



# EXPANDED FUNGAL REPORT

**Prepared Exclusively For** 

Ameriflood Environmental 512 S Pacific Coast Highway Redondo Beach, CA 90277 Phone:310-721-7278

Report Date: 9/16/2021

Project: 407 N. Broadway #3

LA Testing Order: 322116963

AIHA-LAP, LLC-EMLAP Accredited #102814

TM



This report has been prepared by LA Testing at the request of and for the exclusive use of the client named in this report. Completely read the important terms, conditions, and limitations that apply to this report.



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Fax: (323) 254-9982 Phone: (323) 254-9960 Web: http://www.LATesting.com Email:pasadenalab@latesting.com

Robert Soto Attn:

Ameriflood Environmental 512 S Pacific Coast Highway Redondo Beach, CA 90277

322116963 EMSL Order: Customer ID: ARFD42 Collected: 9/15/2021 Received: 9/16/2021

9/16/2021

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#### 1. Description of Analysis

#### **Analytical Laboratory**

LA Testing (LA Testing) is a nationwide, full service, analytical testing laboratory network providing Asbestos, Mold. Indoor Quality, Microbiological, Environmental, Air Chemical, Forensic, Materials, Industrial Hygiene and Mechanical Testing services since 1981. Ranked as the premier independently owned environmental testing laboratory in the nation, LA Testing puts analytical quality as its top priority. This quality is recognized by many well-respected federal, state and private accrediting agencies, and assured by our high quality personnel, including many Ph.D. microbiologists and mycologists.

Analyzed:

LA Testing is an independent laboratory that performed the analysis of these samples. Testing did not conduct the sampling or site investigation for this report. The samples referenced herein were analyzed under strict quality control procedures using state-of-the-art microbiological methods. The analytical methods used and the data presented are scientifically and legally defensible.

The laboratory data is provided in compliance with ISO-IEC 17025 guidelines for the particular test(s) requested, including any associated limitations for the methods employed. These data are intended for use by professionals having knowledge of the testing methods necessary to interpret them accurately.



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#### Air Samples - Spore traps:

Spore traps are commercially available sampling devices that capture airborne particles on an adhesive slide. Air is pulled through the device using a vacuum pump. Spores, as well as other airborne particles, are impacted on the collection adhesive. Using spore trap collection methods has inherent limitations. These collection methods are biased towards larger spore sizes.

Analyzed:

The analysis for total spore counts is a direct microscopic examination and does not include culturing or growing the fungi. Therefore, the results include both viable and non-viable spores. Some fungal groups produce similar spore types that cannot be distinguished microscopic examination alone (i.e., Aspergillus/Penicillium, and others). Other spore types may lack distinguishing features that aid in their identification. These types are grouped into larger categories such as Ascospores or Basidiospores.

Fungal spores are identified and grouped by morphological characteristics including color, shape, septation, ornamentation, and fruiting structures (if present) which are compared to published mycological identification keys and texts. LA Testing reports provide spore counts per cubic meter of air to three significant figures. Please note that each spore category is reported to three significant figures. Due to rounding and the application of three significant figures the sum of the individual spore numbers may not equal the total spore count on the report. LA Testing does not maintain responsibility for final volume concentrations (counts/m3) since this volume is provided by the field collector and can not be verified by LA Testing.

LA Testing analyzes spore traps using phase contrast microscopy. There is a wide choice of collection devices (Air-O-Cell, Micro-5, Burkhard, etc.) on the market. Differences in analytical method may exist between spore trap devices.

Spore trap results are reported in spores per cubic meter of air. Due to the other airborne particles collected with the spores, LA Testing reports a background particle density. Background density is an indication of overall particulate matter present on the sample (i.e. dust in the air). High background concentrations may obscure spores such as the Penicillium/Aspergillus group. The rating system is from 1-5 with 1 = 1 - 25% of the background obscured by material, 2 = 26 - 50%, 3 = 51 - 75%, 4 = 76% - 99%, 5 = 100% or overloaded. A background rating of 4 or higher should be regarded as a minimum count since the actual concentrations may be higher than those reported. LA Testing will not be held responsible for overloading of samples. Sample volumes are left to the discretion of the company or persons conducting the fieldwork.

