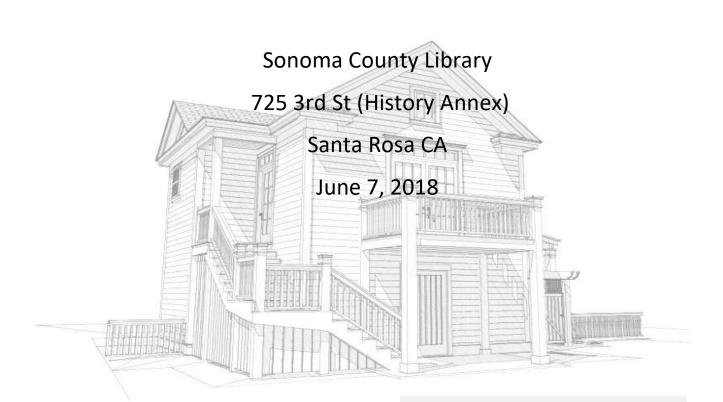
MOLD SURVEY REPORT





Steven Ramos 755 Baywood Drive, Ste 220 Petaluma CA 94954 707-775-7800 steve@envirovue.com

6/12/2018

Sonoma County Library 725 3rd St (History Annex) Santa Rosa CA

Re: Mold Survey for 725 3rd St (History Annex)

Dear: Sonoma County Library

Envirovue LLC is pleased to submit the enclosed Mold Inspection Survey for this building which was conducted on 6/7/2018. Your survey was performed by Steve Ramos a California Certified Microbial Consultant.

This report was prepared for the sole use of the client(s) the only intended beneficiaries of our work. No other party should rely on the information contained herein without prior written consent of Envirovue LLC and the Client(s). Envirovue LLC understands that our services to the Client are to be held in strict confidence. Envirovue LLC will not discuss or disclose any information about our services to any third party without the Client's consent.

This survey was planned and implemented on the basis of a mutually agreed scope of work. The survey was conducted in conformance with generally accepted current standards for identifying and evaluating mold and moisture conditions. Envirovue LLC uses only qualified professionals to perform building surveys; reasonable effort was made to survey accessible suspect materials. form:

Name of company that conducted survey: Envirovue LLC

Address: 755 Baywood Dr., Ste 220

City/State/Zip: Petaluma, CA 94954

Phone: (707) 775-7800

Name of person who completed the survey: Steven Ramos CMC #: 1411011

If you have questions or comments regarding the information in this report or if we can be of further assistance, please do not hesitate to contact the undersigned at (707) 775-7800.

Sincerely,

Envirovue LLC Steve Ramos CMC # 1411011

EXECUTIVE SUMMARY

INTRODUCTION

At the request of Sonoma County Library, Envirovue performed a mold survey at the 725 3rd St (History Annex). The work was performed on 6/7/2018 by Steven Ramos, a Certified Microbial Consultant. The scope of work was limited to surveying office spaces near the literacy center. The scope of work was conducted in compliance with industry guidelines. The purpose of the inspection was to identify areas of concern with respect to mold and moisture conditions that may be related to mold like conditions. The scope of work includes the following:

- A visual inspection of the readily accessible areas of the building interior for mold like substances
- A limited moisture inspection to identify building materials at the interior of the building that are above threshold at the time of inspection. It does not include testing to manipulate or simulate weather to identify areas of leakage in the building envelope.
- A written report with findings will be provided.

POST REMEDIATION EVALUATION

STEP 1: Post-remediation evaluation should be conducted by remediators to determine whether or not remediation has been completed. This evaluation involves implementing internal quality control procedures. It can include visual inspection, olfactory evaluation, laser particle counting and moisture measurements. Remediated structures and systems can be considered clean when contamination, unrestorable contaminated materials and debris have been removed, and surfaces are visibly free of dust. The term "visibly" can include direct and indirect observation (e.g., using a white or black towel to wipe a surface to observe for cleanliness). Also, remediated areas should be free of malodors associated with microorganisms. At that point, it is probable that structural components and systems have been returned to Condition 1.

The evaluation can also include moisture measurements and the use of a laser particle counter. If visible mold, dust or debris have not been removed, malodors are present or initial cleaning is questionable, repeating the cleaning process may be warranted.

STEP 2: It is highly recommended that a Post Remediation Verification, performed by an Independent Environmental Professional (i.e. Envirovue LLC or other American Council for Accredit Certification personnel or Council of Engineering and Scientific Specialty Boards (CESB) certified inspectors), be conducted following the contractors Post Remediation Evaluation. The following criteria have been established to measure the effectiveness of the remediation activities. A post remediation clearance report will be issued if the following criteria have been achieved:

- The moisture content of all building materials in the contained area should be below 15% MC as measured by an electrical impedance moisture meter device.
- There should be no visible mold contamination and all work areas should be free of dust and debris.
- Air or surface sampling will be used to verify a clean environment, the kinds and concentrations of mold and mold spores in the building should be similar to those found outside, once cleanup activities have

been completed. The surface sampling device is very sensitive and a thorough wipe down of all surfaces prior to final inspection is highly recommended to achieve the best results.

ASSESSMENT AND METHODOLOGY

MOLD ASSESSMENT

The Mold assessment has been performed by a trained and experienced inspector. The following assessment methods and testing protocol represent the most current industry standards and practices. Practices are , in part, derived from IICRC S520 Standard and Reference Guide for Mold Remediation, US EPA, Cal OSHA.

VISUAL INSPECTION

The Visual Inspection: the interior of the building was inspected for visual mold like conditions that are readily observable. Interior surfaces were observed for moisture staining and damage that may be conducive to microbial growth.

MOISTURE DETECTION

Moisture inspection technologies, often referred to as moisture meters, are utilized to assess specific suspect areas or conditions. They use electrical impedance to determine if excess moisture is present in a building material. It is best utilized on drywall and wood products. It can be utilized on other materials using a comparative analysis. In general, the following guidelines are used in the moisture assessment:

- Less than 15% moisture indicates normal moisture levels
- Above 15% moisture indicates and elevated condition which is conducive to mold growth.

