

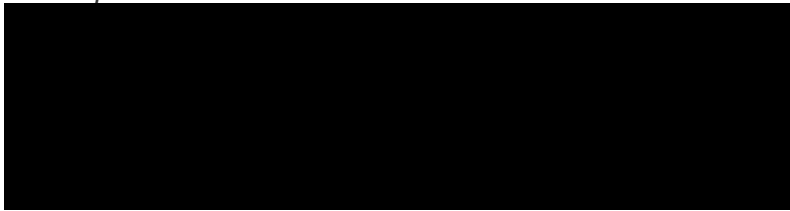


GREENBELT STRUCTURAL SERVICES
A DIVISION OF TAHI LLC

Prepared By:

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TDLR Mold Assessment Consultant #MAC1423
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TSBPE (Plumbing) #132292

Prepared For:



To Whom It May Concern:

TAHI Services and Greenbelt Structural performed a limited mold assessment at the subject property in accordance with the TDLR Administrative Rules and generally accepted professional practices. A Mold Assessment addresses only those building materials and conditions that are present, visible, and accessible at the time of the inspection. This report and associated conclusions are based on the visible conditions of the inspected areas and materials and information reported by the client. The assessor does not climb over obstacles, move furnishings or stored items, or go into any area that might present a safety hazard.

Various limitations were present which reduced the ability to visually assess the structure. The assessment process is not designed to be intrusive, destructive, or all encompassing. Rather, the assessment and report represent this inspector's professional opinion of the overall condition of the structure and/or specific items included within the scope of the investigation. This 3rd party assessment and report has been provided to the client for the purposes of due diligence and the requestor's documentation. The assessment process and report do not, in any manner, represent a guarantee or warranty of the structure's overall condition.

Below is a limited list of information gathered at the time of assessment.

I: MOLD ASSESSMENT - GENERAL INFORMATION AND SITE OBSERVATIONS

CONSTRUCTION TYPE: Single Family Residence

BUILDING TYPE: Stick Built Standard Construction

APPX. SIZE: 2000-3000 Sq. Ft.

SCOPE: Entire Structure

PURPOSE: Determine Sources, Locations, Extent of Mold Growth (Where Applicable)

PROTECTIVE EQUIPMENT REQUIRED: Low Level PPE (Face/Hand/Eye Pro)

SAMPLES COLLECTED: Yes (Per Texas Administrative Code, Chapter 78)

PRIMARY SAMPLING METHOD: Standard Bio Tape Lifts

MOLD REMEDIATION PROTOCOL: Not Within Scope of Work

BUILDING OCCUPANTS: Appx. 3 Occupants

CONTAINMENT REQUIREMENTS: None - Not Within Living Space

EQUIPMENT UTILIZED: Wagner/Tramex Moisture Meter

EQUIPMENT UTILIZED: AMB-200 Wireless Environmental Meter

EQUIPMENT UTILIZED: Flir Thermal Cameras (Limited Use)

EQUIPMENT UTILIZED: Standard RH Gauges and Thermometers

SITE OBSERVATIONS AND INTERIOR CONDITIONS:

The inspected property is a single family dwelling originally constructed prior to 1950. A recent major remodel has taken place. Most accessible portions of the building have been updated. Both a visual inspection and lab results indicate that the interior portions of the building are in good to fair condition and free from detectable, environmental conditions conducive to the proliferation of mold growth.

The foundation area is comprised of two separate crawlspaces which are divided by a center concrete stem wall. The center wall runs from the front to the back of the building and is located roughly at the center of the home (acting as a load bearing member for interior walls). The left crawlspace can be accessed through a hinged door at the concrete stem wall. Height above grade ranging from 6' to 2', with the greatest height located near the left perimeter wall. The left crawlspace was not provided ventilation at the perimeter stem walls, however, the back portion of the crawlspace remains open to the wood framed deck above. Open cell foam insulation has been installed throughout the upper crawlspace at the floor joists and decking.

The right crawlspace can be accessed through a vent port at the front portion of the stem wall. Height above grade ranging from 16-24". The right perimeter stem wall sits below grade and has been provided a rubber membrane barrier. The condition of the barrier is unknown. The right crawlspace was provided ventilation at the front perimeter walls, however, the right and back portion of the crawlspace is not vented. Open cell foam insulation has been installed throughout the upper crawlspace at the floor joists and decking. A small section of closed cell insulation was also noted at the mid right portion of the crawlspace. The purpose for the isolated change in material types is unknown.

SITE CONDITIONS - LEFT CRAWLSPACE:

At the time of inspection, wood rot, suspect surface mold, and fungal growth was visually discovered within the crawlspaces (mainly at stored material, wood products, and soil surfaces). Excessive moisture accumulation was discovered at areas under the back deck, at the back corner (near center stem wall and plumbing) and at isolated portions of the perimeter stem wall (throughout). A visual assessment and equipment readings indicated that humidity levels were well over recommended levels.

SITE CONDITIONS - RIGHT CRAWLSPACE:

At the time of inspection, suspect mold was visually discovered within the crawlspaces (mainly at wood products, and the surfaces of open cell foam insulation). Excessive moisture accumulation was discovered at various portions of the perimeter stem walls and throughout. A visual assessment and equipment readings indicated that humidity levels were well over recommended levels.

