MOLD AND MOISTURE ASSESSMENT REPORT

BLACKWELL ELEMENTARY SCHOOL

300 E. 15TH STREET
RICHMOND, VIRGINIA 23224

ECS PROJECT NO. 47:14153-B

FOR: RICHMOND PUBLIC SCHOOLS FACILITY SERVICES

FEBRUARY 26, 2024

February 26, 2024

Mr. Ronald Hathaway Jr.
Richmond Public Schools Facility Services
1461-A Commerce Road
Richmond, Virginia 23224
Rhathawa@rvaschools.net

ECS Project No. 47:14153-B

Reference: Mold and Moisture Assessment, Blackwell Elementary School, 300 E. 15th Street, Richmond, Virginia

Dear Mr. Hathaway Jr.:

ECS Mid-Atlantic, LLC (ECS) is pleased to provide Richmond Public Schools Facility Services with the results of the above referenced Mold and Moisture Assessment performed at Blackwell Elementary School located at 300 E. 15th Street in Richmond, Virginia. This report summarizes our observations, analytical results, findings, and recommendations related to the work performed. The work described in this report was performed by ECS in general accordance with the Scope of Services described in ECS Proposal Number 47:30369-EP and the terms and conditions of the agreement authorizing those services.

ECS appreciates this opportunity to provide Richmond Public Schools Facility Services with our services. If we can be of further assistance to you, please do not hesitate to contact us.

Sincerely,

ECS Mid-Atlantic, LLC

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TABLE OF CONTENTS

PAGE

1.0 PROJECT DESCRIPTION 1

2.0 PURPOSE 1

3.0 METHODOLOGY 1

3.1 Mold and Moisture 1

4.0 RESULTS 2

4.1 Mold and Moisture 2

4.1.1 Spore-Trap Air Samples 4

4.1.2 Moisture in Building Materials 6

4.1.3 Temperature and Humidity 7

5.0 CONCLUSIONS AND RECOMMENDATIONS 9

5.1 Mold and Moisture 9

6.0 LIMITATIONS 12

TABLE OF APPENDICES

Appendix I: School Diagram

Appendix II: Mold and Moisture Photos

Appendix III: Mold Laboratory Report(s)

Appendix IV: Mold Reference and Guidance Documents

1.0 PROJECT DESCRIPTION

The building located at 300 E. 15th Street in Richmond, Virginia is a two-story school building known as Blackwell Elementary School. The building contains approximately 83,251 square feet of space and was reportedly originally constructed in 1998.

Based on information provided by Richmond Public Schools Facility Services representatives, ECS understands that building occupants have reported mold and moisture concerns in the building to the Richmond Public Schools Facility Services Department. Richmond Public Schools Facility Services has requested ECS to conduct a Mold and Moisture Assessment to evaluate these concerns..

2.0 PURPOSE

The purpose of the Mold and Moisture Assessment was to conduct visual observations and testing for mold and moisture to identify evidence of moisture-affected building materials or selective amplification of mold within tested areas of the subject building.

3.0 METHODOLOGY

ECS performed the authorized Scope of Services in general accordance with our proposal, standard industry practices and methods specified by guidelines and industry standards for the identification of mold and moisture-affected building materials.

3.1 Mold and Moisture

The assessment included a non-invasive visual and olfactory survey for evidence of mold and moisture within the subject building. The assessments focused on the client-selected areas indicated by Richmond Public Schools Facility Services. The ECS site personnel observed readily accessible areas and selected building materials to evaluate visible suspect fungal growth and/or moisture impacted materials. A reasonable effort was made to identify water and mold impacted areas; however, this does not imply a guarantee that all possible reservoirs of mold were identified because mold or water-impacted building materials may be hidden by walls, flooring, partitions, etc. ECS did not assess any areas of the building associated with the Blackwell Community Center except the shared gymnasium space. Additionally, ECS did not assess the Blackwell pre-school that is present on the school grounds behind the Elementary school. ECS was not requested by the client to assess these areas or buildings.

Ambient temperature and relative humidity were measured during the survey using Q-Trak hand held IAQ meter. The purpose of these measurements was to identify elevated interior humidity levels, which could potentially support indoor mold growth or indicate ongoing moisture problems.

ECS measured the moisture content in various building materials in multiple locations within the surveyed areas utilizing a Protimeter brand hand-held moisture meter. The instrument may be operated in two independent modes. The non-destructive “search mode” uses radio-frequency induction to detect moisture in a substrate. Using the search mode, the Protimeter is capable of detecting moisture in solid, homogeneous materials at depths up to 10 millimeters (0.39 inches). When operated in search mode, the Protimeter produces qualitative readings (“dry”, “at risk”, “wet”) along with a relative numerical reading corresponding to the appropriate qualitative reading. The

Protimeter may also be used in “measure mode” to obtain actual moisture percentage readings in wood and other solid, non-conductive materials. Measurements are taken by inserting the pins of a moisture probe into the material being tested. For wood substrates, the moisture percentage is expressed as “% Moisture Content (MC)”; for other materials this number is expressed as “% Wood Moisture Equivalent (WME)”. In general, %MC or %WME values of less than 17 are considered “dry”, values greater than or equal to 17 but less than 20 are considered “at risk” for moisture damage, and values of 20 or greater are considered “wet”. Values of greater than 17 % typically are considered at risk for mold growth. This was not a comprehensive moisture mapping survey of all building materials within the areas surveyed but rather a non-invasive survey of moisture in select areas of specific building materials which may be impacted by moisture.

