

May 11, 2015
EE&G Project No.: 2012-2335

Mr. Steven Kulick C.P.M.
6130 Sunset Drive
South Miami, Florida 33143

**Subject: Indoor Air Quality Assessment
City of South Miami Municipal Complex
6130 Sunset Drive
South Miami, Florida 33143**

Dear Mr. Kulick:

EE&G Environmental Services, LLC (EE&G) was retained by the City of South Miami (Client) to conduct an indoor air quality (IAQ) assessment at the City of South Miami Municipal Complex including City Hall, the Police Station and Central Services located at 6130 Sunset Drive in Miami, Florida. The purpose of the project was to assess for potential source of poor IAQ in response to reported occupant concerns.

The assessment was conducted on April 21 and 22, 2015 by Ms. Laura Jones, CEIC, MRSA, Mr. Reynaldo Garcia a Florida Radon Measurement Technician and Mr. David Soto, Environmental Technician of EE&G and included the following:

- Visual assessment of readily accessible areas within the building for suspicious discoloration, assumed mold growth (AMG) and water impacts.
- The collection of moisture content measurements from select building materials that exhibit visual evidence of AMG or water damage.
- The collection of relative humidity, temperature and dew point from representative areas.
- The collection of bioaerosol air samples from representative areas.
- The collection of radon samples from representative areas. These results were forwarded in a separate report.
- The collection of formaldehyde samples from representative areas. These results were forwarded in a separate report.

LIMITATIONS

The assessment was conducted in readily accessible locations within the facility. For the purposes of this report, the term "readily accessible" means areas that can be accessed without the use of ladders, tools, destructive techniques, and without the removal of structural building components, fire-rated materials, furnishings or equipment.

This report has been prepared by EE&G in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions. No other warranty, expressed or implied, is made. EE&G's interpretations and recommendations are based solely upon the results of sample analyses. Other conditions elsewhere in the subject building may differ from those in the inspected/surveyed locations and such conditions are unknown, may change over time and have not been considered.

Since the dynamics of water intrusion, mold-growth and other microbial contamination on building materials often involves damage to hidden areas (such as wall cavities and chases), it is possible that the findings of this assessment may not be representative of areas that were not readily accessible. The Client is urged to proceed with recommendations presented herein with due caution.

Changes or modifications to the site made after the site inspection are not covered. The parameters tested are limited by the sampling methodologies employed for this investigation. These limitations include, but are not restricted to, the sample locations chosen, number of samples collected, and the statistical validity of sampling and analytical methods.

EE&G will not be responsible for the interpretation or use by others of data developed pursuant to the compilation of this report. This report reflects conditions, operations, and practices as observed on the date and time of the site inspection only. The interpretations and recommendations, stated in this report, are based on previous environmental studies and research conclusions. EE&G does not warrant the use of any segregated portions of this report.

METHODS

The investigation was preliminary and had the goal of obtaining an understanding of the reported problems within the facility and identification of the possible causes. The assessment included the following:

Visual Assessment

EE&G conducted a visual inspection of the interior of the City of South Miami Municipal Complex including City Hall, the Police Station and Central Services, herein referred to as the subject area. The site visit included inspection of accessible portions of building materials for the presence of water-damage or assumed mold growth (AMG). For the purposes of this report, the term “accessible” defines areas of the building which could be safely accessed with a 6 foot interior ladder and/or without the use of destructive inspection techniques. These areas included but were not limited to an inspection inside cabinets, on top of shelves or book cases, and above the drop ceilings.

The assessment included the following:

- Inspection of accessible portions of building materials for the presence of water-damage or assumed mold growth (AMG).
- Inspection of contents within the subject areas with respect to their potential to contribute to poor IAQ including housekeeping and HVAC systems.

Environmental Parameters

Relative humidity, temperature, and dew point readings were collected using a Protimeter Moisture Measurement System (MMS) manufactured by GE Protimeter. A thin film capacitive sensor was used for RH measurement; results were reported in percent (%). A Thermistor sensor was used for temperature measurement; results were reported in degrees Fahrenheit (°F). Dew point measurements were calculated by the device based on the current temperature and relative humidity readings; results were reported in degrees Fahrenheit (°F).

The current American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) Standard 55-2004 does not provide a specific recommendation for maintaining RH in an indoor environment. However, the standard does establish an upper boundary for dew point at 62.2°F. ASHRAE Standard 62.1-2007 provides an additional guideline of 65% or less for RH where air conditioning systems with dehumidification capabilities are used. The upper dew point temperature can occur at various combinations of temperature and RH

The current ASHREA Standard 55-2004 is only intended to provide acceptable thermal comfort guidelines for building occupants and is not intended to be used to maintain conditions that may prevent indoor microbial growth. It should be noted that no documented RH value exists in this standard as a threshold that indicates when mold growth will occur on building materials or surfaces. However, RH values and dew point temperatures are related. At a given temperature, increasing RH, produces an increasing dew point temperature and may increase the likelihood of surface condensation and the potential for mold growth. Certain building system components can be cooler than the maximum allowable dew point established by the Standard and

therefore, condensation and the potential for mold growth may occur. Furthermore, as RH in an indoor environment increases above 60 to 65%, the increased moisture in the air translates into an increase in the specific water activity of adjacent surfaces. As the specific water activity of a surface increases, the likelihood of mold growth increases. For the purposes of this report, this data is interpreted accordingly:

- Temperature – Thermal comfort range is not specified under current AHSREA guidelines. However, previous standards as well as the general industry recognize a range between 70^o and 80^oF as being a valid thermal comfort range.
- Relative Humidity – Thermal comfort in the current ASHREA standard is expressed as a humidity ratio. However, based on previous standards as well as the general industry standard a relative humidity below 60% is considered acceptable for thermal comfort. Concentrations below 65% for control of surface mold growth (non-ASHREA) as described above.
- Dew Point – Below 62.2^oF based on ASHREA 55-2004.

