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Limited IAQ / Mold Inspection Report

Prepared For: Royal St Andrew Association
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NORMI™ Certified IAQ/Mold Inspector and Assessor (CMI/CMA)
State of Florida Certified Mold Assessor #MRSA3194
State Certified Air Conditioning Contractor #CAC1817725
NORMI™ Certified Mold Remediator
NORMI™ Certified Environmental Allergen Assessor
NORMI™ Certified Sensitized individual remediator
Member of (NADCA) National Air Duct Cleaning Association
NORMI™ Certified Protocol Writer

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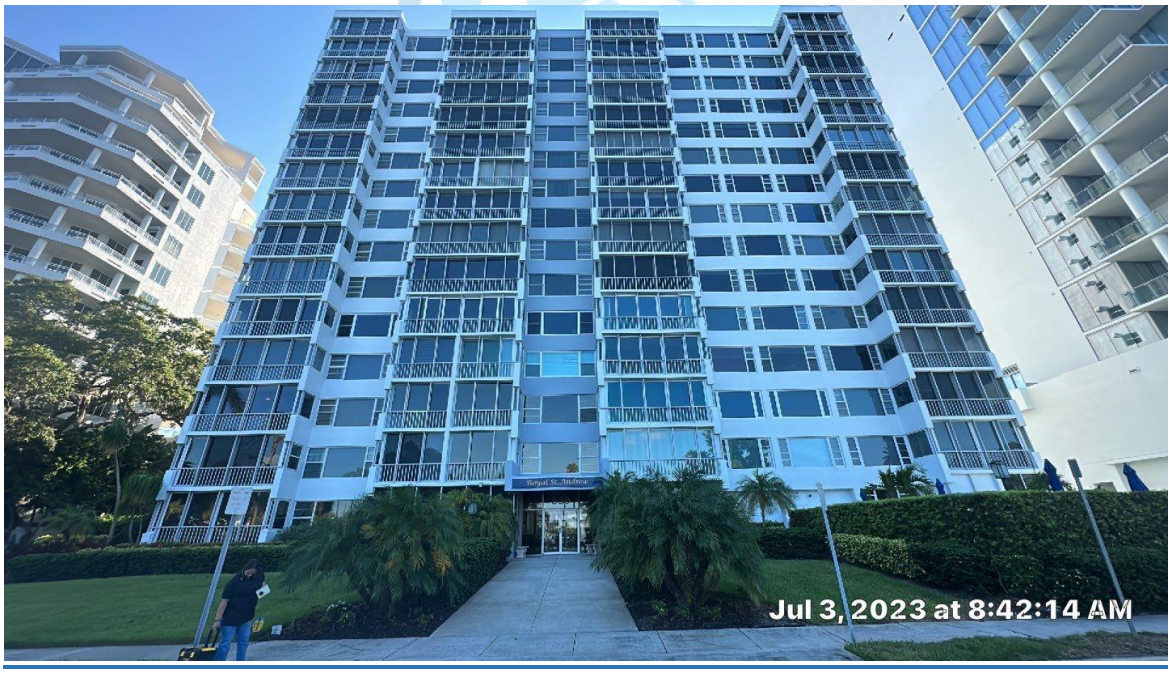
Date Assessed: 11/27/23
Project # 1-271- 23

Re: Occupant IAQ Concerns

We want to personally Thank You for the time you have taken with us to help expedite this NORMI™ Certified IAQ/Mold Assessment. We are satisfied that we now have enough information to draw some important conclusions and make some specific recommendations to significantly improve the indoor air quality of the referenced property.

Attached find the summary report for your home. This report meets the guidelines of ASTM, IICRC S-520, and NORMI Professional Practices. We are eager to assist you in resolving the problems as we have found and hope you will help us expedite a solution.