INFRARED CAMERA

An infrared camera was employed to observe specific areas of concern for anomalies which may be related to elevated moisture conditions.

INSPECTION METHODS AND PROCEDURES

AIRBORNE MOLD SAMPLING

The objective of the spore trap sampling is to capture and quantify a broad spectrum of fungal spores (both culturable and non-culturable) present in the air and to assess the whether the levels present suggest a fungal problem in the indoor locations where samples are collected. Spore trap samplers are capable of capturing a majority of spores and particulate matter in the air. Consequently, it is possible to accurately characterize problem environments where spores are present but either are no longer viable or are species that do not culture well. These two situations where culturable sampling techniques, if used alone, may miss a potential Indoor Air Quality (IAQ) problem. Other advantages of spore trap samplers is they can also be used to quantify pollen, fiberglass, hyphal fragments, hair, skin cells present in the air (other particulates are not a standard service provided by Envirovue) and the samples can be analyzed with 24 - 72 hours.

Pump Calibration. Before sampling, the pump is always calibrated to 15 liters of air per minute, flow rate using a rotameter supplied by the pump manufacturer.

Sample Collection. Samples are collected using a standard air pump set to draw 15 liters per minute connected to a special cassette designed to trap particulate matter on an internal slide. Typically, the pump is operated for 5 minutes per sample location. A minimum of one exterior sample is required (more are preferred). Samples are collected from suspect areas at the site. Sample information is recorded on a chain of custody form provided by the lab. All samples are forwarded to an accredited lab for microscopic analysis.

SURFACE SAMPLING METHODS

Surface samples were collected from suspect locations to determine settled spore activity and growth conditions with respect to microbial growth. Samples were collected using sterile swabs by removing the swab from the sterile packing and applying it across the suspect area. The swab is then placed in the sterile receptacle and capped with the manufactures packing. All samples are recorded on the chain of custody and forwarded to Forensic Analytical for analysis.

INSPECTION FINDING

AREA OF CONCERN #1

MOLD GROWTH PRESENT. This inspection includes a visual observation of the readily accessible surfaces for visible mold growth. At the time of inspection, the inspector observed mold growth on surfaces that will require professional remediation services. This was confirmed by surface testing of the exposed drywall paper with ATP testing.

NO ELEVATED HUMIDITY. Humidity can be a factor in the development of mold growth. Humidity readings are collected routinely during inspection activities, especially when condensation is observed on surfaces. Normal humidity readings can vary depending on exterior conditions and weather. For this location there were no elevated humidity readings at the time of inspection.

NO ELEVATED MOISTURE. The readily accessible interior surfaces were scanned with an infrared camera and suspect locations, if any, assessed with a moisture meter. At the time of inspection, there were no elevated moisture conditions noted on the surfaces. There was extensive water staining and damaged noted from roof leaking. The materials were dry at the time of inspection.

NO MOLD LIKE ODOR PRESENT. Mold like odors can be a signal that wet materials are present and mold growth may be active. At the time of inspection, the inspector did detect a mold like odor to be present at this location.

ANALYTICAL DATA

At the time of this inspection there are no numerical federal or state mold data interpretation guidelines. As such, the site inspection is integrated into the overall evaluation of the building or area of concern for a more accurate assessment of the conditions. Just as there is no numerical guidelines for assessing building condition there is very little data to assess dose response and mold spore effects on human health. There are no reliable sets of data or guidelines that determine healthy or unhealthy levels of mold for humans. The primary purpose of the data collected for this investigation was used to aid in our understanding of the building condition and

whether or not abatement work is recommended. In the absence of a federal or state threshold limit value industry experts have developed several guidelines that were used in this evaluation. All of these methods are utilized as a composite and no singular method is dominant.

INDOOR VERSUS OUTDOOR COMPARISON

SPORE COUNTS LOWER INDOORS. The first method of evaluation is the indoor versus outdoor comparison. I observed the total spore counts, mold spore types, and their relative distribution to determine if the samples were substantially similar. For this inspection: The overall spore counts indoors were less than or equal to outdoor levels which is common for buildings with a normal fungal ecology. This should not be interpreted to mean that there is no mold growth on the surfaces in this area but rather that the air quality at the time of sampling was consistent with outdoor levels. The distribution of molds was substantially similar for molds that are commonly found growing indoors. This data suggests that the molds observed in this sample were entrained from the outdoors not from an amplification site on the interior.

MOLD DISTRIBUTION. Mold distribution is a measure of the various types of mold present by percent of total. For example, if there 100 spores total observed in the sample and 10 of those spores are Chaetomium. Then Chaetomium represents 10% of the total. In a normal background sample or restored area the percent of each type of mold should be similar or lower than controls. The distribution of molds was substantially similar for molds that are commonly found growing indoors. This data suggests that the molds observed in this sample were entrained from the outside containment and are representative of normal background levels and not from an amplification site on the interior or contained area.

MARKER SPORE COMPARISON

MARKER SPORE COUNTS LOW. Another interpretative method used in the industry are marker spores. Marker spores are mold spores that are known to colonize indoor building materials when those materials are wet and are not commonly observed growing outdoors and when they are found are observed in low quantities. The most commonly used marker spores are: Stachybotrys, Aspergillus, Penicillium, Ulocladium, and Chaetomium. Caution should be used when evaluating data sets that rely solely on the presence of markers spores in determining indoor air quality. Spore counts can vary over time and sampling times are limited. However, marker spores are a useful data set in the context of a thorough investigation. The marker spore counts were low and consistent with outdoor levels for both distribution and quantities. The counts are considered low and consistent with a normal fungal ecology.

