

INDOOR AIR QUALITY SURVEY



SAMPLE

SAMPLE DATE
00/00/0000

SAMPLE RECEIVED
00/00/0000

REPORT DATE
00/00/0000

CERTIFIED BY
CERTIFIED LAB
LAB NAME

PREPARED FOR
SAMPLE INFO
SAMPLE INFO

ADDRESS
ANY ADDRESS
ANY TOWN USA

SAMPLED BY
CERTIFIED INSPECTOR



SAMPLE INFO
SAMPLE INFO
ANY ADDRESS
ANY TOWN USA 00000

Subject: Limited Indoor Air Quality Survey

Indoor Air Quality Inspectors, Inc. (IAQI) was retained by SAMPLE INFO of SAMPLE INFO (Client) to conduct an Indoor Air Quality Survey of the building located at the above listed address. The following Surveys were performed:

1. Fungal Sampling
2. Non-Fungal Sampling
3. Gases (CO₂, CO, O₃, VOC, HCHO) Sampling
4. Temperature and Humidity

The survey was conducted on SAMPLE DATE by CERTIFIED INSPECTOR, a Council-certified Indoor Environmental Consultant by Council for Engineering and Scientific Specialty Boards (CESB).

The purpose of the survey was to locate, identify, sample, and assess the condition the indoor air quality for any contaminants with potential health effects.

Sincerely,

CERTIFIED INSPECTOR



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SAMPLE



DISCLAIMER

This is Indoor Air Quality Inspectors Inc's report of a walk-through, visual survey and on-site measurement of the parameters described in this report. The test results only apply to those rooms or spaces that were tested and that are specifically described during the course of this survey. This document may not be copied or distributed, without written permission from Indoor Air Quality Inspectors Inc. Information provided in this document is provided 'as is' without warranty of any kind, either expressed or implied, including but not limited to the implied warranties of merchantability and fitness for a particular purpose. Government and industry guidelines, vendor product specifications and other information gathered from other sources are always evolving. The included information has been provided for informational purposes, at the best effort of Indoor Air Quality Inspectors Inc to be up-to-date. However, Indoor Air Quality Inspectors Inc. takes no responsibility for errors or omissions in the text provided on the subject of government and industry guidelines, vendor product specifications or other information gathered from other sources and included in this document.

SCOPE OF WORK

The purpose of the survey was to locate, identify, sample, and assess the condition of the building's indoor air quality.

METHODS

Our inspection included a visual assessment, indoor air quality laser particulate sampling, photo ionization Detector (PID) sensors for gases and formaldehyde detection and Zefon bio air sampling. We utilized an air blower to facilitate the site pre-inspection.

Methodology Definition

Visual inspection: A walk-through within the building was performed to document the status of general conditions and issues that could affect healthy indoor air quality.

Real-time Measurement of IAQ Parameters: Real-time measurements of comfort parameters (i.e., temperature, humidity, and formaldehyde) and respirable particulate matter in air (PM0.3µm, PM2.5µm, PM1.0µm, PM2.5µm and PM10µm size classes) were obtained using calibrated portable digital instruments. The measurements were compared with relevant industry standards and guidelines.

Air sampling for mold spores: Air samples for non-viable fungal spores were collected in representative locations where IAQ screening was performed. Additionally, one ambient or outside set of IAQ measurements and indoor air samples were collected for comparison. Non-viable fungal spore samples were collected on Air-O-Cell cassettes using a Zefon calibrated pump.

Microbial Particulates sample analysis: Microbial samples (including a field blank for quality assurance) reshipped under strict chain-of-custody procedures to ANY LAB, an AIHA- accredited



OBSERVATION

Entering the site, it appeared to be under repair from fungal exposure and moisture intrusion. There were workers on site finishing repairs and cleaning up. It was noticed that several air purifiers had been placed in different areas throughout the building. Additionally, an air monitor was noticed on top of the counters. This indicates an ongoing indoor air quality concern.