Respectfully yours,
Anthony Lenard
Anthony Lenard, CEO



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Section 1: General Information and Property History

- On Monday November 27th, 2023, Building Performance Solutions performed Mold testing at the property listed above at the request of the property manager Steven Mannik for the purpose of determining the quality of the indoor air as it relates to complaints from the tenants regarding a moldy smell in the main hallway on the 14th floor. The property is classified as a condominium. It was built in 1969. The collection of information is included herein along with our findings and recommendations. It is our determination that LIMITED REMEDIATION IS recommended for this property at this time. When REMEDIATION is required, we recommend that you use the following criteria to select a REMEDIATOR:
    - ☑ Must be **licensed and bonded** in compliance with the municipality,
    - ☑ Must be **fully insured** (Worker's Compensation and General Liability)
    - ☑ Must have specialty Insurance as required

Section 2: Visual/Olfactory Inspection and Walk-Thru

We collected information from Steven Mannik and visually inspected the interior of the building and report the following information we consider pertinent to developing a clear IAQ/Mold Profile of your indoor environment. Conclusions from the factors listed here have already been drawn regarding SANITIZATION and or REMEDIATION but it is important for you to understand our intention is to provide a holistic solution to whatever problems may exist in your indoor air quality.

The humidity at the time of inspection was between 62 and 67 % relative humidity. The temperature outside was 69.4 degrees at time of inspection, the humidity was 74 % and it was a clear cool day outside. **In general, Relative Humidity should be maintained between 30 – 58 %** for comfort. **Levels above 60% can provide an environment conducive for fungal growth**. During my inspection on the 14th floor the supply vent was removed prior to arrival. AT the time of inspection visible evidence of mold growth inside of the duct work and on the back of the supply grill that was sitting on the carpeted floor in the main hallway.

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Section 3: Lab Reports and Diagnostics

It is recommended that mold samples be taken whenever a problem or perceived problem existed or currently exists to create a baseline for potential improvement to that environment.

Attached find copies of laboratory results from tests conducted by us on your indoor air quality. There are six different types of lab testing we could have performed and it is our responsibility to use our experience and expertise to assess which testing procedures will give us the best IAQ/Mold Profile of your indoor environment. When onsite, should additional testing be required, we may select one or more of these methods in addition to what was contracted, to enhance our understanding of your environment so we will have an objective overview of your indoor air quality. The six methods from which we choose:

1) Air-O-Cell Sampling—in this process we collect particulate from the air to get a comparison count between the indoor air and the outdoor air. Though using an outdoor control sampling is often unreliable, it is standard in the industry. This does create a baseline for pre-vs. post verification but does not evaluate the viability of the spores collected.
2) Impaction/Anderson Sampling—this process uses gravity or pressure to plate a petri dish with airborne particulate and then incubate for the laboratory to identify. This method only represents a small sample of the entire indoor air environment.
3) EnviroSWAB Sampling—this is an effective way of collecting "dust" which includes viable mold spores, plate them to a petri dish, and have the laboratory identify and count the number of live colony forming units (cfu). This method reports on only the viable mold that has settled out in the location where it has been collected but is a good indicator as to the history of the environment.
4) EnviroTAPE Sampling—where visible mold is present, this tape lift method allows the laboratory to identify and count the number of dead or live items per item. This method does not recognize viability of mold growth only the presence of mold and may be unnecessary when time is not a factor or onsite conditions do not warrant it.
5) Bulk Sampling—occasionally we determine that specific construction materials or other items require laboratory testing to identify and count the number of either dead or live items per field. This method does not recognize viability of mold growth only the presence of mold.
6) VOCs—Volatile Organic Compounds (VOCs) are produced in many ways. This test evaluates the level of TVOCs in the environment indicating off-gassing from personal care products, alcohol, paints, varnishes, cleaning solvents and other household products.
7) mVOCs (Total Mold VOCs) result from mold mycotoxins and may, when elevated, indicate active mold growth though otherwise unseen in the environment.

We are not attempting to make you a Certified IAQ/Mold Inspector but want you to understand the different methods of collection so you will better understand why we choose the following methods. Due to the lack of visible microbial growth, we took 4 air samples and 2 tape lifts from areas of visible concern.