SEASONAL AVERAGE COMPARISON

SEASONAL AVERAGE NORMAL. Outdoor mold spore counts vary with the seasons and with weather events. Data is available on average outdoor spore counts by mold spore type on a monthly basis. This data can be used to compare actual findings to see if the results are consistent. Again, we are attempting to source the spores observed as either likely from the indoors or likely from the outdoors. The applicability of this evaluation point is helpful when there are elevated counts indoor versus outdoor and no other corroborating observations from the site inspection and building history to suggest that an indoor mold amplification site exists. An example of this might arise when outdoor samples are collected during a rain event which usually suppresses outdoor levels which in turn can skew the indoor versus outdoor comparison. In these cases we can use season averages to evaluate the indoor data more reliably. The outdoor counts were consistent with season

averages. This further enhances the data collected from the outdoor sample as reliable to use in assessing indoor versus outdoor metrics.

	Table 3: Air Sample Data							
Sample ID	Functional Space	Value observed	Species	Reference Range	Result			
2607 0734	Conference Room	67	All count	2947-3787	Normal background			
2607 0636	Office 1	187	All count	2947-3787	Normal background			
2607 0653	Office 2	80	All count	2947-3787	Normal background			
2607 0682	Work Area / Office 3	173	All count	2947-3787	Normal background			

SURFACE SAMPLE DATA

Surface samples were collected from the ceiling (water damaged surfaces) using the Hygiena ATP Testing System. ATP testing measure all microbial contamination which includes mold activity. Surfaces under 150 RLU are generally considered clean and uncontaminated. Surfaces in excess of 500 RLU with water damage present are considered for remediation. The circumstances, quantities, and types of toxins are not known for in this inspection. It is assumed that these toxins are present and remediation recommendations are made under this assumption.

Table 4: Surface Samples				
Sample ID	RLU Count	Comments		
725-01	28	Normal		
725-02	13	Normal		
725-03	1337	Elevated		

SUMMARY AND RECOMMENDATIONS

ELEVATED RLU COUNT. In summary, the data for this investigation suggests an elevated RLU count exists. This data is not to be used as the sole determiner if abatement activities are recommended. The site inspection and any findings where visible growth is observed will determine recommended abatement activities. The elevated RLU count confirms water damage and some surface microbial contamination. It does not quantify airborne contaminant levels. The air sampling data did not suggest high levels of airborne mold spore activity at the time of inspection. A parallel inspection for asbestos in the water damaged ceiling was undertaken. The acoustical ceiling texture was identified as an asbestos containing material. The removal of the acoustical ceiling texture takes precedent over the mold remediation in terms of regulatory control.

INDUSTRY STANDARDS AND GUIDELINES

All work should be conducted within the applicable provisions of the USEPA, CAL OSHA and the AQMD. Restoration of the building should be consistent with the following standards and guidance materials: Institute of Inspection Cleaning and Restoration Certification (IICRC), ANSI-IICRC S500-2006, Standard and Reference Guide for Professional Water Damage Restoration (April 2006). United States Environmental Protection Agency (EPA), "Mold Remediation in Schools and Commercial Buildings", (EPA 402-K-01-001, March 2001). Institute of Inspection Cleaning and Restoration Certification (IICRC), ANSI/IICRC S520-2008, "Standard and Reference Guide for Professional Mold Remediation". Cal-OSHA Standards.

GENERAL REMEDIATION GUIDELINES

The following are the general guidelines that are to be followed when addressing the site specific recommendations outlined in the site specific recommendations section of this document.

- Take care to insure combustion appliances do not back draft.
- All structural and building components scheduled for removal shall be assessed for Asbestos, Lead, and all other potential hazards. It will be necessary to comply with all applicable provisions of EPA, OSHA, and BAAQMD regulations during any removal or repair activities that may disturb asbestos or lead containing materials. Contractors performing any asbestos work shall be DOSH certified asbestos contractors; and contractors performing any lead work shall be CLSB-licensed contractors employing DHS -Certified Lead Supervisors and Workers. All required notifications must be submitted to the appropriate governing agencies prior to the commencement of work.
- All workers and supervisors will be trained and qualified in their skill (asbestos, lead, mold, ect.).
- All plastic sheeting and disposal bags utilized during the project shall be of 6-mil polyethylene thickness and fire resistant (FR). All electrical equipment shall be GFCI protected and connected to the supply by grounded, three pronged electrical cords rated for the anticipated electrical load.
- The contractor will maintain a daily log of work activities, events, and personnel entering the work area.
- All equipment shall be exceptionally clean (HEPA vacuumed and wet wiped) and sealed before being brought into or taken out of the work site. All equipment shall be properly maintained according to manufacturer's specifications and the most stringent of applicable government regulations.
- Document and collect photographic records of contents and structure, paying close attention to preexisting conditions. Appropriately save samples of building materials which are to be replaced due to the remediation.

ENGINEERING CONTROLS

The following work activities should be performed once critical barriers have been put in place, negative air machines have been placed into operation, and makeup air is provided that has been screened with a HEPA

filter system. Sufficient containment will have been reached when the work area can be maintained at -0.02 inches of water column and a minimum of four (4) air changes per hour are provided. Air scrubbers should be used to help eliminate airborne mold spores and dust that are generated during the remediation process. Decontamination of the structure shall at a minimum include the following:

- All applicable bullets found in the general remediation section shall be implemented during the structural remediation.
- Turn off and seal (critical barriers) the HVAC system and supply and return air registers.
- Inventory and pack-out all contents within the work area(s). Decontaminate rooms listed in the site specific recommendation section.
- Adequately protect all wall and floor finishes, and contents both inside and outside of the work area(s).
- Set up critical barriers on doors and windows inside work area(s).
- Create negative air pressure containment around the work area. (1) Take care to insure combustion appliances do not back draft. (2) Install appropriate signage as required by governing agencies, as well as those adequate to protect from unauthorized entry. (3) Install an adequate number of HEPA filtered air filtration devices (AFD's) to maintain a minimum of four air changes per hour. Equip for unforeseeable power loss. The negative air exhaust shall be diverted to the outdoors. Additional AFDs may be used to scrub the air within the containment to reduce the bioaerosol load.
- Insure compliance with fire regulations, such as a secondary exit.
- Using the site specific recommendations as a base to start from, remove at least two feet in every direction past all visible microbial growth. It is vital that the contractor "chase" the mold damage during demolition, and ensure the removal of all affected materials.
- Waste materials should be bagged and/or wrapped while removal is being conducted, and then double bagged and the outer surface HEPA vacuumed immediately before removal from the work area(s). All waste materials shall be removed and the work area(s) cleaned of dust and debris at the end of each shift.
- Removal is generally limited to porous materials such as drywall, flooring system, and pressboard materials, whereas non-porous and semi-porous materials such as wood, plastics, and metals, can effectively be cleaned.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

All personnel entering the work area(s) must wear personnel protective equipment (PPE) including a minimum half face respirator (APRs) during preparation activities and full face (APRs) during remediation activities. The (APRs) shall be NIOSH approved and fitted with, at a minimum, dual P-100 and organic vapor (OV) cartridges.