I met with the contractor, SAMPLE INFO of SAMPLE INFO. He was able to get me a brief history of the Microbial Exposure experienced and their corrective measures instituted. I noticed two 1000cfm negative air scrubbers in operation on site at the time of the survey. I was informed that there were a few others used earlier in the process. Also, I was informed that it is unknown if any attention was given to the root cause of the moisture for the microbial exposure.



SAMPLE



SITE INFORMATION



EAST SIDE VIEW

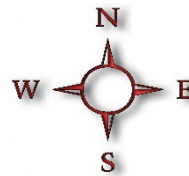


SOUTH SIDE VIEW

TIME OF INSPECTION WEATHER CONDITIONS

Sunny, Windy, Temp- 80°F RH- 39%

Property Information





Hazard Level
Good
Moderate
Poor
Unhealthy
Very Unhealthy
Hazardous
Extreme

INDOOR AIR QUALITY SUMMARY

ANY ADDRESS
ANY TOWN USA 00000

GASES / TOTAL VIOLATE ORGANIC COMPOUND (TVOC)	GOOD
PARTICULATE / DUST HAZARD LEVEL	HAZARDOUS
HUMIDITY HAZARD LEVEL	GOOD
FUNGAL / MOLD HAZARD LEVEL	UNHEALTHY
OVERALL INDOOR AIR QUALITY RESULT	HAZARDOUS

RECOMMENDATIONS / CONCLUSION:

- Check the HVAC system including drip pans and coil for potential Microbial Exposure / Saturation
- Inspect and Sanitize HVAC ducts and vents
- Operate Positive Air Scrubbers / Negative Air for at least 48 hrs.
(Choose one (8) 5000 cfm machine or (3) 2000 cfm machine)
- Reschedule indoor air inspection after Air Scrubbers implementation.



INDOOR AIR QUALITY SUMMARY OFFICIAL GAS AND TVOC READINGS

INDUSTRY GUIDELINES									
GASES / TVOC TESTED	HCHO	TVOC	CO2	O3	CO	Temp	RH	Airflow	Direction
Parameter	mg/m3	mg/m3	ppm	ppm	ppm	°F	%	fpm	
	OSHA	OSHA	NAAQS	NAAQS	OSHA	ASHRAE	ASHRAE	ASHRAE	
	<0.90	< 10	< 1000	<0.10	< 50	68-79°F	40-60%	<240 fpm	
SITE LOCATION ACTUAL READINGS									
LOCATION	0.07	1.16	569	0.00	0.30	67.2	55.0	155.5	10/24/2023 11:30
LOCATION	0.07	0.90	337	0.00	0.30	66.0	53.5	149.6	10/24/2023 11:41
LOCATION	0.05	0.65	543	0.00	0.04	66.0	54.6	174.0	10/24/2023 11:46
LOCATION	0.09	0.67	348	0.00	0.00	66.0	53.4	185.5	10/24/2023 12:15
OVERALL IAQ SUMMARY FOR GAS AND TVOC READINGS - GOOD - ALL WITHIN NATIONAL TOLERANCE LIMITS									

ABBREVIATIONS DEFINITIONS

HCHO - Formaldehyde	MG/M3 - Milligram Per Cubic Meter
TVOC - Total Volatile Organic Compounds	PPM - Parts Per Million
CO2 - Carbon Dioxide	°F - Fahrenheit
O3 - Ozone	OSHA - Occupational Safety and Health Administration
CO - Carbon Monoxide	EPA - Environmental Protection Agency
Temp - Temperature	NAAQS - National Ambient Air Quality Standards
RH - Relative Humidity	ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers
fpm - Feet Per Minute	



OFFICIAL PARTICULATE READINGS

PARTICULATES SIZES									
Test Location	0.3µm cum	0.5µm cum	1.0µm cum	2.5µm cum	5.0µm cum	10.0µm cum	Temperature °F	Relative Humidity %RH	Date / Time
Outside / Baseline	85657	5238	1159	518	122	24	76		Date / Time
LOCATION	63243	7216	3209	1634	532	114	69	44	Date / Time
LOCATION	76674	13889	8716	5844	2538	552	67	49	Date / Time
LOCATION	67441	7530	3352	1767	548	102	66	50	Date / Time
LOCATION	63212	7052	3261	1931	720	133		49	Date / Time

Red numbers indicate higher than outside air quality. **HAZARDOUS CONDITIONS**

Industry Standards courtesy of EPA and NAAQS

Conclusion: All Particulate readings are within acceptable tolerances set by EPA AND NAAQS.