II: PROFESSIONAL OPINIONS AND RECOMMENDATIONS

PROFESSIONAL OPINION - NORMAL ENVIRONMENTAL CONDITIONS WITHIN STRUCTURE:

Based on the findings of the visual inspection and/or the lab results of the sample(s) collected, it is my professional opinion that the interior portions of the building were free of elevated and/or uncommon levels of mold spores and types at the time of assessment/sampling. Immediate action is advised to address issues discovered in building crawlspace. If not addressed, mold and environmental issues within the crawlspace may affect additional portions of the structure, to include living spaces.

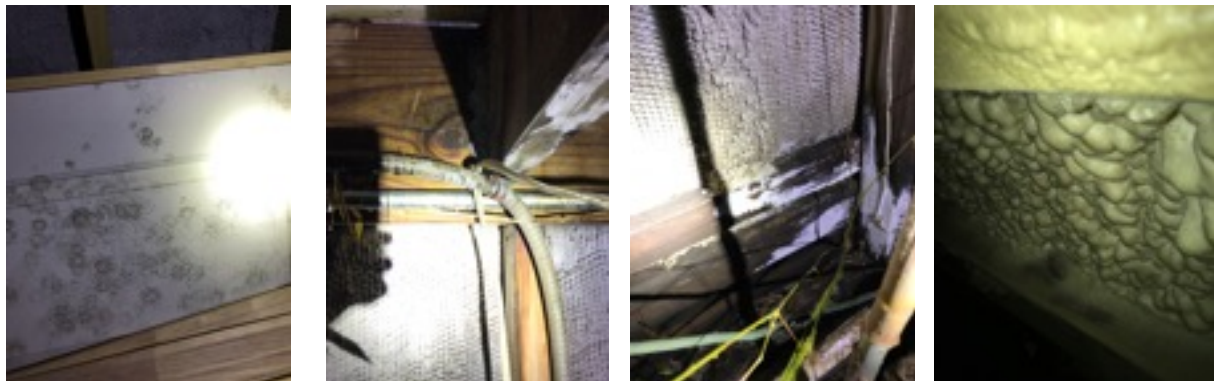
PROFESSIONAL OPINION - REMEDIATION REQUIRED WITHIN CRAWLSPACE:

The primary areas of concern (crawlspaces) are in need of remediation, repair, and updating to address conditions which have allowed for the proliferation of mold/fungal growth. Steps should be taken to address all discovered issues and reduce the likelihood of future issues. It is recommended that the client/owners engage this firm to write a Mold Remediation Protocol in order to properly address the following areas of the property:

-Building Crawlspaces

NOTE: Currently, there are no governmental, jurisdictional or generally accepted standards/regulations for "normal" or "safe" airborne mold spore exposure levels. As such, spore counts are compared to a baseline, outdoor sample. In general, indoor spore counts should be statistically similar to the outdoor counts and proportionately similar in terms of spore types.

NOTE: See below for further information.



ACTIVE MOLD AND/OR CONDITIONS CONDUCTIVE TO MOLD VISUALLY VERIFIED

III: PRACTICES AND PROCEDURES

MINIMUM WORK PRACTICES AND PROCEDURES FOR MOLD ASSESSMENTS:

The following information has been produced and published in the Administrative Rules of the Texas Department of Licensing and Regulation 16 Texas Administrative Code, Chapter 78

(Effective November 1, 2017). A complete copy of this document can be viewed at: atxinspect.com/maar

78.100. Minimum Work Practices and Procedures for Mold Assessment:

- (a) Scope. These general work practices are minimum requirements and do not constitute complete or sufficient specifications for mold assessment. More detailed requirements developed by an assessment consultant for a mold assessment or for a particular mold remediation project shall take precedence over the provisions of this section.
- (b) Purpose. The purpose of a mold assessment is to determine the source(s), location(s), and extent of mold growth in a building, to determine the condition(s) that caused the mold growth, and to enable the assessment consultant to prepare a mold remediation protocol.
- (c) Personal protective equipment for assessors. If an assessment consultant or company determines that personal protective equipment (PPE) should be used during a mold assessment project, the assessment consultant or company shall ensure that all individuals who engage in assessment activities and who will be, or are anticipated to be, exposed to mold are provided with, fit tested for, and trained on the appropriate use and care of the specified PPE. The assessment consultant or company must document successful completion of the training before the individuals perform regulated activities.
- (d) Sampling and data collection. If samples for laboratory analysis are collected during the assessment:
 - (1) sampling must be performed according to nationally accepted methods;
 - (2) preservation methods shall be implemented for all samples where necessary;
 - (3) proper sample documentation, including the sampling method, the sample identification code, each location and material sampled, the date collected, the name of the person who collected the samples, and the project name or number must be recorded for each sample;
 - (4) proper chain of custody procedures must be used; and
 - (5) samples must be analyzed by a laboratory licensed under §78.62.
- (e) Mold remediation protocol. An assessment consultant shall prepare a mold remediation protocol that is specific to each remediation project and provide the protocol to the client at least one calendar day before remediation activities begin. The mold remediation protocol must specify:
 - (1) the rooms or areas where the work will be performed;
 - (2) the estimated quantities of materials to be cleaned or removed;
 - (3) the methods to be used for each type of remediation in each type of area;
 - (4) the PPE to be used by remediators. A minimum of an N-95 respirator is recommended during mold-related activities when mold growth could or would be disturbed. Using professional judgment, a consultant may specify additional or more protective PPE if he or she determines that it is warranted;
 - (5) the proposed types of containment, as that term is defined in §78.10(9) and as described in subsection (g), to be used during the project in each type of area; and
 - (6) the proposed clearance procedures and criteria, as described in subsection (i), for each type of remediation in each type of area.
- (f) Building occupants. A mold assessment consultant shall consider whether to recommend to a client that, before remediation begins, the client should inform building occupants of mold-related activities that will disturb or will have the potential to disturb areas of mold contamination.
- (g) Containment requirements. Containment must be specified in a mold remediation protocol when the mold contamination affects a total surface area of 25 contiguous square feet or more for the project.