Full body disposable Tyvek suits (or equivalent), latex/rubber/nitrile gloves, and protective footwear shall be worn while conducting all remediation activities.

SITE SPECIFIC RECOMMENDATIONS

The following site specific recommendations are designed to add to the recommendations included in the general remediation guidelines, engineering controls, and PPE. As such, they should be interpreted as additional recommendations that are specific to the location not as all encompassing recommendations for the site.

Asbestos testing is not included in the scope of work for a mold inspection. Envirovue is licensed to perform asbestos testing for an additional fee. Federal and state regulations apply to this restoration project which may require asbestos testing of material prior to disturbance.

CONTAINMENT PROCEDURE

Establish containment including critical barriers and negative air pressure. Be sure to exhaust to the exterior unless physically not practical HVAC openings should be secured and the system should be locked out, if necessary to protect ductwork and heating system from general contamination.

DRYWALL REMOVAL

Drywall and ceiling texture should be removed from the water damaged ceiling in accordance with regulations for removal of asbestos containing materials. Material removal for mold purposes should go 3 feet past known areas with water damage.

CONTENTS

Remove and pack out all personal items from the work area. All items removed from the area of concern should first be wiped down and HEPA vacuumed. Mold damaged personal effects should be considered for disposal with owners approval, otherwise bag and tag and place in a secure location. Items of extreme value should be considered for restoration. Ultimately, the property owner will have the final decision on the method of restoration or removal. Our service and fee does not include an evaluation of individual personal items.

STRUCTURAL REMEDIATION

If finished materials expose structural components they should be thoroughly inspected for structural damage in additional to mold contamination. If it is determined that structural components require repair or replacement a licensed contractor should evaluate and make all necessary repairs. If repairs are required prior to mold remediation clearance please contact our office to discuss an appropriate protocol.

MOISTURE IN SUBSTRATE

All materials in the area of concern should be dried down to acceptable levels prior to the clearance inspection. Acceptable levels of moisture in wood components are below 15% MC and for drywall below 12% MC.

FINAL CLEANING

Perform wipe down of all surfaces in containment area using damp cloth method with an appropriate detergent or biocide for the material to which it will be applied. I recommend operating the air scrubbers for minimum of 24 hours prior to clearance inspection. In some cases where there has been extensive damage

operating the scrubbers for 48 hours is recommended. Ideally the air scrubbers should be turned off and removed from the site or wrapped up a minimum of 12 hours prior to testing.

POST REMEDIATION EVALUATION

STEP 1: Post-remediation evaluation should be conducted by remediators to determine whether or not remediation has been completed. This evaluation involves implementing internal quality control procedures. It can include visual inspection, olfactory evaluation, laser particle counting and moisture measurements. Remediated structures and systems can be considered clean when contamination, unrestorable contaminated materials and debris have been removed, and surfaces are visibly free of dust. The term "visibly" can include direct and indirect observation (e.g., using a white or black towel to wipe a surface to observe for cleanliness). Also, remediated areas should be free of malodors associated with microorganisms. At that point, it is probable that structural components and systems have been returned to Condition 1.

The evaluation can also include moisture measurements and the use of a laser particle counter. If visible mold, dust or debris have not been removed, malodors are present or initial cleaning is questionable, repeating the cleaning process may be warranted.

STEP 2: It is highly recommended that a Post Remediation Verification, performed by an Independent Environmental Professional (i.e. Envirovue LLC or other American Council for Accredit Certification personnel or Council of Engineering and Scientific Specialty Boards (CESB) certified inspectors), be conducted following the contractors Post Remediation Evaluation. The following criteria have been established to measure the effectiveness of the remediation activities. A post remediation clearance report will be issued if the following criteria have been achieved:

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ADDITIONAL INFORMATION

CONFIDENTIALITY & LIMITATIONS

This report was prepared for the sole use of the client(s) the only intended beneficiaries of our work. No other party should rely on the information contained herein without prior written consent of Envirovue LLC and the Client(s). Envirovue LLC understands that our services to the Client are to be held in strict confidence. Envirovue LLC will not discuss or disclose any information about our services to any third party without the Client's consent.

This survey was planned and implemented on the basis of a mutually agreed scope of work. The survey was conducted in conformance with generally accepted current standards for identifying and evaluating mold and moisture conditions. Envirovue LLC uses only qualified professionals to perform building surveys; reasonable effort was made to survey accessible suspect materials.

The inspection is intended to be a limited, visual, non-invasive inspection of the areas of concern identified in this report. The purpose of this inspection is to identify and report visible and accessible mold like conditions, which may be supported by analytical data, which in the judgment of the inspector may warrant further evaluation that may include additional sampling and/or referral to an appropriate specialist for further investigation and warranted actions.

THIS INSPECTION AND REPORT DO NOT CONSTITUTE A WARRANTY, AN INSURANCE POLICY, OR A GUARANTEE OF ANY KIND; NOR DO THEY SUBSTITUTE FOR ANY DISCLOSURE STATEMENT AS MAY BE REQUIRED BY LAW.