Skin fragment density is the percentage of skin cells making up the total background material, 1 = 1 - 25%, 2 = 26 - 50%, 3 = 51 - 75%, 4 = 76-100%. Skin fragment density is considered an indication of the general cleanliness in the area sampled. It has been estimated that up to 90% of household dust consists of dead skin cells.



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#### 2. Analytical Results

See attached data reports and charts.



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Spore Trap ASSESSMENTReport™ Air-O-Cell(™) Analysis of Fungal Spores & Particulates (Methods MICRO-SOP-201, ASTM D7391)

	Particle Identification	Raw Count	(Count/m³)	% of Total	Interpretation	on Guideline
322116963-0001	Alternaria (Ulocladium)	1*	10*	0	Acceptable	* 😓 💧
	Ascospores	2	90	0.4	Slightly Elevated	**
Client Sample ID	Aspergillus/Penicillium	550	24000	98.7	ELEVATED	**
#1	Basidiospores	-	-	-		
	Bipolaris++	-	-	-		
	Chaetomium++	2	90	0.4	Slightly Elevated	<b>☆ ♦</b>
Location	Cladosporium	1	40	0.2	Acceptable	*
Upstairs bathroom vanity	Curvularia	-	-	-		<u> </u>
	Epicoccum	-	-	-		
Sample Volume (L)	Fusarium++	-	-	-		
	Ganoderma	-	-	-		
75	Myxomycetes++	1	40	0.2	Acceptable	<b>*</b>
	Pithomyces++	-	-	-		
Sample Type	Rust	-	-	-		
	Scopulariopsis/Microascus	-	-	-		
Inside	Stachybotrys/Memnoniella	1	40	0.2	Slightly Elevated	₩ 🐼 💧
Comments	Unidentifiable Spores	-	-	-		
	Zygomycetes	-	-	-		
	Total Fungi	558	24310	100	ELEVATED	
	Hyphal Fragment	-	-	-		
	Insect Fragment	-	-	-		
	Pollen	-	-	-		
Analytical Sensi	Analytical Sensitivity 600x: 44 counts/cubic meter Skin Fragments: 3 1 to 4 (low to high)					
Analytical Sensitivity 300x *: 13* counts/cubic meter Fibrous Particulate: 1 1 to 4 (low to high)						

Analytical Sensitivity 300x \*: 13\* counts/cubic meter

1 to 4 (low to high); 5 (overloaded) Background: 4

Acceptable Concentration at or below background

Slightly Elevated Concentration above background

ELEVATED Concentration 10X or more above background

Not commonly found growing indoors, spores likely come from outside.

Spores reported to be able to cause allergies in individuals.

Potential for mycotoxin production exists with these fungi.

These fungi are considered water damage indicators.

++ Includes other spores with similar morphology; see EMSL's fiungal glossary fior each specific category

Initial report from: 09/16/2021 17:34:01

Regina Norman, Laboratory Manager or Other Approved Signatory

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percentage analyzed.
Samples analyzed by LA Testing South Pasadena, CA AIHA-LAP, LLC-EMLAP Accredited #102814

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	Particle Identification	Raw Count	(Count/m³)	% of Total	Interpretation Guideline
322116963-0002	Alternaria (Ulocladium)	1	40	4.5	₩ 🕹
	Ascospores	-	-	-	
Client Sample ID	Aspergillus/Penicillium	3	100	11.2	**
#2	Basidiospores	3	100	11.2	<b>★</b>
	Bipolaris++	-	-	-	
	Chaetomium++	-	-	-	
Location	Cladosporium	14	610	68.5	*
Outside	Curvularia	-	-	-	
	Epicoccum	-	-	-	
Sample Volume (L)	Fusarium++	-	-	-	
	Ganoderma	-	-	-	
75	Myxomycetes++	1	40	4.5	<b>★ *</b>
	Pithomyces++	-	-	-	
Sample Type	Rust	-	-	-	
	Scopulariopsis/Microascus	-	-	-	
Background	Stachybotrys/Memnoniella	-	-	-	
Comments	Unidentifiable Spores	-	-	-	
	Zygomycetes	-	-	-	
	Total Fungi	22	890	100	
	Hyphal Fragment	-	-	-	
	Insect Fragment	-	-	-	
	Pollen	-	-	-	
	sitivity 600x: 44 counts/cubic mete ivity 300x *: 13* counts/cubic mete		Skin Fragments Fibrous Particulate	e: <b>1</b> 1 to 4 (	low to high) low to high) low to high): 5 (overloaded)