MOLD ASSESSMENT - PURPOSE, LIMITATIONS, AND RESPONSIBILITIES:

Your lead assessor and/or project manager is available to the client for during and after services are provided. Please contact us if clarification of assessment findings are required. Information in this report should be read in it's totality.

This Mold Assessment was subject to the Texas Mold Assessment and Remediation Rules (16 Tex. Admin. Code, Chapter 78), Administrative Rules of the Texas Department of Licensing and Regulation. For a full copy of this document, please visit: atxinspect.com/maar

TAHI Services and Greenbelt Structural performed a "limited" mold assessment at the subject property in accordance with the TDLR Administrative Rules and generally accepted professional practices. A Mold Assessment addresses only those building materials and conditions that are present, visible, and accessible at the time of the inspection. This report and associated conclusions are based on the visible conditions of the inspected areas and materials and information reported by the client. The assessor does not climb over obstacles, move furnishings or stored items, or go into any area that might present a safety hazard.

TAHI makes no guarantees or warranties, express or implied, regarding the condition of the property. TAHI reserves the right to revise opinions and conclusions if necessary and warranted by the discovery of new or additional circumstances. This report is specific and "limited" in nature and shall not be relied on as a statement that no mold exists in this property. Mold is a naturally occurring substance in nature and is present in most areas to one degree or another. Areas of elevated mold growth may exist beyond visibly accessible areas and not be included in this report. The information in this report is limited to the day/time of the assessment and areas viewed by the assessor. Additional issues or proliferation of mold may take place following the assessment. In these cases, the delivered report will not apply to changes in site conditions which occur following the investigation. Professional opinion regarding the presence of uncommon mold levels, likelihood of additional issues, degree of concern, and need for mold remediation/further action will vary from one specialist to the next. A difference in professional opinion or final conclusions/recommendations is not an indication of error or omission by any one individual. Professional opinion will vary and should be expected in the event multiple specialists are assigned to the investigation.

This inspection did not include locating/testing of asbestos materials or lead-based paint.

Although some preventative maintenance issues may be noted in this report, this assessment was not a safety or code inspection or a leak detection inspection, and the assessor is not required to identify all potential issues.

Items identified in this report do not obligate any party to make repairs or take other actions; however, failure to address water intrusion or moisture issues or wet materials noted in this report, may lead to mold growth and/or further damage of the structure. This service does not include follow-up inspections or testing to verify that proper corrections have been made. The assessor has performed a limited investigation of the structure and is not required to document all issues or potential issues. Nor is the assessor responsible for undiscovered issues at areas not within the scope of the investigation and/or areas that were not discovered due to various circumstances including, but not limited to: visual limitations, inconclusive conditions at the time of assessment, unintentional omission/negligence, site specific conditions reducing scope of work, weather conditions reducing scope of work, etc.

This report is provided for the specific benefit of the client named above.

MOLD SAMPLING INFORMATION AND CLIENT ACKNOWLEDGEMENT:

Currently, there are no governmental, jurisdictional or generally accepted standards/regulations for "normal" or "safe" airborne mold spore exposure levels. As such, spore counts are compared to a baseline, outdoor sample. In general, indoor spore counts should be statistically similar to the outdoor counts and proportionately similar in terms of spore types.

- If the indoor results are statistically similar to the outdoor results, we consider the airborne mold spore levels to be normal.
- When the airborne mold levels indoors are not statistically similar, the results may indicate an indoor source of mold, which is amplifying the airborne levels of one or more types of mold.
- If there are water marker mold types (*Stachybotrys*, *Chaetomium*, *Ulocladium*, and *Memnoniella*) present in an indoor air sample, this is considered to be a common indicator of a moisture and mold concern in the area tested.
- When the indoor levels of one particular type of mold are significantly higher than the outdoor levels of the same mold type, this is considered to be a common indicator of a mold concern in the area tested and may indicate or confirm the presence of a hidden source of mold growth.

CLIENT ACKNOWLEDGEMENT OF SCOPE OF WORK LIMITATIONS:

The assessor has performed a limited investigation of the structure and is not required to document all issues or potential issues. Nor is the assessor responsible for undiscovered issues at areas not within the scope of the investigation and/or areas that were not discovered due to various circumstances including, but not limited to: visual limitations, inconclusive conditions at the time of assessment, unintentional omission/negligence regarding the assessment or report provided, site specific conditions reducing scope of work, weather conditions reducing scope of work, etc.

Multiple limitations are present during the site assessment process. Non-discovered mold and air quality issues, both minor and significant, may not be documented in this report or discovered during the assessment of the structure. The assessment process is not designed to be intrusive, destructive, or all encompassing. Rather, the assessment and report represent your inspector's professional opinion in regards to the general condition of the structure and associated systems. Professional opinions may vary from one individual to the next. The inspection process and report do not represent a guarantee or warranty of any kind.