Limitations and exclusions while performing the inspection for mold in each area of the structure are as follows:

- The inspection is limited to visible areas that are deemed by the inspector as readily accessible, and does not pose a physical hazard to the inspector or damage or alter the structure or its contents, including, but not limited to, attic space, crawl space, or roof access.
- Inspector should not move or alter any contents of the structure to gain access for inspection.
- Inspector should not operate or adjust shut-off valve.
- The results and recommendations made by the inspector relative to this inspection are limited to readily observable mold like conditions at the exact time and date of sample collection.
- The results and recommendations made by the inspector relative to this inspection are not a warranty, surety, or guarantee of any nature or kind.
- Identification of suspect areas is not intended to be a health risk assessment for the occupants.
- It is not intended that the scope and/or cost of remedial action is to be recommended or defined based on the results and recommendations made by the inspector relative to this inspection.
- The results and recommendations made by the inspector relative to this inspection are applicable to the single structure that was inspected. Detached structures should be inspected and reported separately.
- Based on the opinion, judgment, and experience of the sample collector, it is their discretion to determine the location and quantity of samples taken, including but not limited to the collection of non-suspect samples.
- Inspections performed pursuant to this inspection rely upon the opinion, judgment, and experience of the sample collector, and are not intended to be technically exhaustive.
- Based on the opinion, judgment, and experience of the sample collector, recommendation of additional investigation may be appropriate based on factors outside of the data interpretation contained in this inspection.

• Sample collections performed under this inspection shall not be construed as a compliance sample collection of any code, governmental protocol, or regulation. In the event a law, statute, or ordinance prohibits a procedure recommended in the inspection, the inspector is relieved of the obligation to adhere to the prohibited part of the inspection.

MOLD HEALTH EFFECTS

This report is not intended to diagnose or treat any health condition. There are currently no health based standards for airborne or surface mold. The samples, data collection, inspection and recommendations are intended to identify and address building dampness or mold conditions which require remediation. Although we recognize that mold may have an impact on occupant health it is beyond the scope of our service to address such issues.

Pictures



Water damage asbestos ceiling



Water damage wraps around into work area



RLU office 3



No damage ceiling in office 3



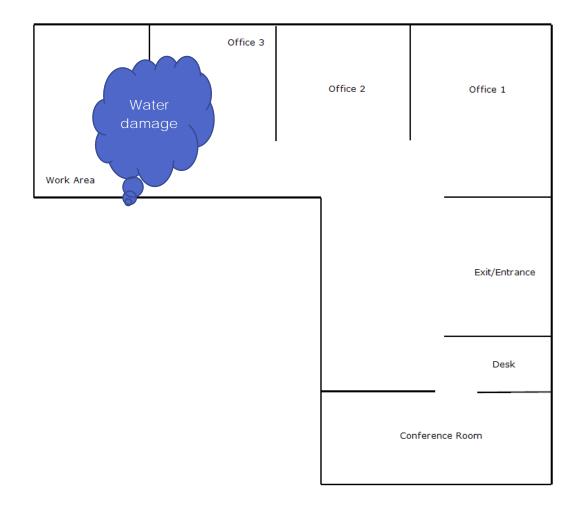
RLU for work area



RLU office 3

725 3RD ST (HISTORY ANNEX)

Sketch



12 ft

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American Council for Accredited Certification

September 29, 2016

Steven Ramos Envirovue 755 Baywood Dr., Suite 220 Petaluma, CA 94954

> RE: CMC Recertification Certificate #1410011

Dear Steven:

Thank you for recertifying your Council-certified Microbial Consultant (CMC) designation. Your new certificate is attached.

Your CMC certification will expire October 31, 2018. Because this designation is CESB-accredited, it requires forty (40) hours of recertification credits (RCs) which must be acquired within the next two-year certification period. ACAC recognizes the important of field experience, twenty (20) of those credits can be for continued work in the field.

Certificants must be able to document the twenty (20) hours of recertification credits (RCs) beyond the 20 hours allowed for continued field experience; however, only those who are randomly selected for audit will be required to submit their documentation. Unless you are notified otherwise, recertification simply requires a completed recertification affidavit and payment.

We appreciate your continued support of the Council, and we encourage you to call our staff if you have any questions.

Sincerely,

ACAC Certification Boards

American Council for Accredited Certification, PO Box 1000, Yarnell, AZ 85362 Voice (888) 808-8381 Fax (888) 894-3590



The Identification Specialists

Analysis Report prepared for Envirovue, LLC

Report Date: 6/8/2018

Project Name: 725 3rd St Santa Rosa CA (Geneology Annex)

SanAir ID#: 18024053



1551 Oakbridge Dr. Suite B | Powhatan, Virginia 23139-8061 888.895.1177 | 804.897.1177 | fax: 804.897.0070 | IAQ@SanAir.com | SanAir.com



SanAir ID Number **18024053** FINAL REPORT 6/8/2018 4:45:20 PM

Project Number: P.O. Number: Project Name: 725 3rd St Santa Rosa CA (Geneology Annex) Collected Date: 6/7/2018 Received Date: 6/8/2018 9:40:00 AM

Dear Steve Ramos,

We at SanAir would like to thank you for the work you recently submitted. The 6 sample(s) were received on Friday, June 08, 2018 via FedEx. The final report(s) is enclosed for the following sample(s): 2607 0675, 2607 0687, 2607 0734, 2607 0636, 2607 0653, 2607 0682.

These results only pertain to this job and should not be used in the interpretation of any other job. This report is only complete in its entirety. Refer to the listing below of the pages included in a complete final report.

Sincerely,

L. Claire Macdauald

L. Claire Macdonald Microbiology Laboratory Manager SanAir Technologies Laboratory

Final Report Includes:

- Cover Letter
- Air Cassette Analysis
- Disclaimers and Additional Information

Sample conditions: - 6 samples in Good condition.



Project Number: P.O. Number: Project Name: 725 3rd St Santa Rosa CA (Geneology Annex) Collected Date: 6/7/2018 Received Date: 6/8/2018 9:40:00 AM SanAir ID Number **18024053** FINAL REPORT 6/8/2018 4:45:20 PM

Analyst: Pulliam, Tashema

Air Cassette Analysis

ND = None Detected. Blank spaces indicate no spores detected.