Moisture Testing

EE&G measured the moisture content of building materials exhibiting water impacts using a Protimeter SurveyMaster Moisture Meter. This instrument reports results in %Wood-Moisture-Equivalent (WME). Percent WME is the moisture level of a building material other than wood expressed as moisture content of wood. A reading above 20% in a building material was considered a high reading for the purposes of this report. High readings indicate an excessive amount of moisture in the tested building material and should be investigated further.

The percent WME was categorized into the following classifications:

- Less than 18% WME - The material was in a safe, dry condition. Moisture-related problems of decay and deterioration were not likely to occur.
- From 18% to 20% WME - The material was in a borderline condition. Moisture-related problems of decay and deterioration were possible under certain conditions.
- Greater than 20% WME - The material was in a wet condition. Moisture-related problems of decay and deterioration were likely to occur in time unless the moisture level of the material was reduced.

Bioaerosol Sampling

Air samples were collected using Air-O-Cell™ sampling cassettes, manufactured by Zefon International. Air was drawn through the cassettes at a rate of approximately 15 liters per minute (L/min) for 5 to 10 minutes. The air sampling pump was field calibrated prior to, and after, the collection of air samples using the Visi-Float® rotometer manufactured by Dwyer Instruments, Inc. The rotometer was verified for accuracy quarterly using a NIST (National Institute of Standards and Technology) DryCal® primary standard manufactured by the Bios Corporation. Airborne particulates, including mold spores, were captured on the cassette and forwarded under chain of custody to EMSL Analytical, Inc. in North Miami Beach, Florida for

analysis by light microscopy. EMSL is accredited by the American Industrial Hygiene Association (AIHA) under their Environmental Microbiology Proficiency Analytical Testing Program (EMLAP) certification number 102813. Results were reported as counts of fungal structures per cubic meter of air (counts/m³).

The main criteria for evaluating fungal spore data are to compare indoor/outdoor relationships. In non-problem environments, the concentration of fungi in the indoor air is typically similar or lower than the concentration seen outdoors (i.e. < 100% of outdoor concentrations). If indoor fungal concentrations are consistently higher than those outdoors, then indoor sources may be present. In addition, the types (genus and species) of fungi found inside the building should be qualitatively similar compared with the outdoor air, if the outdoor air is the only source of fungi.

Sample locations were determined onsite by EE&G and based on discussions with building maintenance staff and occupants in conjunction with laboratory results from previous air sampling. A total of twenty (20) bioaerosol samples were collected on April 22, 2015 from the following areas:

- City Hall
 - Mayor's Office (1 sample).
 - Cashiers Office (1 sample).
 - Chambers (1 sample).
 - Human Resources (1 sample).
 - Parking Office (1 sample).
 - City Hall 2nd Floor Corridor (1 sample).
- Police Station
 - Sergeants Office (1 sample).
 - Police Station 2nd Floor Corridor (1 sample).
 - Captains Office (1 sample).
 - Roll Call (1 sample).
 - Communications (1 sample).
 - Police Station 1st Floor (1 sample).
- Central Services
 - Central Services Storage (1 sample).
 - Central Services NW Office (1 sample).
 - Central Services Conference Room (1 sample).
 - Central Services SE Office (1 sample).
- Outside Ambient for comparison purposes (4 samples).

FINDINGS

Building Description

The City of South Miami Municipal Complex included City Hall, the Police Station and Central Services. According to the Miami-Dade Property Appraiser website, the facility was built in 1957 and totaled approximately 28,210 square feet.

City Hall was a two (2) - story building and consisted of offices, restrooms and meeting rooms. The floors were primarily carpet, ceramic and vinyl floor tile. Walls were plaster and painted drywall and ceilings were drywall, plaster and acoustical tile ceilings.

The Police Station was a two (2) - story building and consisted of offices, restrooms and meeting rooms. The floors were primarily carpet, ceramic and vinyl floor tile. Walls were plaster and painted drywall and ceilings were drywall and acoustical tile ceilings.

Central Services was a one (1) - story building and consisted of partitioned offices, restrooms and meeting rooms. The floors were terrazzo and ceramic tile, the walls were coral/ sandstone and the ceilings were open to the wood deck.

Visual Observations

The following observations were made by EE&G during the assessment:

Mechanical Rooms

The subject areas were serviced by a series chilled water air handlers. Outside air was provided through ducts and introduced to the mechanical room where it mixed with return air. There was a maintenance program in place and the air handler units (AHUs) were clean (see photos 1 and 2). The volume of outside air as well as the control of the outside was evaluated as part of the scope of work.