(1) Containment is not required if only persons who are licensed or registered under this chapter occupy the building in which the remediation takes place at any time between the start-date and stop-date for the project as specified on the notification required under §78.110.

(2) The containment specified in the remediation protocol must prevent the spread of mold to areas of the building outside the containment under normal conditions of use.

(3) If walk-in containment is used, supply and return air vents must be blocked, and air pressure within the walk-in containment must be lower than the pressure in building areas adjacent to the containment.

(A) Operation of equipment to recirculate air inside of containment without maintaining negative air pressure may be conducted when the specific conditions, phases, and time periods during which it may or must occur are specified in the mold remediation protocol before commencing this use of equipment.

Test Code 3: Direct Exam -fungal limited
Analysis Method: Internal SOP M-3

Company name		State		TX		Zip		78731		 FM-17 External 10 Line Chain of Custody Form	
Address		Submitted by:		Andy Jordan		Cell phone		512-788-1001			
Project name		Email address:		andy@atxinspect.com							
Project address											
Project (optional)		Turnaround Time:		3 Hr		6 Hr		24 Hr		3 Day	
Sample Date				CC:							
				CC:							

MOLD					ASBESTOS		SEWAGE SCREEN		
Test Codes		Air Samples			Direct Samples				
1. Spore Trap (air): mold only analysis		3. Tape/Wash/Bulk (surface): Qualitative mold only analysis (w/strings of 'light, moderate and heavy')			6. PCM: NIOSH 7400		5. E Coli & Total Coliform-presence /absence test		
2. Spore Trap (air): mold & other particle analysis		9. Tape/Bulk (surface) Sporecount: mold only			7. RAM				
		10. Tape/Bulk (surface) Sporecount: mold & other particles			8. STAB (subcontracted out)				
Sample # or ID	Sample Name, Location or Description	Temp	R.H.%	Test code	Time on (applicable to air samples only)	Time off (applicable to air samples only)	Total Vol. (applicable to air samples only)	Sample Type (Bulk, Twp, Swab, Allergens, ect.)	No. of Containers
1.	20190508-52 Master Bath	80-85	57-60	3					
2.	20190508-53 Laundry (Near Vent)			3					
3.	20190508-54 Kitchen Wall			3					
4.	20190508-55 Mid Guest Bedroom (RT Wall)			3					
5.	20190508-56 Lt. Side Crawlpace			3					
6.	20190508-57 Kitchen/Living Room Flooring Area			3					
7.	20190508-58 ⁵¹ Outdoor area (control)			3					
8.									
9.									
10.									

Payment options		Released by (your signature) by signing this document, you certify that these samples were not tampered with while under your care.		Time: 10:00am		Date: 13MAY2019		Received Date Stamp: 	
☐ Invoice to account ☐ Process credit card on file ☐ enclosed check		☒ X							

Field Notes:

Special Instructions: Hand deliver to staff member. Data Included on Sample Envelopes

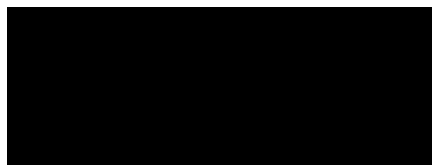
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Report

Test Code 3: Direct Exam -fungal limited
Analysis Method: Internal SOP M-3



This test report contains the following sections: Cover, Report, FAQ and Glossary.

Sample No: Location:	20190508-51 Outdoor area (control)	Analysis Date:	5/14/2019	Sample Type:	Tape /Bio-tape
<u>Identification</u>		<u>Rating</u>			
Non-specified spore		Minor			
Sample No: Location:	20190508-52 Master Bath	Analysis Date:	5/14/2019	Sample Type:	Tape /Bio-tape
<u>Identification</u>		<u>Rating</u>			
No mold detected		No Mold Detected			
Sample No: Location:	20190508-53 Laundry (Near Vent)	Analysis Date:	5/14/2019	Sample Type:	Tape /Bio-tape
<u>Identification</u>		<u>Rating</u>			
Alternaria		Minor			
Epicoccum		Minor			
Non-specified spore		Minor			
Sample No: Location:	20190508-54 Kitchen Wall	Analysis Date:	5/14/2019	Sample Type:	Tape /Bio-tape
<u>Identification</u>		<u>Rating</u>			
Curvularia		Minor			
Hyphal Fragments		Minor			
Sample No: Location:	20190508-55 Mid Guest Bedroom (RT Wall)	Analysis Date:	5/14/2019	Sample Type:	Tape /Bio-tape
<u>Identification</u>		<u>Rating</u>			
Nigrospora		Minor			

Tech Notes:

Sample No:	20190508-56	Analysis Date:	5/14/2019	Sample Type:	Tape /Bio-tape
Location:	Lt. Side Crawlspace				

Lead Inspector Note (A. Jordan):

Primary area of concern confirmed
elevated mold levels present

Identification

Aspergillus/Penicillium-like

Hyphal Fragments

Rating

			Heavy
			Heavy

Sample No:	20190508-57	Analysis Date:	5/14/2019	Sample Type:	Tape /Bio-tape
Location:	Kitchen/Living Room Flooring Area				

Identification

Alternaria

Epicoccum

Rating

	Minor		
	Minor		

Tech Notes:

Submitted By: Andy Jordan | via: Hand Delivered | Submittal Date: 5/13/2019 2:00:00 PM | Sample Date: | Analysis Date: 5/14/2019 | Report Date: 5/14/2019 | Lab Job No.: 19-3234 | Technician: Luis Bustillos

Results apply only to samples tested. Results may not be reproduced except in full without written approval of Moldlab. All samples were received in acceptable condition unless noted in the Tech Notes section. Moldlab assumes no responsibility for sample collection or handling prior to receipt at the laboratory. Field blank correction of results is not applied. Rating is based on the average Qualified Structures (QS) per Field of View (FV). A QS is the analyte of interest chosen by the client. No Mold Detected (0 QS), Minor (1 QS/FV or less), Moderate (>1 to 3 QS/FV), and Heavy (>3 QS/FV) ratings are used. QS observed from the samples submitted are listed on this report. If a QS is not listed, it was not observed in the samples submitted. This report does not express or imply interpretation of the results contained herein.