SanAir ID Number	180	24053-001		180	24053-002		180	24053-003		180	24053-004	
Analysis Using STL	105C			105C		105C		105C				
Sample Number	2	607 0734		2	607 0636		2	607 0653		2	607 0682	
Sample Identification	Confe	erence Room			Office 1			Office 2		w w	/ork Area	
Sample Type	Air Casse	ette - Air-O-Cell		Air Cass	ette - Air-O-Cell		Air Cass	Air Cassette - Air-O-Cell		Air Cass	ette - Air-O-Cell	
Volume	-	75 Liters			75 Liters			75 Liters			75 Liters	
Analytical Sensitivity	13	Count/M ³		13	Count/M ³		13	Count/M ³		13 Count/M ³		
Background Density		1+			2			2+			2+	
Other	Raw Count	Count/M ³	%	Raw Count	Count/M ³	%	Raw Count	Count/M ³	%	Raw Count	Count/M ³	%
Mycelial Fragments												
Fungal Identification	Raw Count	Count/M ³	%	Raw Count	Count/M ³	%	Raw Count	Count/M ³	%	Raw Count	Count/M ³	%
Alternaria species				1	13	7	1	13	17	1	13	8
Ascospores	2	27	40							3	40	23
Aspergillus/Penicillium				1	13	7	2	27	33			
Basidiospores	1	13	20				2	27	33	2	27	15
Cladosporium species	2	27	40	12	160	86	1	13	17	7	93	54
Rusts												
Smuts/Myxomycetes												
Torula species												
TOTAL	5	67		14	187		6	80		13	173	

Signature:

Jashema Pulliam

Date: 6/8/2018

Reviewed: L. Claire Macdauald

Date: 6/8/2018



Project Number: P.O. Number: Project Name: 725 3rd St Santa Rosa CA (Geneology Annex) Collected Date: 6/7/2018 Received Date: 6/8/2018 9:40:00 AM SanAir ID Number **18024053** FINAL REPORT 6/8/2018 4:45:20 PM

Analyst: Pulliam, Tashema

Air Cassette Analysis

ND = None Detected. Blank spaces indicate no spores detected.

SanAir ID Number	180	24053-005		180	24053-006	
Analysis Using STL		105C			105C	
Sample Number	2	607 0675		2	607 0687	
Sample Identification	E	xterior 1		E E	Exterior 2	
Sample Type	Air Cass	ette - Air-O-Cell		Air Cass	ette - Air-O-Cel	
Volume	-	75 Liters			75 Liters	
Analytical Sensitivity	13	Count/M ³		13	Count/M ³	
Background Density		2			2+	
Other	Raw Count	Count/M ³	%	Raw Count	Count/M ³	%
Mycelial Fragments				2	27	n/a
Fungal Identification	Raw Count	Count/M ³	%	Raw Count	Count/M ³	%
Alternaria species	11	147	4	16	213	7
Ascospores	1	13	< 1	6	80	3
Aspergillus/Penicillium	9	120	3	6	80	3
Basidiospores	6	80	2	23	307	10
Cladosporium species	250	3333	88	151	2013	68
Rusts	5	67	2	8	107	4
Smuts/Myxomycetes	2	27	< 1	10	133	5
Torula species				1	13	< 1
TOTAL	284	3787		221	2947	

Signature:

Jashema Pulliam

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Analyst: Pulliam, Tashema

Air Cassette Analysis - Spores % of Exterior Air

			alysis - Spores 78 01		
		SanAir ID : 18024053-1	Sample # : 2607 0734	ID : Conference Room	
	1				
250					
200					
200					
150					
150					
100					
					*Baseline Level
50					

Count/m ³ higher than Baseline	No organisms to graph. Normalized organism counts may not have exceeded the organism thresholds, or there were no
Count/m ³ comparable to Baseline	organism counts for this sample. Please refer to the analysis report.
Within 50% of Baseline Count/m ³	

*The Baseline Level (100%) represents the average baseline sample counts. Counts above the baseline may indicate higher than expected levels of a given result.



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Air Cassette Analysis - Spores % of Exterior Air



*The Baseline Level (100%) represents the average baseline sample counts. Counts above the baseline may indicate higher than expected levels of a given result.

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Analyst: Pulliam, Tashema

Air Cassette Analysis - Spores % of Exterior Air

			313 - Spores 70 01 EX		
		SanAir ID : 18024053-3	Sample # : 2607 0653	ID : Office 2	
250					
200					
150					
150					
100)				
					*Baseline Level
50					
L					

Count/m ³ higher than Baseline	No organisms to graph. Normalized organism counts may not have exceeded the organism thresholds, or there were no
Count/m ³ comparable to Baseline	organism counts for this sample. Please refer to the analysis report.
Within 50% of Baseline Count/m ³	

*The Baseline Level (100%) represents the average baseline sample counts. Counts above the baseline may indicate higher than expected levels of a given result.



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Analyst: Pulliam, Tashema

Air Cassette Analysis - Spores % of Exterior Air

			iysis spores /0 of E		
		SanAir ID : 18024053-4	Sample # : 2607 0682	ID : Work Area	
250					
250					
200)				
150					
100)				
					*Baseline Level
50					

Count/m ³ higher than Baseline	No organisms to graph. Normalized organism counts may not have exceeded the organism thresholds, or there were no organism counts for this sample. Please refer to the analysis report.
Count/m ³ comparable to Baseline	organism counts for this sample. Please refer to the analysis report.
Within 50% of Baseline Count/m ³	

*The Baseline Level (100%) represents the average baseline sample counts. Counts above the baseline may indicate higher than expected levels of a given result.