City Hall

- There was dust, dirt, and debris (DDD) on the HVAC supply diffusers in various areas (see photos 3 and 4).
- The employees were utilizing heaters, fans, air purifiers, candles, plug-in insect repellants and traps. There were also plants in the office areas (see photos 5-8).
- There was a stained chair in the Commissioner's Office (see photo 9).
- Carpets were stained, dirty and generally worn (see photo 10).
- Supply vents were blocked/ covered in various areas (see photo 11).

- Stained ceiling tiles were observed in the following areas of the first floor:
 - Lunch Room (see photo 12)
 - Water fountain (first floor corridor) (see photo 13)
 - Conference room in City Manager's offices
- Stained ceiling tiles were observed in the following areas of the second floor:
 - Mezzanine (see photo 14)
 - Kitchenette (see photo 15)
 - Computer Room (see photo 16)
- There was damage to the plaster wall and a stained window sill in the City Manager's Office (see photos 17 and 18).
- There appeared to be a past water intrusion event on the landing on the stairs identified by stained carpet and water stained wall (see photo 19).
- There was water staining to the plaster ceiling in the second floor storage closet (see photo 20).
- Mosquitos were observed inside the building.

Police Station

- There was DDD on the HVAC supply vents in various areas (see photo 21).
- Stained ceiling tiles were observed in the following areas:
 - North Stairwell (see photo 22)
 - Cubicles (see photo 23)
- Carpets were stained, dirty and generally worn.
- There was water dripping from the ceiling in Roll Call (see photo 24). It was assumed to be an HVAC leak and was being repaired during the assessment.
- Mosquitos were observed inside the building.

Central Services

- The storage area had water damaged paperwork and boxes (see photos 25 and 26).
- The return air vent had DDD (see photo 27).
- There were stained ceiling tiles in the Women's Room (see photo 28).
- Mosquitos were prevalent inside the building.

Environmental Parameters

The following table summarizes the environmental parameter collection results:

Table 1. Environmental Parameter Results – April 21, 2015.

Location	Relative Humidity (%)	Temperature (°F)	Dew Point (°F)
Ambient Outdoor	88.9	77.8	74.3
Central Service Offices	48.5	71.0	50.3
City Hall Lobby	47.3	73.2	51.8
City Hall Printer Room	56.2	74.2	48.2
City Hall Cashier	53.2	70.4	52.6
City Hall Finance Office	54.0	72.7	55.2
City Hall City Clerk	50.1	71.2	51.9
City Hall Records	52.8	71.7	53.5
City Hall Commissioners Office	54.5	70.6	53.5
City Hall Mayors Office	55.5	71.3	54.6
City Hall Lunch Room	53.9	72.0	54.4
City Hall City Manager	48.1	73.1	52.2
City Hall Commissioner Chambers	47.0	73.8	52.1
City Hall 2 nd FL Mezzanine	44.9	71.5	49.1
City Hall 2 nd FL Human Resources	47.5	70.8	49.7
Police Station 2 nd FL Hallway	55.5	70.8	54.0
Police Station 2 nd FL Conference Area	56.8	70.3	54.2
Police Station 1 st FL Garage (non-air conditioned area)	78.1	75.4	68.0
Police Station Comm. Director	56.2	70.4	54.0
Police Station Roll Call	59.4	70.4	55.5
Central Services (Center)	58.3	72.3	56.2
Central Services (North)	57.6	72.6	56.9
ASHRAE¹ Target	60%-65% or below	70-80°F	Below 62.2°F

Location	Relative Humidity (%)	Temperature (°F)	Dew Point (°F)
Central Services (South)	57.6	73.4	57.3
Central Services (East)	57.8	73.2	58.1
Central Services (West)	58.2	72.8.	57.9
ASHRAE¹ Target	60%-65% or below	70-80°F	Below 62.2°F

1. Target levels recommended by the American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE).

Moisture Readings

Areas of water damage or staining were tested for moisture with a Protimeter SurveyMaster Moisture Meter. The readings collected were less than 18% WME.

Bioaerosol Samples

The following table summarizes the results of the air sample collection results:

Table 2. Bioaerosol Sample Results – April 22, 2015.

Location	<i>Alternaria</i>	<i>Ascospores</i>	<i>Aspergillus/ Penicillium</i>	<i>Basidiospores</i>	<i>Biopolaris</i>	<i>Cladosporium</i>	<i>Curvularia</i>	<i>Ganoderma</i>	<i>Fusarium</i>	<i>Myxomycetes</i>	<i>Arnimium</i>	<i>Rust</i>	<i>Pyricularia</i>	<i>Nigrospora</i>	<i>Cercospora</i>	Total Fungi	Hyphal Frag.	Pollen
City Hall																		
Mayor's Office	-	210	40	60	-	320	10	20	-	-	-	7	7	20	7	701	40	7
Cashier's Office	-	100	-	60	-	1,000	20	-	-	-	-	-	-	-	-	1,120	-	-
Chambers	-	100	-	60	-	320	20	-	-	20	-	-	-	20	-	540	7	-
Human Recourses	-	210	-	200	20	680	20	20	-	20	-	-	-	-	40	1,210	20	40
Parking Office	-	-	-	20	-	60	-	7	-	-	-	-	-	-	-	87	-	-
City Hall 2 nd Floor	-	60	-	40	7	590	20	7	-	100	-	-	-	-	7	831	-	-
Police Station																		
Sargent's Office	-	20	-	-	-	20	-	-	-	-	-	-	-	-	-	40	-	20
Police Station 2 nd Floor Corridor	-	20	-	40	20	100	20	-	-	20	-	-	-	40	-	260	-	-
Captain's Office	-	60	-	40	-	890	-	-	-	-	-	-	-	-	7	997	7	-
Roll Call	-	40	-	40	-	200	-	-	-	-	-	-	-	-	-	280	-	-