LAB0137 by the Texas Dept. of State Health Services/AIHA-LAP, LLC EMLAP Accredited ID No. 154782Report Approved by Kristina Rucker

Test Code 3 Report Revision 1

Frequently Asked Questions

Test Code 3: Direct Exam -fungal limited
Analysis Method: Internal SOP M-3



This test report contains the following sections: Cover, Report, FAQ and Glossary.

What does the rating system mean?

'No mold detected' = the substance on the sample you submitted **did not** contain a detectable level of mold. 'Minor' amounts of mold can be found in typical dust samples because mold spores are a **normal** part of our air make up. 'Heavy' amounts tend to come directly from the source of the mold. For example, you saw mold growing on a piece of fruit, sent in a sample, the lab would report a 'heavy' rating. Conversely, if you had taken a sample of dust that had settled on a tabletop, you may get a report with 'Minor' amounts of several types of mold listed. Keep in mind there are numerous variables involved in interpreting lab results and making conclusions based solely on testing such as surface lifts is generally considered unreliable.

What do I do now?

If you receive a lab report back that lists 'heavy' levels of mold(s) with potentially adverse health effects, we usually recommend that air samples be taken. Of course each situation is different and air samples may not be necessary in all circumstances. Air sampling will tell you if that same mold the lab detected on your surface sample is airborne.

How do I get rid of it?

Many molds are allergens and some may be toxigenic, so if you are going to disturb the mold with cleaning methods, you increase your chances of exposure to the particulate. Mold clean up and disposal methods vary greatly from company to company. A good rule of thumb is that if the contaminated area is small and the material is non porous such as metal, it can be cleaned by traditional methods, taking care to use personal protective equipment. Porous materials on the other hand, such as wood, textiles, or sheetrock are difficult to clean because of the microscopic holes in the material. The root structures of the mold called hyphae/mycelia can grow down into the holes and make it hard to clean effectively. The surface will appear clean but as soon as conditions are favorable the mold can start to grow again.

Is this the Black Mold?

Usually when a customer asks this question he/she is referring to Stachybotrys. Although Stachybotrys is black in color, so are many other types of mold. Do not discount the importance of other types of mold listed on your report because you do not see the word(s) Stachybotrys or Black mold. For more about 'black mold' visit moldlab.com/black-mold/

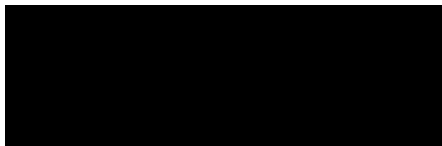
Can we still live here?

There are no established 'safe' levels of mold, just as there are no established 'unsafe' levels of mold, and individuals have different resistances to mold.

- Do any of the occupants fall into the susceptible group? This group includes: children, elderly, immunocompromised, and persons with respiratory disorders. Please consult your physician if you suspect you are suffering from mold related illness.
- Is the indoor airborne mold concentration higher than the outdoor concentration?
- How wide spread is the contamination? i.e. is the mold enclosed inside a cabinet, or does it cover the entire wall? When in doubt, contact a professional in your area.

Why is my report "Preliminary" or "Amended"?

A Preliminary Report is a report issued prior to final approval by the Lab Director. A Preliminary Report may be issued at a client's specific request, in order to get some results to them as soon as possible. Typically, Preliminary Reports have not gone through the QA-QC process yet. As such, Preliminary Reports are NOT final, and may not be as accurate as final reports. Don't worry, though- as soon as the Preliminary Report goes through QA-QC, we'll send you the final, approved report (unless you request otherwise). An Amended Report is issued when some problem with the final report has come to our attention. This may be a result of additional attention given the report by our lab, or a client may have brought the problem to our attention. In either case, a new report with the problem corrected will be issued and labeled as an Amended Report to help you know which report is correct and current.



Glossary

Test Code 3: Direct Exam -fungal limited
Analysis Method: Internal SOP M-3



This test report contains the following sections: Cover, Report, FAQ and Glossary.

***Diagnosis of health effects should be left to a medical professional. Moldlab is not a clinical laboratory and does not have medical professionals on staff.

Health effects in general are not well studied, and dosage, exposure, and sensitivity thresholds are not well known and can potentially vary tremendously depending on various conditions and on the particular individual. Effects can also vary from species to species within a particular mold genus.

The EPA, OSHA, NIOSH and other occupational health related associations in the U.S. have not yet established permissible exposure levels (PEL), recommended exposure limits (REL), or other limit values for aeroallergens.

Please realize that the evaluation of one's specific results in terms of potential health hazards and subsequent courses of action are beyond the scope of the laboratory analysis.

Pictures / images are for *illustration* purposes only and are NOT of the samples tested.