Background: 2 1 to 4 (low to high); 5 (overloaded)

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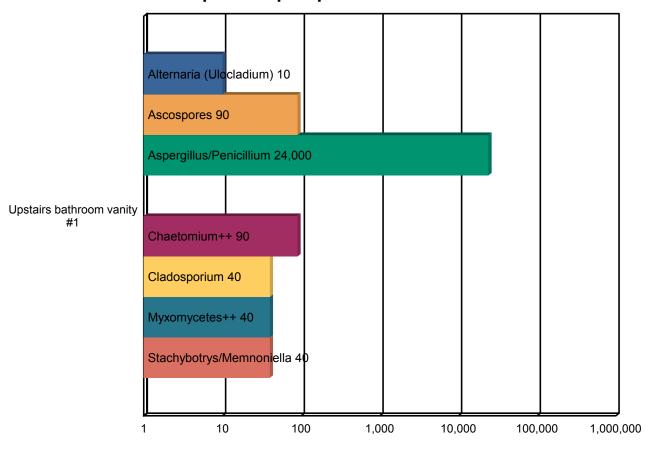
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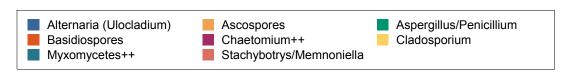
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# **Spore Trap Report: Total Counts**



Spore Counts per m3



<sup>\*</sup> The chart is displayed using a logarithmic scale. Bar size is not directly proportional to the number of spores.



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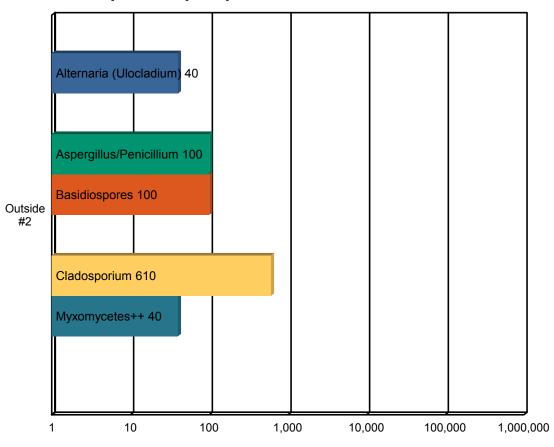
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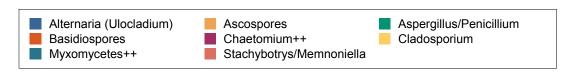
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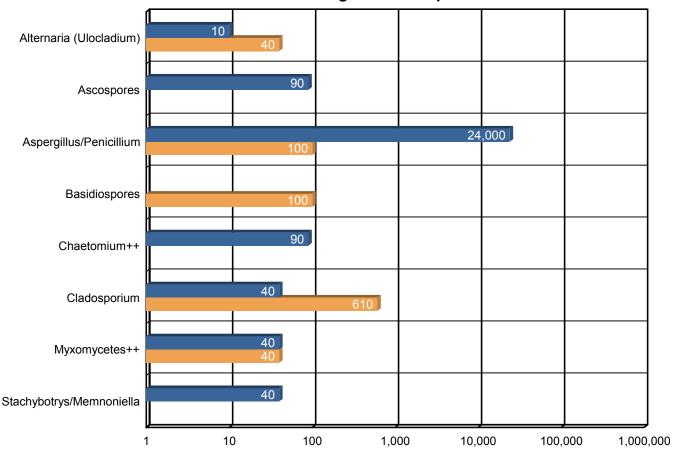
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## **Background Comparison Chart**



Spore Counts per m3



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#### 3. Understanding the Results

LA Testing is an independent laboratory, providing unbiased and scientifically valid results. These data represent only a portion of an overall IAQ investigation. Visual information and environmental conditions measured during the site assessment (humidity, moisture readings, etc.) are crucial to any final interpretation of the results. Many factors impact the final results; therefore, result interpretation should only be conducted by qualified individuals. The American Conference of Governmental Industrial Hygienists (ACGIH) has published a good reference book covering sampling and data interpretation. It is entitled, Bioaerosols: Assessment and Control, 1999.