Location	<i>Alternaria</i>	Ascospores	<i>Aspergillus/ Penicillium</i>	Basidiospores	<i>Biopolaris</i>	<i>Cladosporium</i>	<i>Curvularia</i>	<i>Ganoderma</i>	<i>Fusarium</i>	<i>Myxomycetes</i>	<i>Arnium</i>	<i>Rust</i>	<i>Pyricularia</i>	<i>Nigrospora</i>	<i>Cercospora</i>	Total Fungi	Hyphal Frag.	Pollen
Comm.	-	270	-	100	20	3,290	60	40	-	-	-	-	80	40	-	3,900	-	7
Police Station 1 st Floor Cor.	-	40	-	40	-	100	20	-	-	-	-	-	-	20	7	247	10	7
Central Services																		
Central Services Storage	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Central Services NW Office	-	80	570	100	-	740	20	40	-	20	-	-	-	-	-	1,570	-	-
Central Services Conference Room	-	80	210	60	-	1,100	-	-	-	-	-	-	-	-	-	1,450	40	-
Central Services SE Office	-	40	100	-	-	250	-	-	-	-	-	-	-	-	-	390	-	7
Ambient (Background)																		
Ambient (Outside North)	60	270	60	300	-	5,590	60	60	10	20	-	20	20	-	60	6,530	20	100
Ambient (Outside South)	-	-	-	-	-	20	-	-	-	-	-	-	-	-	-	20	-	-
Ambient	7	270	-	230	-	7,200	80	270	-	200	-	-	40	20	60	8,377	20	10

Location	<i>Alternaria</i>	Ascospores	<i>Aspergillus/ Penicillium</i>	Basidiospores	<i>Biopolaris</i>	<i>Cladosporium</i>	<i>Curvularia</i>	<i>Ganoderma</i>	<i>Fusarium</i>	<i>Myxomycetes</i>	<i>Arnium</i>	<i>Rust</i>	<i>Pyricularia</i>	<i>Nigrospora</i>	<i>Cercospora</i>	Total Fungi	Hyphal Frag.	Pollen
(Outside East)																		
Ambient (Outside West)	20	300	-	100	20	9,890	200	10	-	40	-	-	7	20	250	10,757	20	10

Results are given in count/m³.

Bioaerosol Laboratory Results and Chain of Custody are attached to this report.

CONCLUSIONS

Based on the findings of the assessment, EE&G presents the following conclusions:

- Water intruded through the building envelop in the past or the building envelop is currently allowing water to intrude as evidenced by the water-stained ceiling tiles, water-damaged boxes and paperwork, water-stained carpeting, and water-damaged building materials around the windows. At the time of the assessment, the water-damaged areas did not exhibit elevated moisture content and therefore, the deficiencies in the building envelop were not active at that time and have been repaired or there was insufficient moisture intrusion to impact the building materials. These areas could be reservoirs of mold growth. It is generally accepted that the presence of mold growth in an indoor environment can be a source of occupant discomfort as well as various health complaints.
- The laboratory data associated with the bioaerosol samples collected from the City Hall and Police Station buildings showed total mold spore concentrations less than those observed in the samples collected from the ambient environment along with similar mold spore types. The air sampling data could support the findings of the visual assessment as it relates to conditions observed such as water-stained or damaged building materials and dirty supply diffusers were not showing visible evidence of AMG. However, the laboratory data associated with the samples collected from Central Services Northwest Office, Southeast Office and Conference Room which showed elevated concentrations of *Aspergillus/Penicillium*-like spores when compared to the ambient samples. There may be a source of moisture or mold contributed to any or all of the followings areas; the fireplace, the storage area where water damaged paperwork and boxes were identified, the return air vent with DDD or the stained ceiling tiles in the Women's Room.
- The use of heaters, fans, air purifiers and blocked supply vents may indicate the employees' comfort levels vary within the building. This is maybe due to an unbalanced HVAC system. The overall condition and hygiene of the AHUs was good as evidenced by the visual findings of clean cooling coils and filters, and the lack of accumulation of condensate water (a likely source of biofilm). The control of outside air was not fully known and may require adjustment to ensure compliance with ASHRAE standards. The environmental parameter readings (relative humidity, temperature, and dew point) were within the current ASHRAE Standard citing acceptable thermal comfort guidelines for building occupants.
- The use of candles, insect traps and repellents attest to the observed mosquito problem. Mosquitos are not commonly considered an IAQ issue, however based upon the use of these products there appears to be an ongoing mosquito issue and this could be impacting work productivity. Also, as mentioned in the formaldehyde report associated with this IAQ assessment, candles can contribute to an IAQ problem and occupant complaints by emitting formaldehyde and other irritants including particulate matter, benzene, toluene, acetaldehyde and acrolein. Insecticides are often not designed for inside use and may be emitting irritating chemicals that contribute to poor IAQ.