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Project Number: P.O. Number:

Project Name: 725 3rd St Santa Rosa CA (Geneology Annex) Collected Date: 6/7/2018 Received Date: 6/8/2018 9:40:00 AM

Organism Descriptions

The descriptions of the organisms presented are derived from various reference materials. The laboratory report is based on the data derived from the samples submitted and no interpretation of the data, as to potential, or actual, health effects resulting from exposure to the numbers of organisms found, can be made by laboratory personnel. Any interpretation of the potential health effects of the presence of this organism must be made by qualified professional personnel with first hand knowledge of the sample site, and the problems associated with that site.

Mycelial Fragments - A mycelium (plural = mycelia) is the "body" of a fungus. It is a collective term for hyphae (singular = hypha), which are the tubular units of the mycelium usually composed of chitin. The terms hyphae and mycelial fragments are used interchangeably. [This information was referenced from the mycology text "The Fifth Kingdom"]In some cases a fungal identification cannot be obtained due to lack of sporulation. Only the mycelial fragments are present, and cannot be identified without the distinguishing characteristics of the spores or the structures they grow from. *Health Effects:* Allergic reactions may occur in the presence of spores (conidia) or mycelial/hyphal fragments.

Alternaria species - This genus compromises a large number of saprobes and plant pathogens. It is one of the predominate airborne fungal spores indoor and outdoor. Outdoors it may be isolated from samples of soil, seeds, and plants. It is one of the more common fungi found in nature, extremely widespread and ubiquitous. Conidia are easily carried by the wind, with peak

concentrations in the summer and early fall. It is commonly found in outdoor samples. It is often found in indoor environments, on drywall, ceiling tiles, in house dust, carpets, textiles, and on horizontal surfaces in building interiors. Often found on window frames.

Health Effects: In humans, it is recognized to cause type I and III allergic responses. Because of the large size of the spores, it can be deposited in the nose, mouth and upper respiratory tract, causing nasal septum infections. It has been known to cause Baker's asthma, farmer's lung, and hay fever. It has been associated with hypersensitivity pneumoniti, sinusitis, deratomycosis, onychomycosis, subcutaneous phaeohyphomycosis, and invasive infection. Common cause of extrinsic asthma (immediate-type hypersensitivity: type I). Acute symptoms include edema and bronchiospasms, chronic cases may develop pulmonary emphysema.

References: Flannigan, Brian, Robert A. Samson, and J. David Miller, eds. Microorganisms in Home and Indoor Work Environments: Diversity, Health Impacts, Investigation, and Control. London and New York: Taylor & Francis, 2001.

Ascospores - From the fungal Subphylum Ascomycotina. Ascospores are ubiquitous in nature and are commonly found in the outdoor environment. This class contains the "sac fungi" and yeasts. Some ascospores can be identified by spore morphology, however; some care should be excercised with regard to specific identification. They are identified on tape lifts and non-viable analysis by the fact that they have no attachment scars and are sometimes enclosed in sheaths with or without sacs. Ascomycetes may develop both sexual and asexual stages. Rain and high humidity may help asci to release, and dispurse ascospores, which is why during these weather conditions there is a great increase in counts. *Health Effects:* This group contains possible allergens.

Aspergillus/Penicillium - These spores are easily aerosolized. Only through the visualization of reproductive structures can the genera be distinguished. Also included in this group are the spores of the genera Acremonium, Phialophora, Verticillium, Paecilomyces, etc. Small, round spores of this group lack the necessary distinguishing characteristics when seen on non-viable examination.

Health Effects: Can cause a variety of symptoms including allergic reactions. Most symptoms occur if the individual is immunocompromised in some way (HIV, cancer, etc). Both Penicillium and Aspergillus spores share similar morphology on non-viable analysis and therefore are lumped together into the same group.

Basidiospores - From the Subphylum Basidiomycotina which contains the mushrooms, shelf fungi, and a variety of other macrofungi. They are saprophytes, ectomycorrhizal fungi or agents of wood rot, which may destroy the structure wood of buildings. It is extremely difficult to identify a specific genera of mushrooms by using standard culture plate techniques. Some basidiomycete spores can be identified by spore morphology; however, some care should be exercised with regard to specific identification. The release of basidiospores is dependent upon moisture, and they are dispersed by wind. *Health Effects:* Many have the potential to produce a variety of toxins. Members of this group may trigger Type I and III fungal hypersensitivity reactions. Rarely reported as opportunistic pathogens.



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Cladosporium species - The most commonly identified outdoor fungus. The outdoor numbers are reduced in the winter and are often high in the summer. Often found indoors in numbers less than outdoor numbers. It is commonly found on the surface of fiberglass duct liner in the interior of supply ducts. A wide variety of plants are food sources for this fungus. It is found on dead plants, woody plants, food, straw, soil, paint and textiles. Often found in dirty refrigerators and especially in reservoirs where condensation is collected, on moist window frames it can easily be seen covering the whole painted area with a velvety olive green layer.

Health Effects: It is a common allergen. It can cause mycosis. Common cause of extrinsic asthma (immediate-type hypersensitivity: type I). Acute symptoms include edema and bronchiospasms, chronic cases may develop pulmonary emphysema. Illnesses caused by this genus can include phaeohyphomycosis, chromoblastomycosis, hay fever and common allergies.

References: Flannigan, Brian, Robert A. Samson, and J. David Miller, eds. Microorganisms in Home and Indoor Work Environments: Diversity, Health Impacts, Investigation, and Control. London and New York: Taylor & Francis, 2001.

Rusts - From the group Uredinales, called Rusts due to the color of the spores, which are known for causing disease in plants.

Smuts/Myxomycetes - Smuts and Myxomycetes are parasitic plant pathogens. They are typically grouped together due to their association with plants, the outdoors and because they share similar microscopic morphology.

Health Effects: Can produce type I fungal hypersensitivity reactions.

References: Martin, G.W., C.J. Alexopoulos, and M.L. Farr. The Genera of Myxomycetes. Iowa City, Iowa: University of Iowa Press, 1983.

Torula species - Torula is a saprophyte and therefore often found on plant material. It may be found on wood-containing products/materials.

Health Effects: Reported to produce type I fungal hypersensitivity.