Fungal spores are found everywhere. Whether or not symptoms develop in people exposed to fungi depends on the nature of the fungal material (e.g., allergenic, toxic, or infectious), the exposure level, and the susceptibility of exposed persons. Susceptibility varies with the genetic predisposition (e.g., allergic reactions do not always occur in all individuals), age, pre-existing medical conditions (e.g., diabetes, cancer, or chronic lung conditions), use of immunosuppressive drugs, and concurrent exposures. These reasons make it difficult to identify dose/response relationships that are required to establish "safe" or "unsafe" levels (i.e., permissible exposure limits).

It is generally accepted in the industry that indoor fungal growth is undesirable and inappropriate, necessitating removal or other appropriate remedial actions. The New York City guidelines and EPA guidelines for mold remediation in schools and commercial buildings define the conditions warranting mold remediation. Always remember that water is the key. Preventing water damage or water condensation will prevent mold growth.

This report is not intended to provide medical advice or advice concerning the relative safety of an occupied space. Always consult an occupational or environmental health physician who has experience addressing indoor air contaminants if you have any questions.



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### 4. Glossary of Fungi

ALTERNARIA(ULOCLADIUM)		
Natural Habitat	Common saprobe and pathogen of plants. Typically found on plant tissue, decaying wood, and foods. Soil . Air outdoors.	
Suitable Substrates in the	Indoors near condensation (window frames, showers), House dust (in carpets, and air). Also	
Indoor Environment	colonizes building supplies, computer disks, cosmetics, leather, optical instruments, paper,	
	sewage, stone monuments, textiles, wood pulp, and jet fuel	
Water Activity	Aw =0.85-0.88 (water damage indicator)	
Mode of Dissemination	Wind	
Allergic Potential	Type I allergies (hay fever, asthma), Type III (hypersensitivity pneumonitis)	
Potential or Opportunistic	Phaeohyphomycosis {causing cystic granulomas in the skin and subcutaneous tissue}. In	
Pathogens	immunocompetent patients, Alternaria colonizes the paranasal sinuses, leading to chronic	
-	hypertrophic sinusitis	
Industrial Uses	Biocontrol of weed plants ·Biocontrol fungal plant pathogens.	
Potential Toxins Produced	Alternariol (AOH) . Alternariol monomethylether (AME). Tenuazonic acid (TeA). Altenuene	
	(ALT). Altertoxins (ATX)	
Other Comments	Many species of Ulocladium have been renamed as Alternaria. Alternaria spores are one of	
	the most common and potent indoor and outdoor airborne allergens. Additionally, Alternaria	
	sensitization has been determined to be one of the most important factors in the onset of	
	childhood asthma. Synergy with Cladosporium or Ulocladium may increase the severity of	
	symptoms	
References	Alternaria redefined. J. Woudenberg et al., Studies in Mycology. Volume 75, June 2013, Pages	
	171-212	

ASCOSPORES	
Natural Habitat	Everywhere in nature.
Suitable Substrates in the	Depends on genus and species.
Indoor Environment	
Water Activity	Depends on genus and species.
Mode of Dissemination	Forcible ejection or passive release and dissemination by wind or insects.
Allergic Potential	Depends on genus and species.
Potential or Opportunistic	Depends on genus and species.
Pathogens	
Industrial Uses	Depends on genus and species.
Potential Toxins Produced	Depends on genus and species.
Other Comments	Ascospores are the result of sexual reproduction and produced in a saclike structure called an
	ascus. All ascospores belong to members of the Phylum Ascomycota, which encompasses a
	plethora of genera worldwide.