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Section 4: Lab Reports and Diagnostics Continued

In the event a post remedial assessment is being performed, following a mold remediation, ***BPS recommends the Healthy Home Mold Sampling Data is followed for healthy individuals that are not immune compromised.*** In the event there is a sensitized individual in the home, BPS strongly recommends that the NORMI Guidelines for mold spore counts followed. The genus identified should be like those identified in the control sample with a significant reduction in counts when compared to the initial test. When a post remedial assessment is performed, the standard for successful completion is; ***No Visible Water Damage or Mold, No Current leaks, Surfaces Should be Free of Accumulated Dusts and/or Debris.***

Equipment should be operating during the assessment in effort not to release or aerosolize any potential mold spores. Certain conditions can alter results and should be considered, such as recent rains. Penicillium & Aspergillus spore counts can appear lower outside when compared to interior counts as these conditions are not conducive for these types of molds. For this reason, it is important to consider ALL principles with materialistic observations when making a final determination. BPS provides their professional opinion after considering ALL standards discussed. The overall goal is to provide a holistic solution and correct the conditions that caused the loss.

Healthy Home Guidelines for Healthy Individuals Indoor Air Sample needs to be less than 2X the total Outdoor Sample	**NORMI Guidelines for Sensitized Individuals** Indoor Air Sample needs to be less than 2X the total Outdoor Sample
Aspergillus/Penicillium - less than 800 M^3	Aspergillus/Penicillium - less than 200 M^3
Stachybotrys – less than 10 M^3	Stachybotrys – **Zero Tolerance / No Spores**
Chaetomium – less than 20 M^3	Chaetomium – **Zero Tolerance / No Spores**

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Section 5: Collection Samples

Airborne Mold, Particle Counts, Temperature, Relative Humidity were collected in the following locations:

Sample Number(s)	Location(s)	**Elevated** Spore Types	**Elevated** Spore Count
A1- Air-O-Cell	Outside Control	Multiple	**5013 Spores**
A2- Air-O-Cell	14th Floor Hallway	No Elevated Spores	**NOT ELEVATED**
A3- Air-O-Cell	15th Floor Hallway	No Elevated Spores	**NOT ELEVATED**
A4- Air-O-Cell	12th Floor Hallway	No Elevated Spores	**NOT ELEVATED**
T1– Tape Lift	Inside Duct Work on the 14th Floor	Cladosporium	**ELEVATED**
T2 – Tape Lift	Back of Supply Grill 14th Floor Hallway	Cladosporium	**ELEVATED**

Any presence of target marker molds is unacceptable such as (Stachybotyrs, Chaetomium, Trichoderma, Fusarium, Memnoniella)

- **GREEN** Indicates Condition 1 **(Normal Fungal Ecology):** according to the IICRC is an environment that may have settled spores, fungal fragments or traces of actual growth whose identity, location and quantity are reflective of a normal fungal ecology of a similar environment.
- **YELLOW** indicates Condition 2 **(settled spores or fungal fragments):** according to the IICRC it is an environment which is primarily contaminated with settled spores or fungal fragments that were dispersed directly or indirectly from a Condition 3 area, and which may have traces of actual growth.
- **RED** indicates Condition 3 **(actual growth):** according to the IICRC it is an indoor environment contaminated with the presence of actual mold growth, associated spores and fungal fragments. Actual growth includes growth that is active or dormant, visible, or hidden.

Both Condition 2 and 3 would require some form of remediation, however condition 3 is of the most concern as it relates to an IAQ inspection. For further information on the spore types such as, allergic potential and indoor substrates please see the mold glossary on the lab report.

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Sampling Data Interpretation for Mold Assessments[a]

Mold[b]

Sample Type	Result /m³[c]	NORMI Interpretation	NOTES:
Mold Air (non-viable)	Total Spore Count	<2000 Normal	Other molds may be found that have significance in some environments such as Cladosporium, which can be found as indoor sources and can be prevalent outdoors.
	Aspergillus/Penicillium	<200 Normal	
	Target Molds (Stachybotrys, Chaetomium, Trichoderma, Fusarium, Memnoniella)	NO Target Molds	
Mold Surface Tape or Swab (non-viable)	1-10 spores	Rare	Normal
	11-100 spores	Low	Caution
	101-1000 spores	Medium	Contamination Probable
	>1000 spores	High	High Contamination
Mold Surface Swab (viable)	0-30 cfu[d]	Normal	NOTE: Any presence of target molds is unacceptable (Stachybotrys, Chaetomium, Trichoderma, Fusarium, Memnoniella
	31-150 cfu	Low	
	151-300 cfu	Moderate	
	300+ cfu	High	
TMVOC (Total Mold Volatile Organic Compounds)	<8 ng/L[e]	Minimal	This is a good sampling method when molds are hidden, and can sometimes show mold activity even if air spore counts are low
	8-30 ng/L	Active-Moderate	
	30-80 ng/L	Active-Elevated	
	80-150 ng/L	Active-High	
	150+ ng/L	Active-Severe	