References: Ellis, Martin B., Ellis, Pamela, Microfungi on Land Plants: An Identification Handbook. England, The Richmond Publishing Co. Ltd., 1997.

Additional Information

Air Cassette Analyses

Air cassette reports indicate the genus and concentration of viable (living) and non-viable mold spores detected on the slide (A2 Analysis). Whether or not these spores are viable cannot be determined using this type of analysis. However, keep in mind that spores can remain allergenic even after cellular death. Other possible allergens include dander, pollen and fibers which are included in air cassette reports for the A1 Analysis. A1 and A2 analyses are performed on several types of air cassettes. Light microscopy at a 400 to 1000x magnification is used for air cassette sample analysis. SanAir always analyzes 100% of the impacted slide.

Explanation of Background Densities

The background density of an air cassette aids in the overall interpretation of results as it indicates the level of background debris present (e.g. dander, pollen, fibers, insect parts, soot, fly ash, etc.). Excessive background debris may mask the presence of fungal spores thereby reducing the accuracy of the count. It may also serve as an alert that the volume of air pulled was too high or too low. The following table explains background densities.

Air Cassette Density	Amount of Particulate on Slide	Explanation
1	Insignificant	Should not skew any counts
1+	Low	Should not skew any counts
2	Low to Moderate	Should not skew any counts
2+	Moderate to High	May cause occlusion of small spores
3	High	May cause occlusion of small to medium spores
3+	Very High	Will cause occlusion of spores
4	Overloaded	Level of particulate too high to perform analysis

A Note About the Fungal Spores

In some instances certain groups of fungi cannot be identified due to a lack of distinguishing characteristics. These fungi will be categorized as % when when spores + on the final report.

The genera *Aspergillus* and *Penicillium* are typically composed of small, round spores that are difficult to distinguish from each other; therefore, they are grouped into the category *Aspergillus / Penicillium*. Other fungi that produce spores of similar characteristics may also be placed into this category, including *Paecilomyces*, *Gliocladium*, and *Trichoderma*, among others.

Stachybotrys and Memnoniella spores are coated with a sticky %dime+layer that may inhibit aerosolization.

Any genus of fungi detected on an air cassette with a high raw count (i.e. exceeding 500 spores) may be estimated. Any estimate higher than 12,000 spores will be reported as >12,000.

Understanding the Air Cassette Report

Each sample has 3 columns of information provided. The left is the raw count which is the number of spores for that fungal type detected on the trace. The middle column is the count per cubic meter (Count/m³) which is the raw count converted based on the total volume pulled for that sample. It represents the number of spores that should be expected in a cubic meter of air from the location in question *if* the spores were distributed evenly throughout the air. This column is helpful for interpreting results when the samples were pulled at different total volumes. In other words, the raw count of a cassette pulled at 75 liters should not be compared to the raw count of a cassette pulled at 150 liters because there may be higher counts associated with the higher volume. By comparing the $count/m^3$ +columns the difference in volumes are accounted for.

The limit of detection is the lowest spore count detectable with reasonable certainty, and it is calculated this way using a raw count of one. Keep in mind there are 1,000 liters in a cubic meter.

1 x (1,000 / Total Volume in Liters)

How to calculate the count per cubic meter:

Raw Count x (1,000 / Total Volume in Liters)

The last column on the right shows the percentage for which each spore type comprised the total spore count.

Understanding the Air Cassette Graph (If included in the final report)

The graph is a visual representation of the baseline sample (usually the outdoor air sample) compared individually against each indoor sample. Each spore type found on the indoor sample is compared to what was found outdoors per cubic meter.

The graph shows the percentile representation of each indoor spore count derived by dividing the indoor Count/m³ by the outdoor Count/m³. If the percentage is below 50% of the outside count, then the bar is below 50 on the chart, which corresponds to Within 50% of Baseline Count/m³.+ If the percentage is between 50 and 100%, then the bar on the chart will stop between 50 and 100, which corresponds to Count/m³ comparable to Baseline.+ If the percentage is greater than 100%, then the bar will be above 100 on the chart, which corresponds to Count/m³ higher than Baseline.+

Each organism is given a threshold level for the Count/m³. If this threshold level is not met in an inside sample, then the organism will not be graphed on the chart. This is used to prevent the graph from showing every spore type that is commonly found outside and doesnq typically indicate a possible moisture problem inside. For example, most common outdoor spores (e.g. ascospores, basidiospores, and *Cladosporium*) have a threshold level of 100. Therefore, in order to show up on the chart, the inside Count/m³ must be above 100. On the other hand, fungi that may indicate water damage (e.g. *Stachybotrys, Ulocladium, Chaetomium, Memnoniella*, etc.) are given lower threshold levels. These fungi have a higher water activity value and therefore require more moisture to grow. *Stachybotrys* and *Chaetomium* have threshold values of 14 and 30, respectively, as even a low count of those types of spores may indicate an issue with excess moisture.

Keep in mind that this graph is to be used only as a tool in the inspection of a building. Visual examination and knowledge of water damage, past remediation, and weather conditions, among other elements, is essential in the decision regarding the indoor air quality of a building.

Assistance with Remediation Projects

more information pertaining to interpretation of results is available on our website www.sanair.com

For assistance in a remediation project you may consult the Institute of Inspection, Cleaning and Restoration Certification (IICRC) S500 and S520 protocols. The S500 is a reference guide for water-damage restoration and the S520 pertains specifically to mold remediation. Other standards and guidelines regarding Indoor Air Quality that may assist in remediation projects:

AIHA (Recognition, Evaluation, and Control of Indoor Mold)
AIHA (The Facts About Mold)
NADCA (ACR 2006)
IESO (Standards of Practice for the Assessment of Indoor Air Quality)
EPA (Mold Remediation in Schools and Commercial Buildings)
New York City Department of Health and Mental Hygiene (Guidelines on Assessment and Remediation of Fungi in Indoor Environments)

Disclaimer

SanAir Technologies Laboratory does not make contamination corrections to reports based upon analysis of laboratory and/or field blanks.

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