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ASPERGILLUS/PENIC	ILLIUM	
Natural Habitat	Plant debris ·Seed ·Cereal crops	
Suitable Substrates in the	Grows on a wide range of substrates indoors ·Prevalent in water damaged buildings ·Foods	
Indoor Environment	(blue mold on cereals, fruits, vegetables, dried foods) ·House dust ·Fabrics ·Leather	
	·Wallpaper ·Wallpaper glue	
Water Activity	Aw=0.75-0.94	
Mode of Dissemination	Wind ·Insects	
Allergic Potential	Type I (hay fever, asthma) ·Type III (hypersensitivity)	
Potential or Opportunistic	Possible depending on the species.	
Pathogens		
Industrial Uses	Many depending on the species	
Potential Toxins Produced	Possible depending on the species.	
Other Comments	Spores of Aspergillus and Penicillium (including others such as Acremonium, Talaromyces,	
	and Paecilomyces) are small and spherical with few distinguishing characteristics. They cannot	
	be differentiated or speciated by non-viable impaction sampling methods. Some species with	
	very small spores may be undercounted in samples with high background debris.	

BASIDIOSPORES	
Natural Habitat	Forest floors. Lawns .Plants (saprobes or pathogens depending on genus)
Suitable Substrates in the	Depends on genus. Wood products
Indoor Environment	
Water Activity	Unknown.
Mode of Dissemination	Forcible ejection. Wind currents.
Allergic Potential	Type I allergies (hay fever, asthma) . Type III (hypersensitivity pneumonitis)
Potential or Opportunistic	Depends on genus.
Pathogens	
Industrial Uses	Edible mushrooms are used in the food industry.
Potential Toxins Produced	Amanitins. monomethyl-hydrazine. muscarine. ibotenic acid. psilocybin.
Other Comments	Basidiospores are the result of sexual reproduction and formed on a structure called the
	basidium. Basidiospores belong to the members of the Phylum Basidiomycota, which includes
	mushrooms, shelf fungi, rusts, and smuts.

CHAETOMIUM++	
Natural Habitat	Dung. Seeds. Soil. Straw. Genera with like spores include Amesia, Arcopilus, Botryotrichum,
	Collariella, Dichotomopilus, Ovatospora, Subramaniula and others.
Suitable Substrates in the	Paper. Sheetrock. Wallpaper.
Indoor Environment	
Water Activity	Aw=0.84-0.89.
Mode of Dissemination	Wind. Insects. Water splash.
Allergic Potential	Type I (asthma and hay fever).
Potential or Opportunistic	Onychomycosis. C. perlucidum recognized as a new agent of cerebral phaeohyphomycosis.
Pathogens	
Industrial Uses	Cellulase production, Textile testing.
Potential Toxins Produced	Chaetomin. Chaetoglobosins A,B,D and F are produced by Chaetomium globosum.
	Sterigmatocystin is produced by rare species



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CLADOSPORIUM	
Natural Habitat	Dead plant matter. Straw. Soil. Woody plants
Suitable Substrates in the	Fiberglass duct liner. Paint. Textiles. Found in high concentration in water-damaged building
Indoor Environment	materials.
Water Activity	Aw 0.84-0.88
Mode of Dissemination	Air
Allergic Potential	Type I (asthma and hay fever).
Potential or Opportunistic	Edema. keratitis. onychomycosis. pulmonary infections. Sinusitis.
Pathogens	
Industrial Uses	Produces 10 antigens.
Potential Toxins Produced	Cladosporin and Emodin.

MYXOMYCETES++	
Natural Habitat	Decaying logs, Dead leaves , Dung , Lawns , Mulched flower beds,
	Lawns
Suitable Substrates in the	Rotting lumber
Indoor Environment	
Free moisture required for	Unknown
mold growth	
Mode of Dissemination	Insects, Water, Wind
Allergic Potential	Type I
Potential or Opportunistic	Unknown
Pathogens	
Industrial Uses	
Other Comments	Includes Myxomycetes, Smut, Rust, and Periconia.