Fungal spore air samples were collected using a calibrated self contained battery operated air sampling pumps and Allergenco® cassettes. Samples were transported to Environmental Hazards Services located in Richmond, Virginia for analysis. Environmental Hazards Services is accredited by the Environmental Microbiology Laboratory Accreditation Program, administered by the American Industrial Hygiene Association. Air samples were reported to the genus or group level according to the laboratory standard quantification procedures.

Samples collected were transported/shipped to Environmental Hazards Services (EHS) located in Richmond, Virginia for analysis. EHS is an AIHA (American Industrial Hygiene Association) EMLAP (Environmental Microbiology Laboratory Accreditation Program) accredited laboratory. The samples were analyzed for total spore concentrations in accordance to the laboratory’s quantification methods.

It is important to note that fungal spore samples represent a snapshot in time of a constantly changing microbiome. Environmental conditions such as temperature and humidity may influence sample results. The goal of the sampling performed was not to establish precise numerical concentrations over time, but rather to generally identify the dominant fungi in the sampled locations and the general significance of their relative concentrations as compared to outdoor concentrations or unaffected locations.

4.0 RESULTS

The following is a summary of laboratory results, measurements, findings and observations.

Based on our observations and sampling data, ECS does not see any reason why the school should not be continued to be used based on our experience with similar school buildings across the Richmond area and our findings for this study. In general, our air sample results did not indicate any significantly elevated spore trap air samples in the classrooms above outdoor comparison samples. As would be expected with any school building, new or old, areas of mold and moisture were observed and it is our understanding that the recommendations identified in the assessment reports are being addressed or will be addressed by Richmond Public Schools.

4.1 Mold and Moisture

Below is a summary of the sampling data collected as part of this evaluation:

Interior

- Mold was observed on the HVAC supply ducts associated with the main trunk line that runs throughout the ceiling of the Gym and the diffusers in the equipment storage cage; these areas were not accessible for tape lift testing;
- Significant dust accumulation and suspect mold were observed on the HVAC supply ducts above the stage between the gymnasium and cafeteria;
- Damaged drywall was observed in the main office break room above the back entrance to the media center. ECS does not believe that the damage in this area was caused by water intrusion and is rather structural settling of the building in this area. Suspect mold or elevated moisture meter readings were not identified in this area;
- Elevated moisture meter readings were identified beneath the sink in the main office break area associated with vinyl tiled floors in this area;
- Minor airborne mold spore elevations were identified associated with teacher's planning office (Room 235).
- Moisture stained ceiling tiles were observed very sporadically in different areas of the school; The apparent cause appears to be leaking or condensating pipes or ducts in these areas;
- Moisture damaged vinyl floor tiles were observed along the North perimeter wall associated with classrooms 105 and 106. Moisture meter readings collected from these areas indicated that moisture is trapped beneath the flooring in this area. The floor tiles and mastic in these areas were determined to be non-asbestos containing;
- A damp, mold/mildew odor was present in the media center at the time of the assessment. Evidence of water staining in the form of discolored spots around screws on the metal roof deck above the media center was observed. Moisture may be trapped within the roof substrate in these areas potentially causing the odor in the media center. These areas were not accessible for moisture testing or closer inspection;
- Moisture impacted drywall and a moisture stained light fixture were observed in the Northeast corner of the Media Center near the door leading to the Main Office break room. The cause of these moisture impacted materials was not readily apparent;
- Elevated relative moisture meter readings were observed associated with the floor tiles at the base of the exterior back doors compared to readings collected from the center of the rooms in many of the classrooms on the ground floor indicating moisture is trapped beneath the flooring in these areas. The apparent cause is water infiltration from the exterior of the building in these areas;
- During the site assessment ECS observed evidence of slight water swelling of the floor tiles throughout the ground floor of the building at all of the floor tile seams; while on-site ECS asked one of the custodians for the building if he was aware of what caused the staining. The custodian informed ECS that a cleaning sub-contractor was requested to come in and clean the school prior to the current school year and when they cleaned the floors they applied too much water to the floors which caused the swelling some time after the work was completed. ECS collected moisture meter readings in several locations in the hallways and classrooms on the ground floor and did not observe elevated moisture meter readings.

Building Envelope

- The apparent cause of the moisture damaged flooring and elevated moisture meter readings in rooms 105 and 106 is water intrusion from the exterior on the North perimeter walls in these rooms. ECS observed that the property slopes towards the building in this area

likely causing storm water to directly impact these exterior walls. A storm water drain was observed adjacent to this area of the building but ECS is not aware if it is properly managing the storm water run-off at this section of the building;

- The apparent cause of the elevated moisture meter readings identified associated with the flooring at the back doors of the majority of the ground floor classrooms is apparent water infiltration from the exterior of the building.