Conclusion: The types and concentrations of particulate found in these areas are **GREATER** compared to the levels found in the outdoor control space. The reading indicates that there is a **HIGH** possibility of IAQ problems.

Why Measure Particulates?

PM affects more people than any other pollutant. It consists of a complex mixture of solid and liquid particles of organic and inorganic substances suspended in the air. These particles are often identified according to their aerodynamic diameter, as either PM₁₀ (particles with an aerodynamic diameter smaller than 10 µm) or PM_{2.5} (aerodynamic diameter smaller than 2.5 µm). The latter are more dangerous since, when inhaled, they may reach the peripheral regions of the bronchioles, and interfere with gas exchange inside the lungs¹.

Comparing indoor particle counts to particle mass concentration to outdoor counts/concentration provides information regarding the effectiveness of filtration, as well as for the potential that there are indoor sources contributing to airborne particulate matter. Many investigators have developed experience with elevated particle counts in specific particle size ranges to provide additional clues towards determining the potential sources of these particles. For example, tobacco smoke is known to be in the .01 to 1.0-micron size range, and pollens are typically 10-20 microns.

Establishing a baseline of particulate data to compare to when complaints arise, or when construction is in progress or after changes have been made to an occupied space can provide valuable information to a Facility Manager, Building Owner, or IAQ investigator.

In some cases, tracking increasing particulate levels may be used to "bloodhound" a source of airborne particulate. Elevated particulate, in the absence of a known source, may also indicate justification for air sampling, to be sent out for detailed laboratory analysis of the chemical composition of the particles.

Sources: ¹ World Health Organization Guideline, indoor & outdoor, updated Sept. 2011

<http://www.who.int/mediacentre/factsheets/fs313/en/>



Health Effects of Particulate Matter

The effects of PM on health occur at levels of exposure currently being experienced by most urban and rural populations in both developed and developing countries. Chronic exposure to particles contributes to the risk of developing cardiovascular and respiratory diseases, as well as of lung cancer. In developing countries, exposure to pollutants from indoor combustion of solid fuels on open fires or traditional stoves increases the risk of acute lower respiratory infections and associated mortality among young children; indoor air pollution from solid fuel use is also a major risk factor for chronic obstructive pulmonary disease and lung cancer among adults. The mortality in cities with high levels of pollution exceeds that observed in relatively cleaner cities by 20-30%. Even in the EU, average life expectancy is 8.6 months lower due to exposure to PM₁₀ produced by human activities¹. It is unlikely that one standard or guideline will lead to complete protection to the health effects of particulate matter. Particulates less than 10 µm diameter are the most dangerous, are inhaled, and can get deep in to your lungs and even your bloodstream. Due to this, some of the health effects are increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing; i.e.

- decreased lung capacity
- aggravated asthma
- development of chronic bronchitis
- irregular heart beat
- non-fatal heart attacks
- premature death in people with heart or lung diseases

People that already have heart or lung diseases, children and older people are the ones affected the most.

Sources:¹ World Health Organization Guideline, Indoor & outdoor, updated Sept. 2011