STACHYBOTRYS/ME	MNONIELLA
Natural Habitat	Decaying plant materials and Soil.
Suitable Substrates in the	Water damaged building materials such as: ceiling tiles, gypsum board, insulation backing,
Indoor Environment	sheet rock, and wall paper. Paper. Textiles.
Water Activity	Aw=0.94
Mode of Dissemination	Insects, Water, and Wind
Allergic Potential	Type I (hay fever, asthma)
Potential or Opportunistic	Unknown.
Pathogens	
Industrial Uses	Unknown.
Potential Toxins Produced	Mycotoxins produced by Stachybotrys include Roridin A, Roridin E, Roridin H, Roridin L-2,
	Satratoxin G, Satratoxin H, Isosatratoxin F, Verucarin A, Verucarin J, and Verrucariol.
Other Comments	Stachybotrys and Memnoniella are closely related and many Memnoniella species have been
	renamed under Stachybotrys. Mycologists are continuing to debate whether Stachybotrys and
	Memnoniella should be grouped or split apart (see references below).
	Stachybotrys may play a role in the development of sick building syndrome. The presence of
	this fungus can be significant due to its ability to produce mycotoxins. Exposure to the toxins
	can occur through inhalation, ingestion, or skin exposure.
References	Generic hyper-diversity in Stachybotriaceae. L. Lombard et al., Persoonia 36, 2016: 156–246.
	Overview of Stachybotrys (Memnoniella) and current species status. Y. Wang et al., Fungal
	Diversity, 2015: DOI: 10.1007/s13225-014-0319-0.

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5. References and Informational Links

#### **Books**

- Bioaerosols: Assessment and Control. Janet Macher, Ed., American Conference of Governmental Industrial Hygienists, Cincinnati, OH 1999.
- Exposure Guidelines for Residential Indoor Air Quality. Environmental Health Directorate, Health Protection Branch, Health Canada, Ottawa, Ontario, 1989.
- Fungal Contamination in Public Buildings: Health Effects and Investigation Methods. Health Canada, Ottawa, Ontario, 2004.
- IICRC: S500 Standard and Reference Guide for Professional Water Damage Restoration.
   3rd Edition, Institute of Inspection, Cleaning, and Restoration Certification, Vancouver, WA,
   2006

IICRC: S520 Standard and Reference Guide for Professional Mold Remediation. 1st Edition, Institute of Inspection, Cleaning, and Restoration Certification, Vancouver, WA, 2004

Field Guide for the Determination of Biological Contaminants in Environmental Samples.
 2nd Edition, American Industrial Hygiene Association, 2005.

#### **Consumer Links**

Read the full text of AIHA's "The Facts About Mold" consumer brochure.
<a href="http://www.aiha.org/get-involved/VolunteerGroups/Documents/BiosafetyVG-FactsAbout%2">http://www.aiha.org/get-involved/VolunteerGroups/Documents/BiosafetyVG-FactsAbout%2</a>
0MoldDecember2011.pdf>

The Occupational Safety and Health Administration (OSHA) http://www.osha.gov/SLTC/molds/index.html

**CDC Mold Facts** 

http://www.cdc.gov/mold/faqs.htm

CDC Stachybotrys - Questions and answers on Stachybotrys chartarum and other molds <a href="http://www.cdc.gov/mold/stachy.htm">http://www.cdc.gov/mold/stachy.htm</a>

IOM, NAS: Clearing the Air: Asthma and Indoor Air Exposures https://www.epa.gov/indoor-air-quality-iag/should-you-have-air-ducts-your-home-cleaned



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Attn: Robert Soto

Ameriflood Environmental 512 S Pacific Coast Highway Redondo Beach, CA 90277 EMSL Order: 322116963 Customer ID: ARFD42 Collected: 9/15/2021 Received: 9/16/2021 Analyzed: 9/16/2021

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National Library of Medicine-Mold website http://www.nlm.nih.gov/medlineplus/molds.html

California Department of Health Services (CADOHS)

https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Pages/Mold.aspx

Minnesota Department of Health

http://www.health.state.mn.us/divs/eh/indoorair/mold/index.html

New York City Department of Health and Mental Hygiene <a href="https://www1.nyc.gov/site/doh/health/health-topics/mold.page">https://www1.nyc.gov/site/doh/health/health-topics/mold.page</a>

H.R.: The United States Toxic Mold Safety and Protection Act

#### **EPA**

"Should You Have the Air Ducts in Your Home Cleaned?" <a href="http://www.epa.gov/iag/pubs/airduct.html">http://www.epa.gov/iag/pubs/airduct.html</a>

General information about molds and actions that can be taken to clean up or prevent a mold problem.