4.1.1 Spore-Trap Air Samples

Fungal spore-trap air samples were collected from classrooms and functionally distinct spaces in the school where students and faculty would be expected to spend the most time. Representative exterior samples were collected for comparison. The following table summarizes the results of sample analysis reported in spore counts per cubic meter of air.

Spore-Trap Sample Results

Sample Number	Sample Location	Total Fungal Spore Concentration (count/cubic meter)
A1	Outside, main entrance, west side of building	1,200
A2	Office, waiting area	620
A3	Office, northwest end of hall	130
A4	Media center	33
A5	Classroom 101	6.7
A6	Classroom 102	47
A7	Classroom 103	60
A8	Classroom 104	47
A9	Classroom 105	33
A10	Classroom 106	160
A11	Classroom 107	210
A12	Classroom 108	13
A13	Classroom 109	80
A14	Classroom 110	110
A15	Classroom 111	47
A16	Classroom 112	13
A17	Classroom 113	40

Sample Number	Sample Location	Total Fungal Spore Concentration (count/cubic meter)
A18	Classroom 114	6.7
A19	Classroom 115	80
A20	Classroom 116	80
A21	Classroom 117	60
A22	Classroom 118	130
A23	Classroom 119	170
A24	Classroom 120	47
A25	Cafeteria	40
A26	Classroom 201	67
A27	Classroom 202	33
A28	Classroom 203	270
A29	Outside, main entrance, west side of building	730
A30	Classroom 204	40
A31	Classroom 205	47
A32	Classroom 206	47
A33	Classroom 207	87
A34	Classroom 208	53
A35	Classroom 209	27
A36	Classroom 210	40
A37	Classroom 211	47
A38	Classroom 212	47
A39	Classroom 213	47
A40	Classroom 214	0
A41	Classroom 215	47
A42	Sample currupt, not submitted	N/A
A43	2nd floor classrooms main hallway	130

Sample Number	Sample Location	Total Fungal Spore Concentration (count/cubic meter)
A44	1st floor classrooms main hallway	80
A45	Gymnasium	140
A46	Room 235	710
A47	Outside, main entrance, west side of building	890

Analytical results of the mold air testing determined that total spore counts reported in the rooms tested in the school were below the level of airborne mold spores reported on the outside samples. The fungal genera detected were also generally comparable with fungal genera detected outdoors, with the exception of sample A46 collected in Room 235 which identified an elevation of *Penicillium/ Aspergillus spores* above the levels of that genera identified on the outside samples. During the site assessment ECS observed mold growth within the back of one of the refrigerators at the bottom around the fan and condenser which is likely the cause of the elevation of the *Penicillium/Aspergillus spores* identified on sample A46.

A second sample (A-2) also showed a slight elevation of spores but on further review was not deemed significant based on the spore type detected and the proximity of the office area to the exterior doors. ECS believes the elevation is likely due to outdoor air infiltration.

There are currently no accepted regulatory standards or guidelines with respect to acceptable fungal levels inside buildings. It is important to note however that spore trap measurements can fluctuate rapidly and the readings reported should not be used as a definitive indication that mold and or health hazards related to mold are present or absent.

4.1.2 Moisture in Building Materials

During the site assessment the moisture meter readings collected indicated that most of the building materials that exhibited evidence of moisture impact tested dry at the time of the survey. Elevated moisture meter readings were observed in the following locations:

- The North perimeter wall beneath vinyl floor tile in Rooms 105 and 106. The moisture meter readings in these areas ranged from approximately 20% to 25% WME;
- Moisture meter readings collected using the Protimeter survey mode indicated moisture values of up to 999 REL on flooring at the base of the exterior back doors on the ground floor classrooms. The comparative measurements collected in the center of the rooms were in the 400 to 500 REL range indicating elevated moisture in the areas at the base of the exterior doors.

4.1.3 Temperature and Humidity

The key to understanding humidity is that warmer air can contain greater quantities of moisture than cooler air. Relative humidity is defined as the ratio of the amount of moisture contained in the air to the maximum amount of moisture the air can contain at that temperature. The dew point temperature is defined as the temperature at which the amount of moisture in the air reaches saturation. The dew point is a more accurate indication of the actual amount of moisture in the air, because it is independent of temperature.

The American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) has published several standards for ventilated buildings. *ANSI/ASHRAE Standard 62.1-2019, Ventilation for Acceptable Air Quality* specifies that indoor humidity should be maintained below 60 degrees Fahrenheit (°F) dew point temperature. The EPA recommends that indoor relative humidity be maintained below 60%, ideally 30-50%, to prevent mold growth. The *OSHA Technical Manual,* Section III, Chapter 2 for Indoor Air Quality Investigations specifies a thermal comfort range of 68°F to 76°F and a relative humidity range of 20% to 60% to maximize comfort for all occupants.