Terminology:

Allergen- the most common effect, and can range from hay fever and asthma, to a very particular reaction in certain organs or tissues.

Contaminant- something that is present without injuring or benefiting the host; does not cause infection.

Opportunistic pathogen- Causes infection only when the weak or injured condition of the person gives the agent opportunity to infect; rarely infect persons who are otherwise healthy.

Definition

Images

Alternaria (all-tur-nair'ee-uh)

Classification: Common Allergen / Contaminant / Opportunistic Pathogen (rarely)

Possible Health Effect: It is an important allergen and common agent of hay fever, asthma, and other allergy related symptoms, including sinusitis.

Macroscopic Morphology: The mold can appear gray / white at first than become greenish / black or brown with a lighter border over time.

Environment: Soil, Plants, Commonly found indoors on food and textiles.



Definition

Images

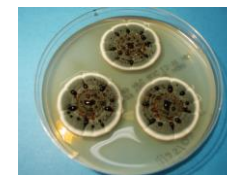
Aspergillus/Penicillium-like (as-per-jill-us) / (pen-uh-sill'ee-um)

Classification: Allergen / Contaminant / Opportunistic Pathogen

Possible Health Effect: Aspergillus is common on tape lift samples and air samples, but its spores are indistinguishable from Penicillium spores in most cases. There are a few exceptions but the species ID must be made from culture, and is still a difficult job. Health effects vary by species, but many are listed as allergens. Some species can produce toxins that may have significant health effects in humans. Aspergillus is listed as one of the most infectious type of mold, but infections are not common in normal healthy immune systems. However, if you are immune suppressed or compromised this should be discussed with your physician.

Macroscopic Morphology: Aspergillus can appear in a wide range of colors from white to purple, yellow to green, see images next to text.

Environment: Commonly found in the environment around the world.



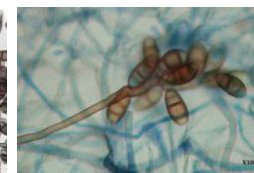
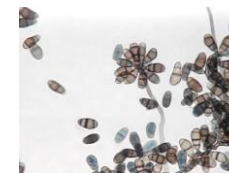
Curvularia (curve-you-lair'-ee-uh)

Classification: Contaminant / Opportunistic Pathogen

Possible Health Effect: Some sources site it as an allergen. Rare infections of the cornea, nail and sinuses primarily in Immunocompromised individuals.

Macroscopic Morphology: The mold appears as olive green to brown or black with a pink wooly surface.

Environment: The mold is common in the air and in the soil as a saprophyte and in textiles and decaying vegetation.



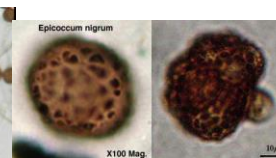
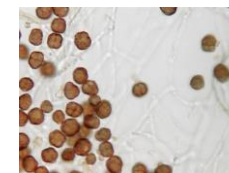
Epicoccum nigrum (epp-ee-cock'-um nigh-grum)

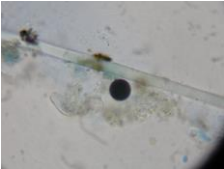
Classification: Contaminant / Allergen

Possible Health Effect: It is an allergen but in can in certain rare situations cause infections in the skin.

Macroscopic Morphology: The mold will appear yellow or orange with a rough look and will become brown to black with age.

Environment: The mold can be found in air, water, soil, and rotting vegetation.



Definition	Images
<u>Hyphal Fragments</u> (hy-full) Classification: N/A Possible Health Effect: N/A Macroscopic Morphology: Not a type of mold. A hyphal fragment is a small piece or portion of 'root'-like structure called hyphae/mycelia. Hyphal fragments are common in air samples. Mold type cannot be identified by the hyphae alone. Environment: N/A	 
<u>Nigrospora</u> (nigh-grow-spore-uh) Classification: Saprophyte, not known to be pathogenic. Possible Health Effect: Rarely Reported Macroscopic Morphology: Woolly, white then gray with age. Environment: Worldwide in soil, parasitic and saprophytic on plants.	 
<u>No mold detected</u> No mold types detected in this sample.	
<u>Non-specified spore</u> the spore is NOT Stachybotrys	
NO ADDITIONAL DATA	

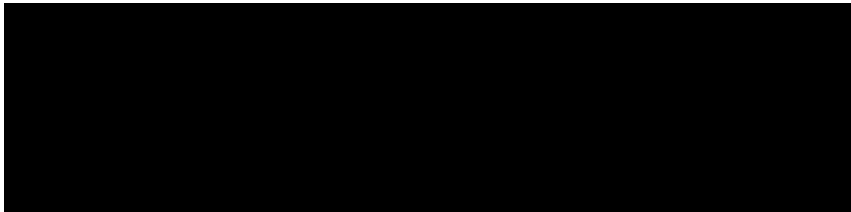
ADDENDUM I: FOUNDATION/CRAWLSPACE ASSESSMENT



THE AUSTIN HOME INSPECTOR

Prepared By:

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To Whom It May Concern:

On 08MAY2019, a site visit to the above mentioned property was made in order to perform a property assessment. A partial and limited assessment of the foundation and crawlspace was conducted at that time. Areas of concern and recommendations have been provided herein.