- Other possible sources of poor IAQ identified were the potted plants and dirty carpets. Both can cause allergies in susceptible occupants.

RECOMENDATIONS

Based upon the conclusions of this assessment, EE&G recommends the following:

- Replace stained ceiling tiles and repair areas of stained ceilings and remove the water damaged boxes and papers from the storage room in Central Services. Wall cuts maybe be appropriate to investigate if there are reservoirs of mold caused from past water intrusion, especially below the windows. Once the ceiling tiles are replaced, monitor the areas for re-occurring staining and repair the roof, if needed. Following intrusive assessment of the wall cavities around the windows, consider water testing the window assemblies and repair as necessary prior to repair of the wall assemblies.
- A qualified mechanical contractor should be retained to verify the volume of outside air into the HVAC system and conduct a balance test. The vents should be cleaned and consider cleaning HVAC return and supply vents monthly regardless of visual debris build-up.
- Address the mosquito issue and look at removing candles, insecticides and live potted plants, which can contribute to an IAQ problem and occupant complaints.
- Consider cleaning or replacing the carpets. Vinyl tile is highly recommended for commercial buildings to reduce dust and allergens.
- The above recommendations should improve the overall air quality and reduce occupant complaints. A follow up assessment after the recommendations are competed should be conducted to evaluate the effectiveness of the recommendations.

EE&G appreciates the opportunity to work with you and looks forward to working with you in the future. If you have questions or require clarifications on this report, please do not hesitate to contact us at (305) 374-8300.

Sincerely,



Laura Jones, CIEC
Senior Project Manager
EE&G



Jay W. Sall, CIH
Program Director
EE&G

Attachments

PHOTOGRAPHS

CITY HALL



Photo 1: Typical air handler unit filter.



Photo 1: Typical air handler unit coils.



Photo 3: DDD on the HVAC vents in various areas.



Photo 4: DDD on the HVAC vents in various areas.



Photo 5: The employees were utilizing heaters.



Photo 6: The employees were utilizing air purifiers.



Photo 7: The employees were utilizing candles.



Photo 8: The employees were utilizing insect repellants and traps.



Photo 9: Stained chair in the Commissioner's Office.



Photo 10: Carpets were stained, dirty and generally worn.



Photo 11: Supply vents were blocked/ covered in various areas.



Photo 12: Stained ceiling tiles were observed in the Lunch Room.



Photo 13: Stained ceiling tiles were observed at the water fountain.



Photo 14: Stained ceiling tiles were observed at the Mezzanine.



Photo 15: Stained ceiling tiles were observed at the Kitchenette.



Photo 16: Stained ceiling tiles were observed in the Computer Room.



Photo 17: Damage to the plaster wall in the City Manager's Office.



Photo 18: Stained window sill in the City Manager's Office.



Photo 19: Water intrusion event on the landing on the stairs.



Photo 20: Water staining to the ceiling in the second floor storage closet.

POLICE STATION



Photo 21: DDD on the HVAC vents in various areas.



Photo 22: Stained ceiling tiles were observed in the North Stairwell.



Photo 23: Stained ceiling tiles were observed in the Cubicles.



Photo 24: There was an active leak in Roll Call.

CENTRAL SERVICES

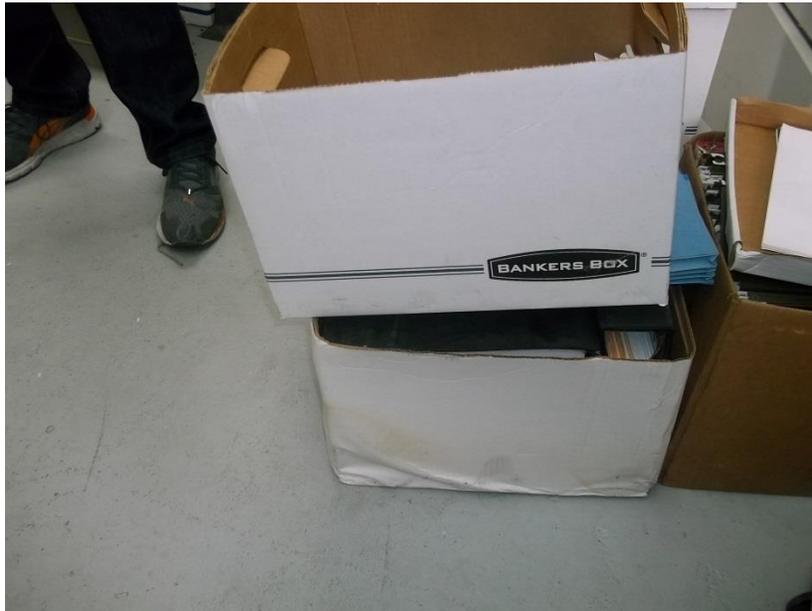


Photo 25: The storage area had water damaged paperwork and boxes.



Photo 26: The storage area had water damaged paperwork and boxes.



Photo 27: The return air vent had DDD



Photo 28: There were stained ceiling tiles in the Women's Room.

LABORATORY RESULTS



EMSL Analytical, Inc.