The following table summarizes the indoor air temperature and relative humidity readings collected by ECS during the survey.

Temperature and Relative Humidity

Location	Relative Humidity (%)	Temperature (°F)
Outside, main entrance, west side of building	30.1	74.4
Office, waiting area	37.0	73.6
Lounge (152)	37.8	73.3
Office, northwest end of hall	38.1	73.2
Media center	40.6	72.6
Classroom 101	37.4	73.0
Classroom 102	40.5	73.1
Classroom 103	38.7	73.1
Classroom 104	38.3	73.1
Classroom 105	38.5	73.0
Classroom 106	38.3	72.9
Classroom 107	39.4	72.8
Classroom 108	38.9	72.8
Classroom 109	38.6	72.2

Location	Relative Humidity (%)	Temperature (°F)
Classroom 110	39.1	72.3
Classroom 111	38.1	72.6
Classroom 112	36.5	72.4
Classroom 113	39.8	72.6
Classroom 114	38.4	72.3
Classroom 115	37.0	72.0
Classroom 116	37.6	72.0
Classroom 117	36.8	71.6
Classroom 118	38.5	71.5
Classroom 119	36.8	71.4
Classroom 120	37.7	70.8
Classroom 201	42.7	70.3
Classroom 202	38.5	71.4
Classroom 203	38.3	71.4
Classroom 204	37.8	71.6
Classroom 205	43.1	72.2
Classroom 206	37.9	72.5
Classroom 207	39.4	72.5
Classroom 208	39.0	72.8
Classroom 209	37.9	72.8
Classroom 210	39.5	73.1
Classroom 211	38.6	73.0
Classroom 212	39.3	73.4
Classroom 213	37.5	72.8
Classroom 214	37.5	72.8
Classroom 215	38.6	73.1
Room 235	41.3	67.8
Gymnasium	38.4	72.4
Cafeteria	39.4	71.2

Location	Relative Humidity (%)	Temperature (°F)
Kitchen	41.4	70.9

Discussion

The temperature and relative humidity readings collected during this assessment were considered normal and within the recommended ranges.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on our understanding of the purpose of the Mold and Moisture Assessment, the results of laboratory analysis, and our findings and observations, ECS presents the following recommendations.

5.1 Mold and Moisture

Based on the site assessments, analytical testing results and site testing performed ECS provides the following conclusions and recommendations:

ECS recommends remediation be performed for all water and mold impacted materials within the surveyed areas as soon as reasonably possible as outlined in this report. This includes all materials that have visible suspected mold and/or have been subjected to elevated moisture conditions for greater than 48 hours without proper drying efforts. **This would include the mold impacted HVAC supply ducts throughout the gym and above the stage.**

General

ECS recommends that a qualified mold remediation/drying contractor be retained to properly remove or clean mold impacted materials. Remediation activities should be performed in general accordance with the guidelines described in EPA's March 2001 document "Mold Remediation in Schools and Commercial Buildings" and under the OSHA 2010 Guidelines for mold removal. Additional remedial guidance documents are also referenced in Section at the end of this report. Workers performing this work should wear proper personal protective equipment (PPE) including HEPA filtered respirators and disposable clothing (per OSHA standards for PPE).

ECS recommends that a building envelope study be perfumed for the building by a qualified engineer. Correction of building envelope and water intrusion issues should be performed prior to or concurrent with any remediation activities.

Setup

In general accordance with the EPA and OSHA guidelines, ECS recommends containment of the remediation areas using plastic barriers and tape to create negative pressure containment during removal of mold impacted materials. The contractor should seal HVAC vents in the work area(s), as well as all other penetrations and openings. A HEPA-filtered local exhaust ventilation (negative air

machine) should be utilized within the work area directly adjacent to the area(s) being cleaned and should maintain negative pressure and HEPA filtration continuously inside the containment during remediation activities and prior to clearance sampling. If greater than 100 square feet, or an occupied area adjacent to 30 square feet or more: A manometer should be used to measure the pressure difference between the remediation area and adjacent areas. The target pressure differential in the containment should be -0.02 inches of water gauge.

Scope of Work

General: All impacted building materials that have visible growth and/or have sustained water impacts should be removed or cleaned in excess of 2 feet beyond the visible extent of mold or water stains where feasible. Further observation of the wall and ceiling systems may be necessary during remediation efforts to determine if additional materials will need to be removed or cleaned. **As noted previously, any active moisture leaks into the building should be properly accessed and corrected prior to or concurrent with mold remediation activities. In addition, prior to performing any work the remediation contractor shall review all asbestos reports for the school building.**

ECS makes the following recommendations concerning mold and moisture at Blackwell Elementary:

- Perform cleaning of the mold impacted diffusers on the main HVAC supply trunk line and diffusers in the gym equipment storage cage and the diffusers on the stage by a qualified mold remediation contractor or properly trained HVAC contractor;
- Perform further investigation into the HVAC main trunk line in the gym and associated with the ducts in the gym storage cage and over the stage to inspect for additional evidence of mold or moisture impact within the ducts. If additional mold is observed within the HVAC main trunk line and ducts then the ducts in these areas should undergo a thorough duct cleaning by a certified National Air Duct Cleaning Association (NADCA) contractor;
- Have the air handler(s) servicing the gym and stage inspected by a qualified HVAC engineer or technician and perform a review of the maintenance and service schedule to determine if they are being properly maintained and operating per the manufacturer's recommend specifications;
- Perform removal and replacement of the floor tiles beneath the sink in the main office break room. The exposed concrete slab and surrounding building materials should be verified to be dry with the use of a moisture meter prior to re-installation of new flooring materials. Have a qualified plumber inspect the sink and plumbing in this area prior to remediation activities to determine if the sink and plumbing may be the source of the elevated moisture levels in this area and correct any issues; The school may try to dry the floor tiles in-place to avoid removal.
- Perform a thorough cleaning of the refrigerator in Room 235 and apply of a microbial disinfectant to the areas of the refrigerator where mold was present.
- Perform removal and replacement of the moisture stained ceiling tiles observed sporadically throughout the school. The sources of the moisture staining should be determined and corrected prior to or in conjunction with the removal and replacement of the ceiling tiles;

- Following the correction of the apparent water intrusion into room 105 and 106, perform drying of the wall and flooring areas in these locations. Based on the time of year this would be expected to be successful. Remove and replace the damaged floor tiles in these areas as needed. The concrete slab floor and surrounding building materials should be verified to be dry with the use of a calibrated moisture meter;
- During the building envelope review inspect the roof for evidence of damage or water intrusion, especially the portion of roof over top of the media center where staining or discoloration was observed on the bottom of the metal ceiling deck;
- Remove and replace the moisture impacted drywall wall and drop ceiling tile and wipe down the moisture stained light fixture in the Northeast corner of the media center and determine and correct the source of water intrusion in this area;
- Perform aggressive drying of the flooring at the base of the exterior doors (and walls if needed) in each of the ground floor classrooms. During the building envelope assessment determine the cause of the water intrusion in these areas and correct prior to orconcurrent with drying efforts. Verify that the areas have been properly dried with the use of a calibrated moisture meter.

Following remediation/removal of mold-impacted materials, ECS recommends that the contained areas of the building undergo a thorough cleaning following guidelines described in EPA's March 2001 document “Mold Remediation in Schools and Commercial Buildings.” Surface remediation should include HEPA vacuuming of vertical and horizontal surfaces and a clean-wipe with a mild detergent. The surfaces should not be saturated and discard cleaning cloths. All areas (affected and unaffected) should be left dry, visibly free from contamination and debris prior to build back activities.

Although not accessible during the survey, ECS is concerned that underlying structural materials (CMU walls, wood framing, poured concrete, etc…) contain excess moisture which will need to be thoroughly dried prior to installation of new materials. Where elevated moisture is still present in building materials, mechanical drying efforts should be performed. The use of portable dehumidifiers should be implemented immediately. Following removal of mold-affected materials and fine cleaning, the fans should also be utilized to accelerate drying efforts. For large areas with significant moisture load, the use of desiccant de-humidification systems should be considered.

Follow-up

Prior to removal of the containment barriers, a post-remediation survey should be performed to assess the remediation efforts. Visible suspect mold and moisture-affected porous materials should not be present in the work area (although ECS recognizes that some semi-porous materials may still have stains present following cleaning). The moisture content of materials that have been dried or cleaned and will remain should be confirmed to be below recommended guidelines prior to re-construction of new materials. The indoor relative humidity in and around the work area should also be maintained below 60%. The indoor relative humidity in and around the work area should be below 60%. If the temperature in the work area is above 80°F, the indoor dew point should be below 65°F.

Note: The purpose of this survey was to evaluate areas where moisture intrusion or suspected visible mold growth has occurred and provide findings and recommendations for remedial work efforts. Identification and recommendations for correction of sources of moisture should be performed by a

qualified engineer. Because of the nature of the environment, complete elimination of all microbial organisms within a building cannot be expected and is not the goal of remediation. The goal of remediation is to restore the affected materials to at least the condition of unaffected materials. It is important to note that the reported mold levels are only reflective of conditions at the time of this test and that mold populations can vary over time, depending upon a number of conditions, including environmental factors (i.e., temperature and relative humidity). If significant mold growth reappears, or if the occupants experience prolonged allergic-type health complaints, they should seek further investigation of the problem.

6.0 LIMITATIONS

The conclusions and recommendations presented within this report are based upon a reasonable level of assessment within normal bounds and standards of professional practice for a site in this particular geographic setting. ECS is not responsible or liable for the discovery and elimination of hazards that may potentially cause damage, accidents, or injuries.

During this study, samples were submitted for analysis at an accredited laboratory via polarized light microscopy. As with any similar survey of this nature, actual conditions exist only at the precise locations from which samples were collected. Certain inferences are based on the results of this sampling and related testing to form a professional opinion of conditions in areas beyond those from which the samples were collected. No warranty, expressed or implied, is made.