ATP Luminometer for Surface Biological Contaminant Screening[f]

IICRC S-520	Sampled Surface Condition	Surface Sample Result RLU[g]	Interpretation
Condition 1 Normal Fungal Ecology	Ideal Surface Hygiene	<50	PASS
Condition 2 Settled Spores	Acceptable for Mold Indoor Surfaces	50-150	CAUTION
Condition 3 Actual Growth	Probable Contamination	>150	FAIL

Other Data

Test	ASHRAE	OSHA PEL[h]	ACGIH TLV[i]	NORMI
Temperature	Winter 68-75°F Summer 73-79°F	N/A	N/A	Winter 68-75°F Summer 73-78°F
Relative Humidity[j]	30%-60%	N/A	N/A	40%-60%
Particles	N/A	PM_{10}<150ug/m3; $PM_{2.5}$ ***<65ug/m3	15mg/m3 Total	PM_5<5000/ft³[k]
Carbon Dioxide	1000ppm	5000ppm	5000ppm	1000ppm
Carbon Monoxide	9ppm	50ppm	25ppm	0ppm
Ozone (used for sanitization only)	N/A	.1ppm	.05ppm	≤.05ppm (occupied) ≤0.1ppm (unoccupied)

[a] Interpretation of sampling should take into consideration overall assessment findings and other sampling data per NORMI
[b] There is currently no standard for mold levels in an indoor environment. The above interpretations are a consensus of both field experts and laboratories. The licensed mold assessor must use professional discretion in defining indoor sources and extent of contamination present, taking into consideration the varied sensitivities to mold amongst individual occupants.
[c] Per cubic meter
[d] Colony forming units
[e] Nanograms per liter, interpreted by Prism Labs.
[f] Commonly called *Bio-Reveal* by Hygiena
[g] Relative light units
[h] OSHA—Occupational Safety and Health Administration Permissible Exposure Limte – Typical 8 hr. day/40hr. week
[i] American Conference of Governmental Industrial Hygienists Threshold Limit Value – 10 hrs. day/40 hr. week
[j] NORMI recommends 40-60%
[k] Based on Dylos interpretation Excellent <2500/ft³ or Very Good 5000/ft³. Dylos.com

Data Compiled by Linda Eicher, Best Training School National Training Director

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Section 6: Particulate Count, Relative Humidity and Temperature Readings

Location	Relative Humidity	Temperature	.5 Particles*	2.5 Particles
14th Floor Hallway	67.8	70.8	9793	581
15th Floor Hallway	66.2	72.5	7355	394
12th Floor Hallway	62.9	73	11658	890

*Reading represents number of particles in 1 cubic meter. At the time of inspection both the humidity and particulate counts were elevated as indicated by the red and yellow colors. Humidity levels above 60 % are known to cause mold growth. In addition, particle 2.5 normal range is 35 UM

Section 7: Thermal Imaging

BPS utilizes a FLIR E6 infrared camera for screening areas for moisture influences, moisture intrusion or infiltration, moisture mapping, leak detection, air leaks from ventilation ductwork which may contribute to condensation formation / leaks, warm or cool air infiltrations / exfiltration, surface temperature measurements, and other thermal influences. Areas of thermal anomalies are verified with moisture meter readings when access to the surface(s) is permitted. Thermal imaging revealed the following information.

- The IR Camera was not used on this property as there was not an active or suspected active water leak at the time of inspection.