19501 NE 10th Ave. Bay A N. Miami Beach, FL 33179
 Phone/Fax: (305) 650-0577 / (305) 650-0578
<http://www.EMSL.com> / miamilab@emsl.com

Order ID: 171501664
 Customer ID: EEG50
 Customer PO:
 Project ID:

Attn: Laura Jones
 EE & G
 5751 Miami Lakes Drive East
 Miami Lakes, FL 33014

Phone: (305) 374-8300
 Fax: (NO) FAX-AXES
 Collected: 04/23/2015
 Received: 04/24/2015
 Analyzed: 04/28/2015

Proj: COSM - 2015-2335

Test Report: Air-O-Cell™ Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods EMSL 05-TP-003, ASTM D7391)

Lab Sample Number:	171501664-0001	171501664-0002	171501664-0003	171501664-0004	171501664-0005
Client Sample ID:	20912888	20912558	20915539	20912559	20912524
Volume (L):	150	150	150	150	150
Sample Location:	Mayor's Office	Cashiers Office	Chambers	Human Resources	Parking Office
Spore Types	Count/m ³				
Alternaria	-	-	-	-	-
Ascospores	210	40	100	210	-
Aspergillus/Penicillium	40	-	-	-	-
Basidiospores	60	60	60	200	20
Bipolaris++	-	-	-	20	-
Chaetomium	-	-	-	-	-
Cladosporium	320	1000	320	680	60
Curvularia	10*	20	20	20	-
Epicoccum	-	-	-	-	-
Fusarium	-	-	-	-	-
Ganoderma	20	-	-	20	7*
Myxomycetes++	-	-	20	20	-
Pithomyces	-	-	-	-	-
Rust	7*	-	-	-	-
Scopulariopsis	-	-	-	-	-
Stachybotrys	-	-	-	-	-
Torula	-	-	-	-	-
Ulocladium	-	-	-	-	-
Cercospora	7*	-	-	40	-
Nigrospora	20	-	20	-	-
Pyricularia	7*	-	-	-	-
Spegazzinia	-	-	-	-	-
Total Fungi	701	1120	540	1210	87
Hyphal Fragment	40	-	7*	20	-
Insect Fragment	-	-	-	7*	-
Pollen	7*	-	-	40	-
Analyt. Sensitivity 600x	21	21	21	21	21
Analyt. Sensitivity 300x	7*	7*	7*	7*	7*
Skin Fragments (1-4)	1	1	1	1	1
Fibrous Particulate (1-4)	1	1	1	1	1
Background (1-5)	1	1	1	1	1

Myxomycetes++ = Myxomycetes/Periconia/Smut
 Bipolaris++ = Bipolaris/Drechslera/Exserohilum

Ariel Escoto, Laboratory Manager
 or Other Approved Signatory

No discernable field blank was submitted with this group of samples.

High levels of background particulate can obscure spores and other particulates leading to underestimation. Background levels of 5 indicate an overloading of background particulates, prohibiting accurate detection and quantification. Present = Spores detected on overloaded samples. Results are not blank corrected unless otherwise noted. The detection limit is equal to one fungal spore, structure, pollen, fiber particle or insect fragment. "*" Denotes particles found at 300X. "-" Denotes not detected. Due to method stopping rules, raw counts in excess of 100 are extrapolated based on the percentage analyzed. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical, Inc. N. Miami Beach, FL AIHA-LAP, LLC--EMLAP Lab 102813

Initial report from: 04/28/2015 13:54:52

For Information on the fungi listed in this report please visit the Resources section at www.emsl.com



EMSL Analytical, Inc.

19501 NE 10th Ave. Bay A N. Miami Beach, FL 33179
 Phone/Fax: (305) 650-0577 / (305) 650-0578
<http://www.EMSL.com> / miamilab@emsl.com

Order ID: 171501664
 Customer ID: EEG50
 Customer PO:
 Project ID:

Attn: Laura Jones
 EE & G
 5751 Miami Lakes Drive East
 Miami Lakes, FL 33014

Phone: (305) 374-8300
Fax: (NO) FAX-AXES
Collected: 04/23/2015
Received: 04/24/2015
Analyzed: 04/28/2015

Proj: COSM - 2015-2335

Test Report: Air-O-Cell(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods EMSL 05-TP-003, ASTM D7391)

Lab Sample Number:	171501664-0006	171501664-0007	171501664-0008	171501664-0009	171501664-0010
Client Sample ID:	20912594	20910838	20912843	20912859	20911274
Volume (L):	150	150	150	150	150
Sample Location:	CH 2nd Floor	Sergents Office	PD 2nd FI Corridor	Captan's Office	Roll Call
Spore Types	Count/m ³				
Alternaria	-	-	-	-	-
Ascospores	60	20	20	60	40
Aspergillus/Penicillium	-	-	-	-	-
Basidiospores	40	-	40	40	40
Bipolaris++	7*	-	20	-	-
Chaetomium	-	-	-	-	-
Cladosporium	590	20	100	890	200
Curvularia	20	-	20	-	-
Epicoccum	-	-	-	-	-
Fusarium	-	-	-	-	-
Ganoderma	7*	-	-	-	-
Myxomycetes++	100	-	20	-	-
Pithomyces	-	-	-	-	-
Rust	-	-	-	-	-
Scopulariopsis	-	-	-	-	-
Stachybotrys	-	-	-	-	-
Torula	-	-	-	-	-
Ulocladium	-	-	-	-	-
Cercospora	7*	-	-	7*	-
Nigrospora	-	-	40	-	-
Pyricularia	-	-	-	-	-
Spegazzinia	-	-	-	-	-
Total Fungi	831	40	260	997	280
Hyphal Fragment	-	-	-	7*	-
Insect Fragment	-	-	-	7*	-
Pollen	-	20	-	-	-
Analyt. Sensitivity 600x	21	21	21	21	21
Analyt. Sensitivity 300x	7*	7*	7*	7*	7*
Skin Fragments (1-4)	1	1	1	1	1
Fibrous Particulate (1-4)	1	1	1	1	1
Background (1-5)	1	1	1	1	1