This survey is not intended to represent an exhaustive research of every potential hazard or condition that may exist, nor does it claim to represent indoor conditions or events that arise after the survey. This report has been prepared in accordance with generally accepted environmental practices. Our conclusions and findings are based, in part, upon information provided to us by others and our site observations. We have not verified the completeness or accuracy of the information provided by others. The scope of services performed was limited to those requested by the Client and does not constitute a full microbial assessment of the site or a comprehensive moisture survey of the site. The data provided in this study is only indicative of conditions sampled at the immediate time of the study.

This report does not warrant against future operations or conditions, nor does it warrant against extant, or future, conditions of a type or at a location not investigated. Because of the nature of this type of work and the difficulties involved in conducting remediation work, ECS cannot guarantee that the methods or recommendations described in this report will eliminate all potential indoor air quality issues. Since performance of the remediation work is also beyond ECS scope of services, ECS also cannot be held responsible for the execution of the remediation work. The reported microbial levels are only reflective of conditions at the time of this test and that microbial populations can vary over time, depending upon a number of conditions, including environmental factors (i.e., temperature and relative humidity). The work performed in conjunction with this assessment and the data developed is intended as a description of available information at the dates and locations given.

The observations, conclusions, and recommendations pertaining to environmental conditions at the subject site are necessarily limited to conditions observed, and/or materials reviewed at the time this study was undertaken. No warranty, expressed or implied, is made with regard to the conclusions

and recommendations presented within this report. This report is provided for the exclusive use of the client. This report is not intended to be used or relied upon in connection with other projects or by other unidentified third parties without the written consent of ECS and the client.

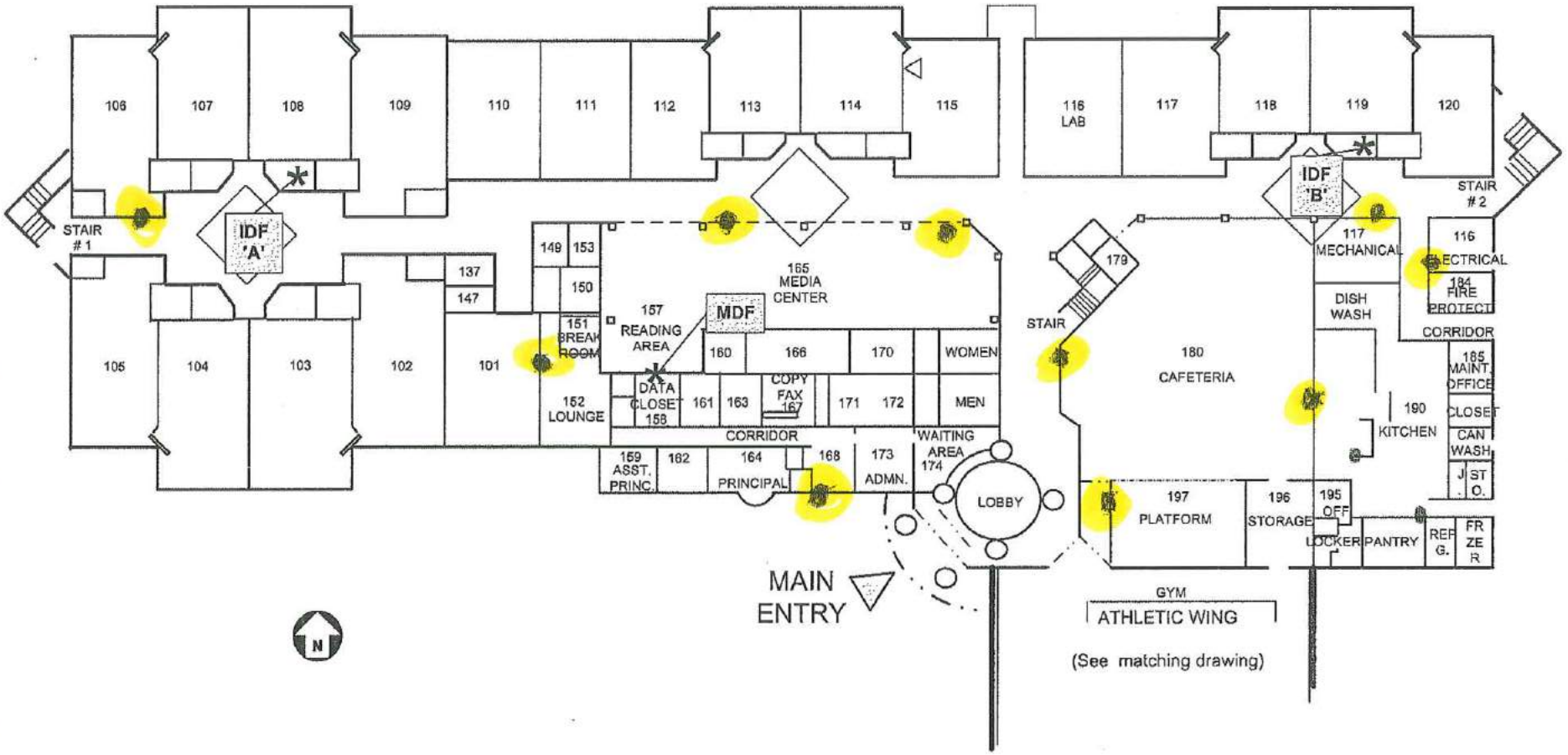
Our recommendations are in part based on federal, state, and local regulations and guidelines. ECS does not assume the responsibility of the person(s) in charge of the site, or otherwise undertake responsibility for reporting to any local, state, or federal public agencies, any conditions at the site that may present a potential danger to public health, safety, or the environment. Under this scope of services, ECS assumes no responsibility regarding any response actions initiated as a result of these findings. General compliance with regulations and response actions are the sole responsibility of the Client and should be conducted in accordance with local, state, and/or federal requirements.