Multiple assessment limitations reduced the ability to fully investigate the system and additional issues/concerns, both minor and significant, may be present. The assessment process is not designed to be intrusive, destructive, or all encompassing. Rather, the assessment and report represent this inspector's professional opinion of the overall condition of the structure and/or associated systems pertaining to the scope of work. This 3rd party assessment and report has been provided to the client and representing agents for the purposes of due diligence, filing of available information, and additional client protection. The assessment process and report do not, in any manner, represent a guarantee of warranty of the above mentioned property or associated system conditions.

System information noted at the time of assessment is listed below. This is not an official TREC report document.



THE AUSTIN HOME INSPECTOR

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CRAWLSPACE ASSESSMENT – 705 BOULDIN AVE.

OBSERVATIONS - CRAWLSPACES:

The inspected property is comprised of two separate crawlspaces which are divided by a center concrete stem wall. The center wall runs from the front to the back of the building and is located roughly at the center of the home (acting as a load bearing member for interior walls). The left crawlspace can be accessed through a hinged door at the concrete stem wall. Height above grade ranging from 6' to 2', with the greatest height located near the left perimeter wall. The left crawlspace was not provided ventilation at the perimeter stem walls, however, the back portion of the crawlspace remains open to the wood framed deck above. Open cell foam insulation has been installed throughout the upper crawlspace at the floor joists and decking.

The right crawlspace can be accessed through a vent port at the front portion of the stem wall. Height above grade ranging from 16-24". The right perimeter stem wall sits below grade and has been provided a rubber membrane barrier. The condition of the barrier is unknown. The right crawlspace was provided ventilation at the front perimeter walls, however, the right and back portion of the crawlspace is not vented. Open cell foam insulation has been installed throughout the upper crawlspace at the floor joists and decking. A small section of closed cell insulation was also noted at the mid right portion of the crawlspace. The purpose for the isolated change in material types is unknown.

SITE CONDITIONS - LEFT CRAWLSPACE:

At the time of inspection, wood rot, suspect surface mold, and fungal growth was visually discovered within the crawlspaces (mainly at stored material, wood products, and soil surfaces). Excessive moisture accumulation was discovered at areas under the back deck, at the back corner (near center stem wall and plumbing) and at isolated portions of the perimeter stem wall (throughout). A visual assessment and equipment readings indicated that humidity levels were well over recommended levels.

SITE CONDITIONS - RIGHT CRAWLSPACE:

At the time of inspection, suspect mold was visually discovered within the crawlspaces (mainly at wood products, and the surfaces of open cell foam insulation). Excessive moisture accumulation was discovered at various portions of the perimeter stem walls and throughout. A visual assessment and equipment readings indicated that humidity levels were well over recommended levels.

GENERAL CONCERNS - CRAWLSPACES:

The crawlspaces have not been provided adequate ventilation or encapsulation. Additionally, excess moisture has accumulated at various areas indicating that an improper below grade moisture barrier may be present (particularly at the right side stem wall). The lack of proper ventilation and airflow coupled with excess moisture intrusion has resulted in damage to moisture susceptible materials, conditions conducive to the growth and proliferation of mold, problematic air quality and environmental conditions, and humidity conditions which increase the likelihood of vapor drive and/or diffusion into the floor assembly. Additionally, the presence of open cell foam insulation in an un-encapsulated, high moisture environment presents an installation and material condition concern. Open cell foam is considered to be a permeable to semi-permeable material and, although not specifically prohibited from use in crawlspaces, the installation of this material in high moisture, ambient environments is typically excluded in manufacturer recommendations. Commonly observed installation practices call for open cell foam to be placed in encapsulated/sealed environments. Open cell foam exposed to unfavorable, high moisture conditions increase the likelihood of moisture entrapment, vapor diffusion, vapor drive, and various associated issues which may cause continued damage to the structure.

RECOMMENDATIONS FOR FURTHER ACTION - CRAWLSPACES:

Further action will be required to determine the best course of action to address problematic moisture and environmental conditions within the crawlspace. Following initial moisture remediation and repair, updates to grading drainage, moisture barrier protection, ventilation or encapsulation will be required. Additional inspections/testing during and after repairs and updates take place are advised.

Further investigation of the current condition of foam insulation located in the crawlspaces should be conducted by a subject matter expert to determine if removal is required. Updates to insulation should be conducted per the guidance of the contracted subject matter expert.

INDUSTRY AND RESEARCH INFORMATION:

Below are several excerpts from industry, governmental, and/or academic sources which further explain best practices and concerns.

Vapor Retarder Application:

When required, a vapor retarder shall be applied to the substrate to be insulated or to the finished spray polyurethane foam insulation. The predominant direction of the vapor drive determines the location of the vapor retarder relative to the spray polyurethane foam

Source: Johns Manville Open Cell Appendix X Spray Foam Insulation

Crawl Space Construction:

- Control bulk moisture, with proper grading, drainage, foundation damp proofing, capillary breaks, and flashing, to keep rain and groundwater out of the crawl space, including during construction.
- Control vapor migration due to air leakage, from the crawl space to the house through the floor, with effective air sealing – seal all floor penetrations, rim areas, and insulation seams, as required.
- Consider treated wood for floor framing and subfloors to improve moisture resistance – particularly in a vented crawl space with permeable insulation and where floor joists are exposed below the insulation.
- Consider building an unvented crawl space – floor covering permeability does not matter because the space is conditioned.