<http://www.who.int/mediacenter/factsheets/fs313/en/>



Diagram of Particles Relative Size



SAMPLE

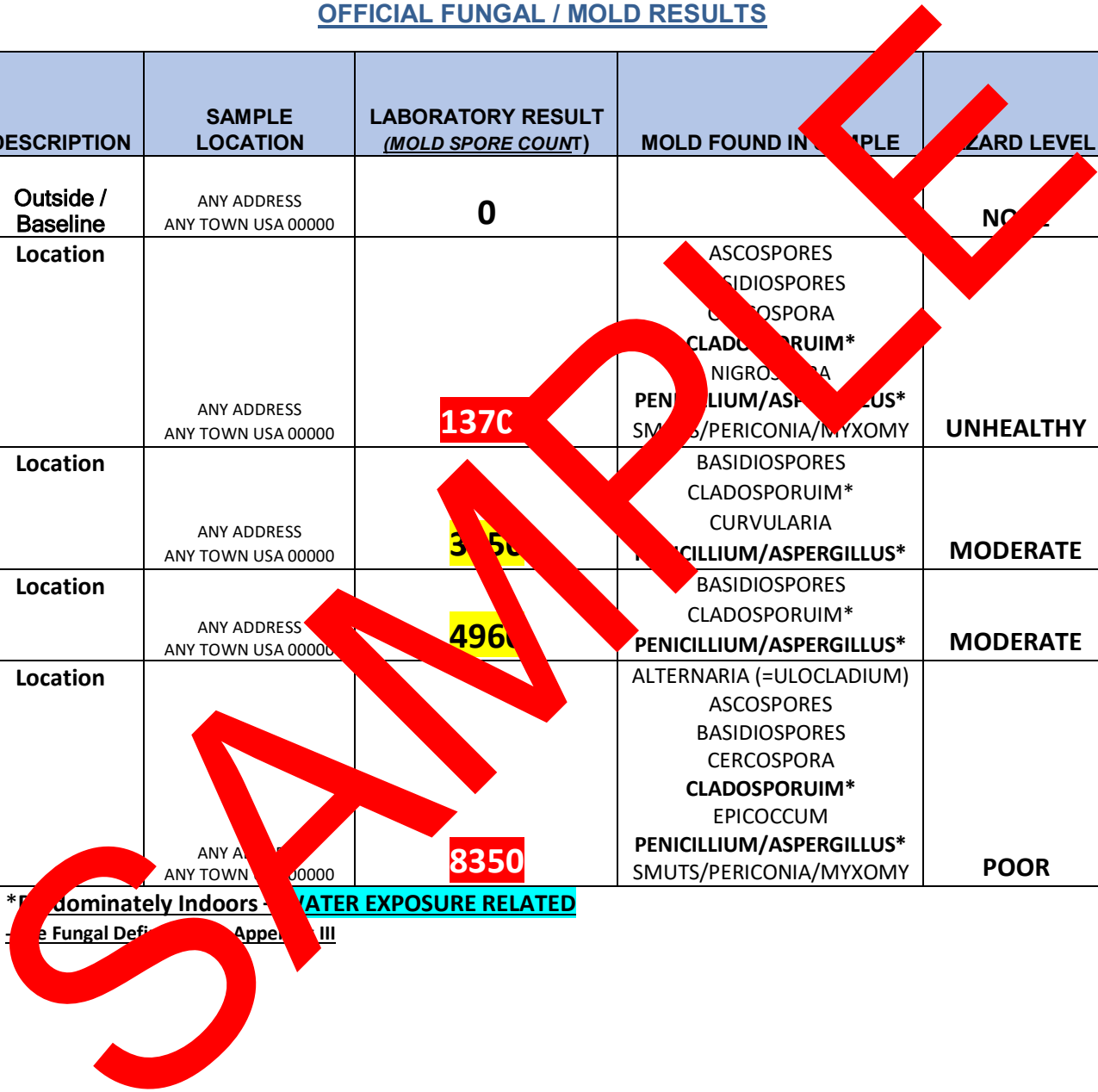


OFFICIAL FUNGAL / MOLD RESULTS

DESCRIPTION	SAMPLE LOCATION	LABORATORY RESULT (MOLD SPORE COUNT)	MOLD FOUND IN SAMPLE	HAZARD LEVEL
Outside / Baseline Location	ANY ADDRESS ANY TOWN USA 00000	0		NO
Location	ANY ADDRESS ANY TOWN USA 00000	1370	ASCOSPORES BASIDIOSPORES CERCOSPORA CLADOSPORIUM* NIGROSPORA PENICILLIUM/ASPERGILLUS* SMUTS/PERICONIA/MYXOMY	UNHEALTHY
Location	ANY ADDRESS ANY TOWN USA 00000	350	BASIDIOSPORES CLADOSPORIUM* CURVULARIA PENICILLIUM/ASPERGILLUS*	MODERATE
Location	ANY ADDRESS ANY TOWN USA 00000	496	BASIDIOSPORES CLADOSPORIUM* PENICILLIUM/ASPERGILLUS*	MODERATE
Location	ANY ADDRESS ANY TOWN USA 00000	8350	ALTERNARIA (=ULOCLADIUM) ASCOSPORES BASIDIOSPORES CERCOSPORA CLADOSPORIUM* EPICOCCUM PENICILLIUM/ASPERGILLUS* SMUTS/PERICONIA/MYXOMY	POOR

*Predominately Indoors - WATER EXPOSURE RELATED

Severe Fungal Deficiency - Appendix III





OFFICIAL NON- FUNGAL / PARTICLES RESULTS

DESCRIPTION	SAMPLE LOCATION	LABORATORY RESULT	PARTICLE FOUND IN SAMPLE	HAZARD LEVEL
Outside / Baseline Location	ANY ADDRESS ANY TOWN USA 00000	0	NONE	NONE
Location	ANY ADDRESS ANY TOWN USA 00000	241	Glass Fibers Grass Pollen Cellulose Fibers Synthetic Fibers	GOOD
Location	ANY ADDRESS ANY TOWN USA 00000	106	Glass Fibers Grass Pollen Cellulose Fibers	GOOD
Location	ANY ADDRESS ANY TOWN USA 00000	106	Cellulose Fibers Glass Fibers Synthetic Fibers	GOOD
Location	ANY ADDRESS ANY TOWN USA 00000	253	Cellulose Fibers Glass Fibers Synthetic Fibers	GOOD

HERTSMI SCORE

Your estimated HERTSMI-2 score – 20*

- Interpretation of HERTSMI-2 Scores:
- <11 Statistically safe for re-entry for those with CIRS.
- 11-15 Borderline; Clean first and then re-test before re-entry.