Appendix I: School Diagram

RICHMOND PUBLIC SCHOOLS
DATA SYSTEMS CONNECTIONS AND FLOOR PLAN LAYOUT

BLACKWELL

GROUND FLOOR



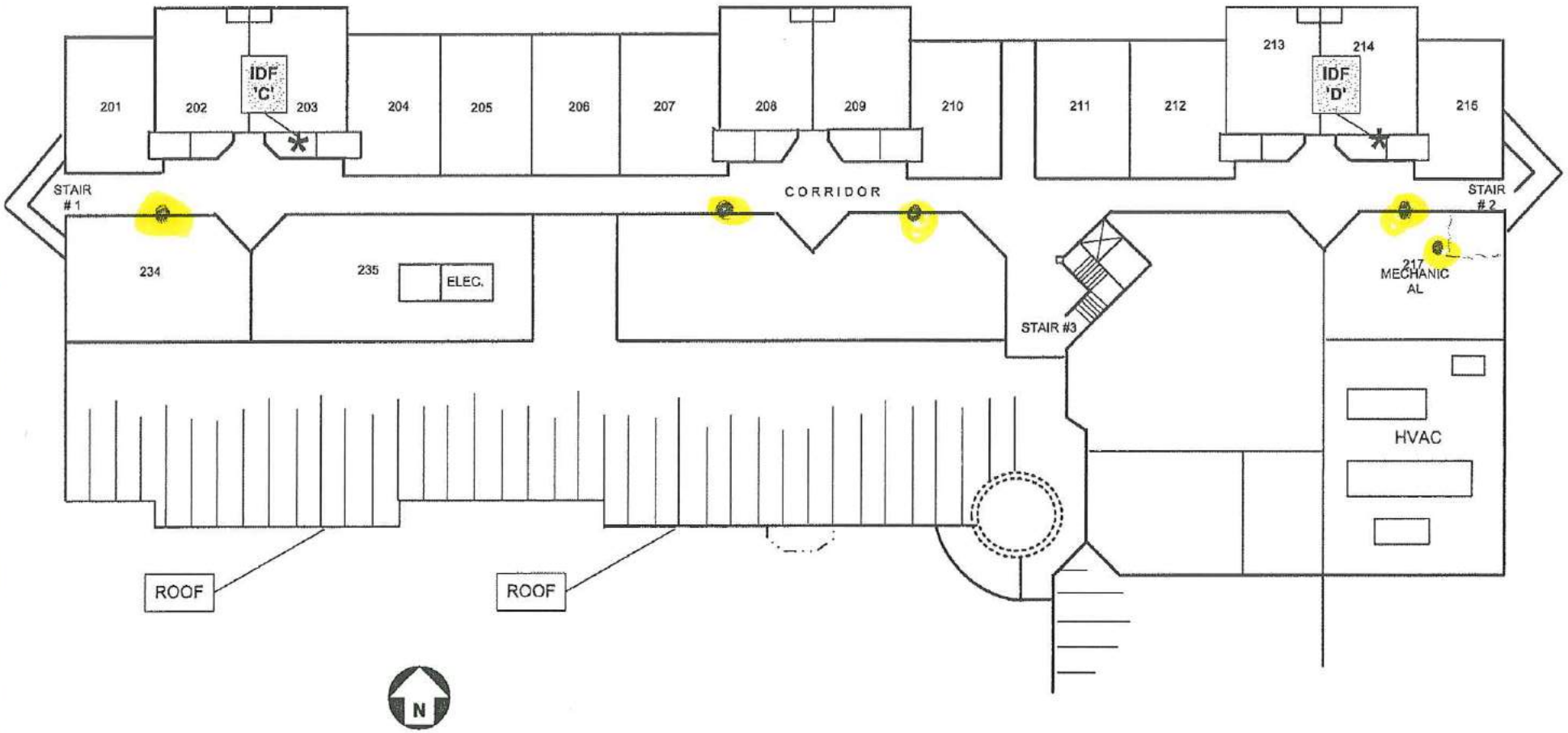
Prepared: May 5, 2000
Updated: August 18, 2008
File Name: BLACKWELL SCHOOL. DATA SYS.GROUND FLOOR LAYOUT 08182008.vsd