Source: NAHB Technical Notes, Floors Above Crawl Spaces: Reducing the Risk of Moisture Accumulation within Wood Floor Assemblies

Floor Component Selection for Vented and Open Crawl Spaces in Hot-Humid Climates:

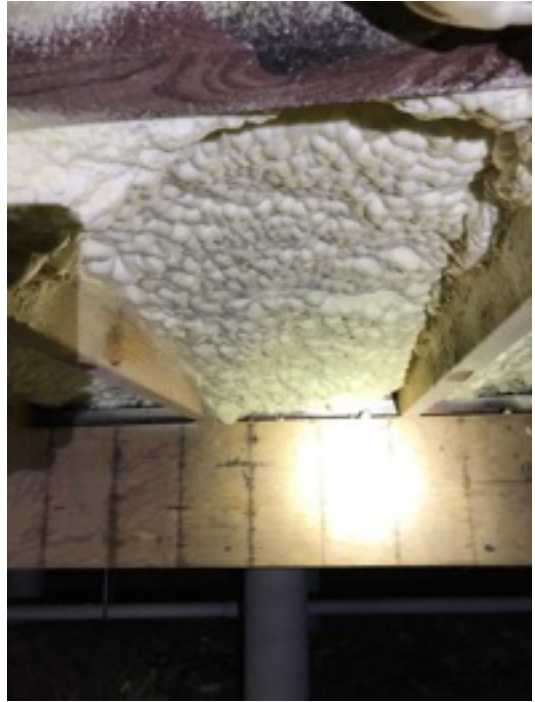
- Select the R-value of floor insulation to meet building code or above code energy program requirements.
- Select vapor impermeable or semi-impermeable insulation to minimize vapor diffusion into the floor assembly.
- Ensure that under-floor insulation does not impede pest inspection, where applicable.
- Avoid installing vapor impermeable flooring and underlayment products where the insulation is vapor permeable.

Source: NAHB Technical Notes, Floors Above Crawl Spaces: Reducing the Risk of Moisture Accumulation within Wood Floor Assemblies

INSPECTION PHOTO LIBRARY:



LEFT CRAWL SPACE



OPEN CELL FOAM INSULATION



MOISTURE PENETRATION



MOISTURE PENETRATION



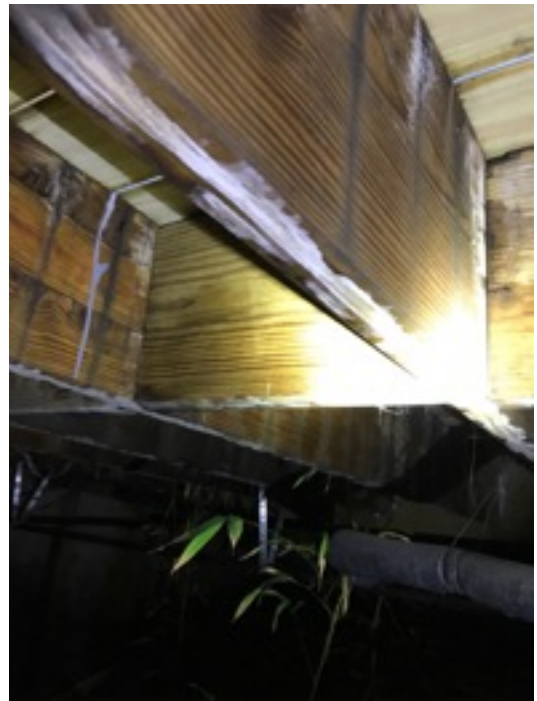
VISUALLY DISCOVERED MOLD



VISUALLY DISCOVERED MOLD



SUSPECT MOLD/FUNGAL GROWTH



SUSPECT MOLD/FUNGAL GROWTH



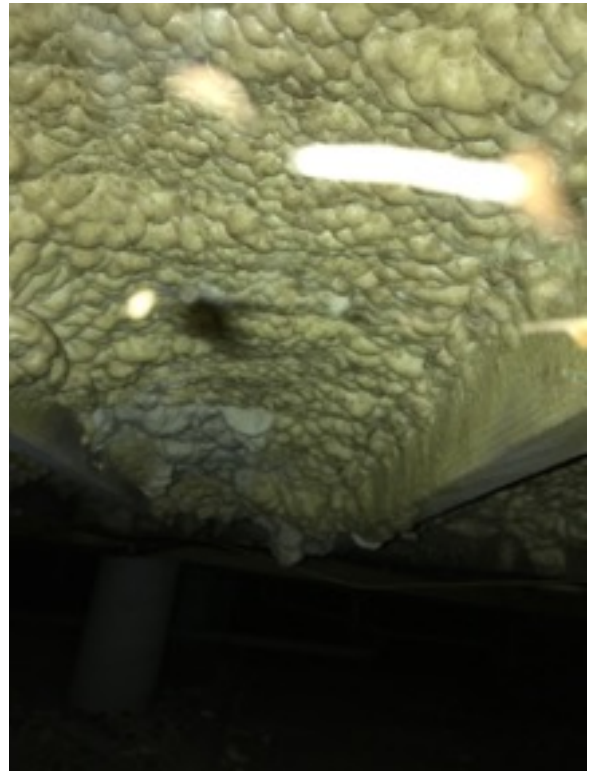
EXCESS MOISTURE AT BACK CORNER



MOLD/FUNGAL GROWTH AT TRAPS



RIGHT SIDE CRAWL SPACE



SUSPECT SURFACE MOLD



EXCESS MOISTURE AT STEM WALL



EXCESS MOISTURE AT STEM WALL



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