Section 8: Moisture Meter Readings

Moisture Meter readings can add to your understanding of the indoor environment. The moisture meter we use is a TRAMEX Moisture Encounter Plus which is a non-penetrating meter designed to recognize moisture content of construction materials that have been tested. ***The general rule of thumb in our industry is that moisture content in construction materials more than 17% MAY indicate a moisture problem***. Since we are often unable to test in wall cavities, attics, or other non-visible locations, we can only draw limited conclusions about the moisture of any area tested. These conclusions, however, are included in our over-all assessment and evaluation of the IAQ/Mold Profile in your environment.

When viable mold is present, and the substrate construction material is dry (below 17%) mold is receiving its moisture from the relative humidity. At the time of the assessment, relative humidity was elevated above the acceptable range (40%-60%). Conclusions regarding the interpretation of these diagnostics follow.

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Section 9: Interpretation of Results

Based on the State of Florida Law regarding mold remediation guidelines, a regulated remediation project requires use of a State Licensed Mold Remediator when the threshold of ten (10) square feet of visible mold is present. The remedial process should follow the guidelines of the IICRC S520 2015 or current publication standards. Industry standards and Acceptable practices as it relates to mold remediation should also be followed. The remediation company should show proof of State licensing, Certifications, Workman's Compensation and Contractors Pollution Liability or CPL Insurance. This insurance is specifically for restoration contractors and goes beyond general liability insurance.

Section 10: Inspection Summary/ Recommendations:

The findings do suggest limited remedial actions are warranted. BPS notified the Owner when results were received. The following is recommended:

1. The HVAC system should be cleaned by a licensed AC contractor that has current NADCA certification and at least one ASCS certified technician to perform the HVAC cleaning.
2. Make sure to have maintenance performed on the HVAC system quarterly in a commercial building.

Section 11: Standard and Reference guide for Professional Mold Remediation

For Mold remediation activities, it is recommended that the ANSI/IICRC S520 – 2021 or current document is referred to for guidance during ALL remedial activities involving cleaning and / or removal of mold contaminated materials. The following sections and chapters are recommended for this project: All sections and chapters of the above referenced document may and/or do apply. The Health and Safety of the Occupants and Workers should be a priority and actions taken should return the premises back to the pre-loss / pre-concern condition (condition 1 environment as defined on Page 17 under section 3.0 definitions) in the IICRC S520. In addition to referencing guidelines from the ANSI/IICRC S520 BPS will also reference the following guidelines from NORMI

[1] NORMI Professional Practices, Mold Assessor, Section (9) Post-Remediation Verification
[1] NORMI Professional Practices, Mold Remediator, Section (1) Purpose
[1] NORMI
[1] NORMI Professional Practices, Mold Assessor Section (4)a., (4)b. Sampling and Data Collection
[1] NORMI Professional Practices, Mold Assessor, Section (6) Mold Remediation Protocol (MRP)
[1] NORMI Professional Practices, Mold Remediator, Section (8)(b)(i), (8)(b)(ii) Remediation Project Levels
[1] NORMI Professional Practices, Mold Remediator, Section (9)(c) Containment Types
[1] Environmental Council of the Restoration Industry Association
[1] NORMI Professional Practices, Mold Remediator, Section (12) Post-Remediation Verification (PRV)
[1] NORMI Professional Practices, Mold Remediator, Section (2) Mold Remediation Work Plan (MRWP)
[1] NORMI Professional Practices, Mold Remediator, Section (5)(b) Water Damage Cleanup
[1] NORMI Professional Practices, Mold Remediator, Section (3) Environmental Impacts

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Section 12: Disclaimer Note: ***BPS did not perform an intrusive or destructive investigation. In addition, no attic spaces or crawl spaces were entered unless specifically authorized or noted. Safe ingress and egress from these spaces may not have been possible or access may have been limited due to space configuration, height, congestion, obstructions, insects, rodents, risk of injury, risk of entrapment, or other condition deemed hazardous by the Assessor at the time of this assessment. The assessment is based on visible, accessible areas and surface conditions at the time of the assessment. No furnishings, appliances, or other obstructions were moved to gain access to any surface or area unless otherwise stated, authorized, or noted in this report.***

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