Myxomycetes++ = Myxomycetes/Periconia/Smut
 Bipolaris++ = Bipolaris/Drechslera/Exserohilum

Ariel Escoto, Laboratory Manager
 or Other Approved Signatory

No discernable field blank was submitted with this group of samples.

High levels of background particulate can obscure spores and other particulates leading to underestimation. Background levels of 5 indicate an overloading of background particulates, prohibiting accurate detection and quantification. Present = Spores detected on overloaded samples. Results are not blank corrected unless otherwise noted. The detection limit is equal to one fungal spore, structure, pollen, fiber particle or insect fragment. "*" Denotes particles found at 300X. "-" Denotes not detected. Due to method stopping rules, raw counts in excess of 100 are extrapolated based on the percentage analyzed. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.

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Proj: COSM - 2015-2335

Test Report: Air-O-Cell™ Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods EMSL 05-TP-003, ASTM D7391)

Lab Sample Number:	171501664-0011	171501664-0012	171501664-0013	171501664-0014	171501664-0015
Client Sample ID:	20912557	20912582	20912915	20912887	20912596
Volume (L):	150	150	150	150	150
Sample Location:	Communications	PD 1st Fl Corridor	CS Storage	CS NW Office	CS Conference
Spore Types	Count/m ³				
Alternaria	-	-	-	-	-
Ascospores	270	40	-	80	80
Aspergillus/Penicillium	-	-	-	570	210
Basidiospores	100	40	-	100	60
Bipolaris++	20	-	-	-	-
Chaetomium	-	-	-	-	-
Cladosporium	3290	100	-	740	1100
Curvularia	60	20	-	20	-
Epicoccum	-	-	-	-	-
Fusarium	-	-	-	-	-
Ganoderma	40	-	-	40	-
Myxomycetes++	-	-	-	20	-
Pithomyces	-	-	-	-	-
Rust	-	-	-	-	-
Scopulariopsis	-	-	-	-	-
Stachybotrys	-	-	-	-	-
Torula	-	-	-	-	-
Ulocladium	-	-	-	-	-
Cercospora	-	7*	-	-	-
Nigrospora	40	20	-	-	-
Pyricularia	80	-	-	-	-
Spegazzinia	-	20	-	-	-
Total Fungi	3900	247	-	1570	1450
Hyphal Fragment	-	10*	-	-	40
Insect Fragment	-	-	-	7*	-
Pollen	7*	7*	-	-	-
Analyt. Sensitivity 600x	21	21	21	21	21
Analyt. Sensitivity 300x	7*	7*	7*	7*	7*
Skin Fragments (1-4)	1	1	-	1	1
Fibrous Particulate (1-4)	1	1	-	1	1
Background (1-5)	1	1	-	1	1

Sample Comment: 171501664-0013 Not Submitted

Myxomycetes++ = Myxomycetes/Periconia/Smut
 Bipolaris++ = Bipolaris/Drechslera/Exserohilum

Ariel Escoto, Laboratory Manager
 or Other Approved Signatory

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 Collected: 04/23/2015
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Proj: COSM - 2015-2335

Test Report: Air-O-Cell™ Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods EMSL 05-TP-003, ASTM D7391)

Lab Sample Number:	171501664-0016	171501664-0017	171501664-0018	171501664-0019	171501664-0020
Client Sample ID:	20910983	20912664	20910819	20912603	20912916
Volume (L):	150	150	150	150	150
Sample Location:	CS SE Office	Outside North	Outside South	Outside East	Outside West
Spore Types	Count/m ³				
Alternaria	-	60	-	7*	20
Ascospores	40	270	-	270	300
Aspergillus/Penicillium	100	60	-	-	-
Basidiospores	-	300	-	230	100
Bipolaris++	-	-	-	-	20*
Chaetomium	-	-	-	-	-
Cladosporium	250	5590	20	7200	9790
Curvularia	-	60	-	80	200
Epicoccum	-	-	-	-	-
Fusarium	-	10*	-	-	-
Ganoderma	-	60	-	270	10*
Myxomycetes++	-	20	-	200	40
Pithomyces	-	-	-	-	-
Rust	-	20	-	-	-
Scopulariopsis	-	-	-	-	-
Stachybotrys	-	-	-	-	-
Torula	-	-	-	-	-
Ulocladium	-	-	-	-	-
Cercospora	-	60	-	60	250
Nigrospora	-	-	-	20	20
Pyricularia	-	20	-	40*	7*
Spegazzinia	-	-	-	-	-
Total Fungi	390	6530	20	8377	10757
Hyphal Fragment	-	20	-	20	20
Insect Fragment	-	20	-	-	-
Pollen	7*	100	-	10*	10*
Analyt. Sensitivity 600x	21	21	21	21	21
Analyt. Sensitivity 300x	7*	7*	7*	7*	7*
Skin Fragments (1-4)	1	1	1	1	1
Fibrous Particulate (1-4)	1	1	1	1	1
Background (1-5)	1	1	1	1	1