- >15 Dangerous for those with CIRS. Do not enter.

Disclaimer:

*HERTSMI-2 is a building index. We cannot provide guarantees that HERTSMI-2 scores under 11 are safe. To date, they have been but we must not forget that some individuals are extremely susceptible to inflammation from exposure to Water-Damaged Building. No one HERTSMI-2 can possibly show all areas of a given building.

*HERTSMI-2 does not replace careful observation of symptoms and lab results obtained following re-exposure.



WHAT IS A HERTSMI SCORE OR ERMI?

HERTSMI TEST

HERTSMI (Health Effects Roster of Type Specific Formers of Mycotoxins and Damagers) is a mold test that analyses the dust sample provided for 5 molds. These molds are known as the "Big 5": Aspergillus Penicilloides, Aspergillus Versicolor, Chaetomium Globosum, Stachybotrys Chartarum, Wallemia Sebi.

ERMI TEST

ERMI is Environmental Relative Moldiness index and it was developed by the U.S. Environmental Protection Agency, Office of Research and Development. ERMI uses the analysis of settled dust in homes and buildings to determine the molds' situation. The methodology is based on using a mold-specific quantitative polymerase chain reaction (Mq-PCR) to quantify 36 molds and calculate an index number for comparison with a database of reference homes.

SAMPLE



EQUIPMENT USED

	<p>Handheld 3016-IAQ Particle Counter</p>
	<p>ADVANCEDSENSE PROFESSIONAL HANDHELD ENVIRONMENTAL TEST METER</p>
	<p>610 PROBE</p>
	<p>FORMALDEHYDE / VOC DETECTOR</p>
	<p>ZEFON BIO-PUMP PLUS</p>
	<p>RYOBI BLOWER</p>

SAMPLE



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APPENDIX I – OFFICIAL LABORATORY TESTING REPORTS



SAMPLE



SAMPLE



SAMPLE



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APPENIX II – INSPECTION PICTURES



SAMPLE



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END OF REPORT