<a href="http://www.epa.gov/asthma/molds.html">http://www.epa.gov/asthma/molds.html</a>

"A Brief Guide to Mold, Moisture, and Your Home" - Includes basic information on mold, cleanup guidelines, and moisture and mold prevention <a href="http://www.epa.gov/mold/moldguide.html">http://www.epa.gov/mold/moldguide.html</a>

"Mold Remediation in Schools and Commercial Buildings" - Information on remediation in schools and commercial property, references for potential mold and moisture remediators. https://www.epa.gov/mold/mold-remediation-schools-and-commercial-buildings-guide

#### **FEMA**

"Homes That Were Flooded May Harbor Mold Problems" - Information and tips for cleaning mold.

http://www.fema.gov/news-release/homes-were-flooded-may-harbor-mold-problems

"Dealing With Mold & Mildew in Your Flood Damaged Home. http://www.fema.gov/pdf/rebuild/recover/fema\_mold\_brochure\_english.pdf



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#### 6. Important Terms, Conditions, and Limitations

#### A. Sample Retention

Samples analyzed by LA Testing will be retained for 60 days after analysis date Storage beyond this period is available for a fee with written request prior to the initial 30 day period. Samples containing hazardous/toxic substances which require special handling will be returned to the client immediately. LA Testingreserves the right to charge a sample disposal fee or return samples to the client.

#### B. Change Orders and Cancellation

All changes in the scope of work or turnaround time requested by the client after sample acceptance must be made in writing and confirmed in writing by LA Testing. If requested changes result in a change in cost the client must accept payment responsibility. In the event work is cancelled by a client, LA Testing will complete work in progress and invoice for work completed to the point of cancellation notice. LA Testing is not responsible for. holding times that are exceeded due to such changes.

#### C. Warranty

LA Testing warrants to its clients that all services provided hereunder shall be performed in accordance with established and recognized analytical testing procedures and with reasonable care in accordance with applicable federal, state and local laws. The foregoing express warranty is exclusive and is given in lieu of all other warranties, expressed or implied. LA Testing disclaims any other warranties, express or implied, including a warranty of fitness for particular purpose and warranty of merchantability.

#### D. Limits of Liability

In no event shall LA Testing be liable for indirect, special, consequential, or incidental damages, including, but not limited to, damages for loss of profit or goodwill regardless of the negligence (either sole or concurrent) of LA Testing and whether LA Testing has been informed of the possibility of such damages, arising out of or in connection with LA Testing's services thereunder or the delivery, use, reliance upon or interpretation of test results by client or any third party. We accept no legal responsibility for the purposes for which the client uses the test results. LA Testing will not be held responsible for the improper selection of sampling devices even if we supply the device to the user. The user of the sampling device has the sole responsibility to select the proper sampler and sampling conditions to insure that a valid sample is taken for analysis. Any resampling performed will be at the sole discretion of LA Testing, the cost of which shall be limited to the reasonable value of the original sample delivery group (SDG) samples. In no event shall LA Testing be liable to a

This report has been prepared by LA Testing at the request of and for the exclusive use of the client named in this report. Completely read the important terms, conditions, and limitations that apply to this report.



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client or any third party, whether based upon theories of tort, contract or any other legal or equitable theory, in excess of the amount paid to LA Testing by client thereunder.

#### E. Indemnification

Client shall indemnify LA Testing and its officers, directors and employees and hold each of them harmless for any liability, expense or cost, including reasonable attorney's fees, incurred by reason of any third party claim in connection with LA Testing services, the test result data or its use by client