

12. Provide worker protection as required by the most stringent OSHA Standard and/or EPA Guidelines applicable to the work. The following procedures are minimums to be adhered to regardless of organism count in the work area.

A. Require all workers to adhere to the following personal decontamination procedures whenever they leave the work area:
   1. Air-Purifying Negative Pressure Respirators: Require that all workers use the following decontamination procedure as a minimum requirement whenever leaving the work area with a full-face cartridge-type respirator:

      a. When exiting area, remove disposable coveralls, disposable head covers, and disposable footwear covers or boots in the equipment room.

      b. Still wearing respirators, proceed to clean room. Care must be taken to follow reasonable procedures in removing the respirator and filters to avoid microbiological organisms. The following procedure is required as a minimum:

      c. Take a deep breath, hold it and/or exhale slowly, wet wipe face, thoroughly wetting face, respirator and filter (air-purifying respirator). While still holding breath, remove respirator and hold it away from face before starting to breathe.

      d. Dispose of wet filters from air-purifying respirator.

      e. Carefully wash face piece of respirator inside and out.

      f. Proceed from clean room to changing room and change into street clothes or into new disposable work items.

B. Within Work Area
   1. Require that workers NOT eat, drink, smoke, chew tobacco or gum, or apply cosmetics in the work area. To eat, chew, drink or smoke, workers shall follow the procedure described above, and then dress in street clothes before entering the non-work areas of the building.

13. The work of this procedure involves activities that will disturb microbiological-containing materials (MCM). The disturbance or dislocation of MCM may cause microbiological organisms to be released into the building's atmosphere, thereby creating a potential health risk to workers. Apprise all workers, supervisory personnel, subcontractors and consultants who will be at the job site of the seriousness of the risk and of proper work procedures, which must be followed.

14. All workers are to be accredited by the Association of Specialists in Cleaning & Restoration (ASCR) or the Institute of Inspection, Cleaning and Restoration Certification (IICRC).

15. Waste Disposal

A. All waste is to be hauled by a waste hauler with all required licenses from all state and local authority with jurisdiction.

B. Liquid Waste: Mix all liquid, microbiological-containing waste or Microbiological-contaminated waste with a solid material so that it forms a solid (non-liquid) form, and have the concurrence of the landfill operator prior to disposal.

C. Load all adequately wetted RMCM in disposal bags or leak-tight containers. All materials are to be contained in one of the following:
   1. Two 6 mil (0.15 mm) disposal bags; or

   2. Two 6 mil (0.15 mm) disposal bags and a fiberboard drum; or

   3. Sealed steel drum with no bag.

D. Protect interior of truck or dumpster with critical and primary barriers as described in paragraphs 3 & 4.

E. Carefully load containerized waste in fully enclosed dumpsters, trucks, or other appropriate vehicles for transport. Exercise care before and during transport to insure that no unauthorized persons have access to the material.

F. Warning Signs: During loading and unloading, mark dumpsters, receptacles, and vehicles with a sign complying with requirements of the EPA Guidelines in a manner and location that a person can read the following legend:

   DANGER
   MICROBIOLOGICAL DUST HAZARD
   AUTHORIZED PERSONNEL ONLY

G. Do not store containerized materials outside of the work area. Take containers from the work area directly to a sealed truck or dumpster.

H. Do not transport disposal bagged materials on open trucks. Label drums with same warning labels as bags. Uncontaminated drums may be reused. Treat drums that have been contaminated as RMCM and dispose of in accordance with this specification.

I. Advise the landfill operator or processor, at least ten days in advance of transport, of the quantity of material to be delivered.

J. At disposal site unload containerized waste:

   1. At a disposal site, sealed plastic bags may be carefully unloaded from the truck. If bags are broken or damaged, return to work site for rebagging. Clean entire truck and contents using procedures set forth in Paragraph 7.

   2. At a processing site, truck and loading dock are arranged as a controlled work area and containerized waste is transferred to storage area by site personnel. All bags, including broken ones, will be transferred. Clean truck, using procedures set forth in Paragraph 7.

K. Retain receipts from landfill or processor for materials disposed of.

L. At completion of hauling and disposal of each load, submit copy of waste manifest, chain-of-custody form, and landfill receipt to designer.

16. It is important to note that some remediation firms deliberately convince their clients to not consider or allow post abatement verification testing by an independent company subsequent to the completion of the fungal abatement project. This intentional lack of post abatement verification testing sanctions abatement contractors to only partially complete the project, knowing that post abatement verification testing will expose a deficient job. However, the owner should recognize that without post abatement verification there is no evidence to substantiate successful completion of the project. In addition, there is no documented evidence which can be provided to an intermediary to comply with regulatory agencies.

17. Subsequent to remediation, post abatement verification air sampling should be conducted in the property to document that the fungal contamination has been successfully abated.

Data regarding site conditions may vary depending upon when and where obtained, resulting in possible uncertainty with respect to the interpretation of actual conditions at the site. Non-invasive sampling was conducted on the date, and at the time and place, of the inspection assessment. Occupational Environmental Health Solutions, Inc. OEHS offers no assurances and assumes no liability for site conditions or activities which are outside the scope of the inspection assessment requested by client. This inspection assessment report presents data collected on the date, and at the time and place, of the inspection assessment. OEHS MAKES NO WARRANTY, EITHER EXPRESS OR IMPLIED, WITH RESPECT TO THE INSPECTION ASSESSMENT. Any alteration, editing or characterization of this inspection assessment report without the express written permission of OEHS is strictly prohibited.

If you have any questions please contact me at (217) 483-9296.

Sincerely

Occupational Environmental Health Solutions, Inc.

James Barnes, MS, CIH
President