Myxomycetes++ = Myxomycetes/Periconia/Smut
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EMSL ANALYTICAL, INC.
LABORATORY PRODUCTS TRAINING

Microbiology Chain of Custody

EMSL Order Number (Lab Use Only):

171501664

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077

PHONE: (800) 220-3675
FAX: (856) 786-0262

Company: <u>EE & G</u>		EMSL-Bill to <input checked="" type="checkbox"/> Same <input type="checkbox"/> Different If Bill to is Different note instructions in Comments**	
Street: <u>3751 Miami Lakes Drive</u>		Third Party Billing requires written authorization from third party	
City: <u>Miami Lakes</u>	State/Province: <u>FL</u>	Zip/Postal Code:	Country:
Report To (Name): <u>Laura Jones</u>		Telephone #:	
Email Address: <u>ljones@eeandg.com</u>		Fax #:	Purchase Order:
Project Name/Number: <u>COSM 2015-2305</u>		Please Provide Results: <input type="checkbox"/> Fax <input type="checkbox"/> Email <input type="checkbox"/> Fax	
U.S. State Samples Taken: <u>FL</u>		Connecticut Samples: <input type="checkbox"/> Commercial <input type="checkbox"/> Residential	

Turnaround Time (TAT) Options* - Please Check

<input type="checkbox"/> 3 Hour	<input type="checkbox"/> 6 Hour	<input type="checkbox"/> 24 Hour	<input type="checkbox"/> 48 Hour	<input checked="" type="checkbox"/> 72 Hour	<input type="checkbox"/> 96 Hour	<input type="checkbox"/> 1 Week	<input type="checkbox"/> 2 Week
---------------------------------	---------------------------------	----------------------------------	----------------------------------	---	----------------------------------	---------------------------------	---------------------------------

*Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide. TATs are subject to methodology requirements

Non Culturable Air Samples (Spore Traps) – Test Codes

<ul style="list-style-type: none"> M001 Air-O-Cell M049 BioSIS M030 Micro 5 	<ul style="list-style-type: none"> M173 Allegro M2 M003 Burkard M174 MoldSnap 	<ul style="list-style-type: none"> M004 Allergenco M043 Cyclex M176 Relle Smart 	<ul style="list-style-type: none"> M032 Allergenco-D M002 Cyclex-d M130 Via-Cell 	<ul style="list-style-type: none"> M172 Versa Trap
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Other Microbiology Test Codes

<ul style="list-style-type: none"> M041 Fungal Direct Examination M005 Viable Fungi ID and Count M006 Viable Fungi ID and Count (Speciation) M007 Culturable Fungi M008 Culturable Fungi (Speciation) M009 Gram Stain Culturable Bacteria M010 Bacterial Count and ID – 3 Most Prominent M011 Bacterial Count and ID – 5 Most Prominent M013 Sewage Contamination in Buildings 	<ul style="list-style-type: none"> M014 Endotoxin Analysis M015 Heterotrophic Plate Count M180 Real Time Q-PCR-ERMI 36 Panel M018 Total Coliform (Membrane Filtration) M020 Fecal Streptococcus (Membrane Filtration) M210-215 Legionella Detection M026 Recreational Water Screen M027 Mycotoxin Analysis 	<ul style="list-style-type: none"> M029 Enterococci M019 Fecal Coliform M133 MRSA Analysis M028 Cryptococcus neoformans Detection M120 Histoplasma capsulatum Detection M033-39 Allergen Testing M044 Group Allergen (Cat, Dog, Cockroach, Dustmites) Other See Analytical Price Guide
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Preservation Method (Water):

Name of Sampler: Laura Jones Signature of Sampler:

Sample #	Sample Location	Sample Type	Test Code	Volume/Area	Date/Time Collected
Example: A1	Kitchen	Air	M001	75L	1/1/12 4:00 PM
20912888	Mayor's Office	Air	m001	150L	4-22-15/1105-1120
20912558	Cardiacs Office	Air	m001	150L	4-22-15/1107-1117
20912539	Chambers	Air	m001	150L	4-22-15/1111-1126
20912559	Human Resources	Air	m001	150L	4-22-15/1131-1146
20912524	Parking Office	Air	m001	150L	4-22-15/1131-1141
20912594	CH 2nd Fl Corridor	Air	m001	150L	4-22-15/1133-1148
20910838	Supports Office	Air	m001	150L	4-22-15/1153-1203
20912843	PD 2nd Fl Corridor	Air	m001	150L	4-22-15/1156-1211
20912859	Captains Office	Air	m001	150L	4-22-15/1157-1212

Client Sample # (s): _____ Total # of Samples: (20)

Relinquished (Client): Date: 4-23-15 Time: @ 1130

Received (Client): E. Rodriguez Date: 4/24/15 Time: 10:20 am (Fed Ex)

Comments: (EMSL)