Fire Extinguisher Location

RICHMOND PUBLIC SCHOOLS
DATA SYSTEMS CONNECTIONS AND FLOOR PLAN LAYOUT

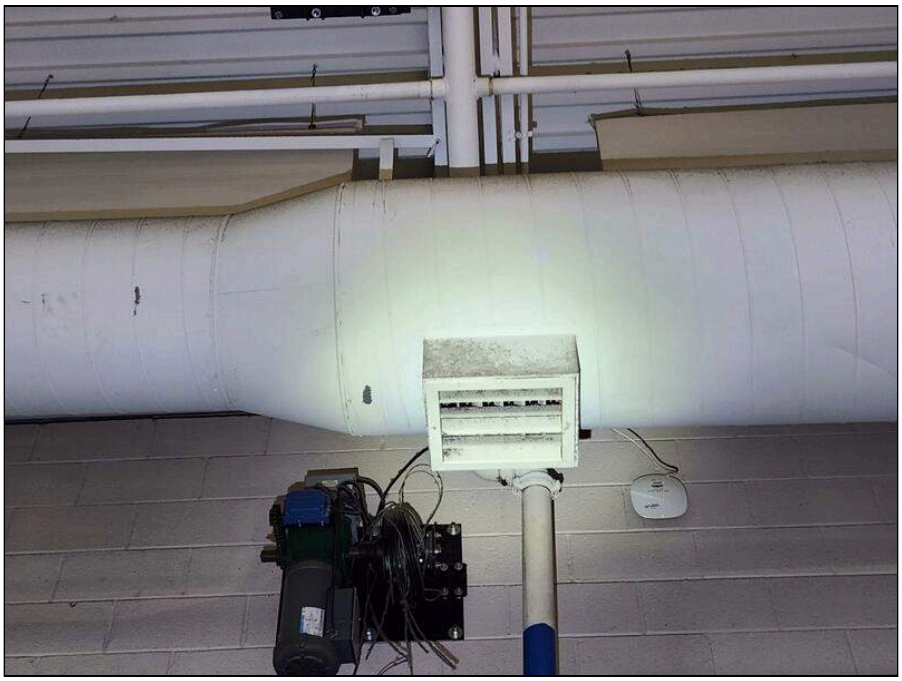
BLACKWELL

SECOND FLOOR

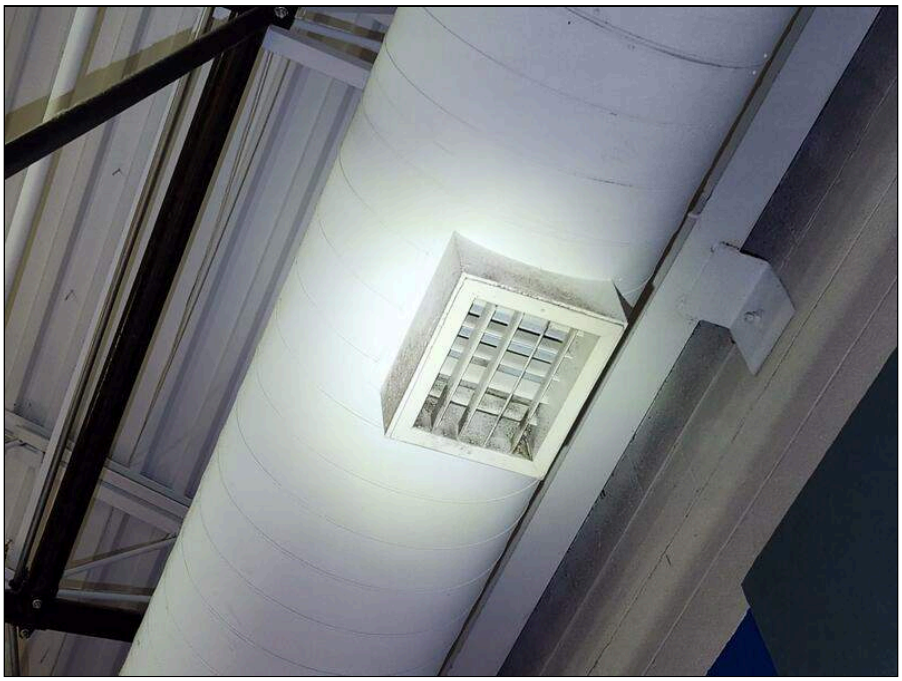


Prepared: May 9, 2000
Updated: August 18, 2008
File Name: BLACKWELL SCHOOL DATA SYS. SECOND FLOOR LAYOUT 08182008.vsd

Appendix II: Mold and Moisture Photos



1 - Mold on the HVAC Main Trunk Line Diffusers in The Gym



2 - Mold on the HVAC Main Trunk Line Diffusers in The Gym

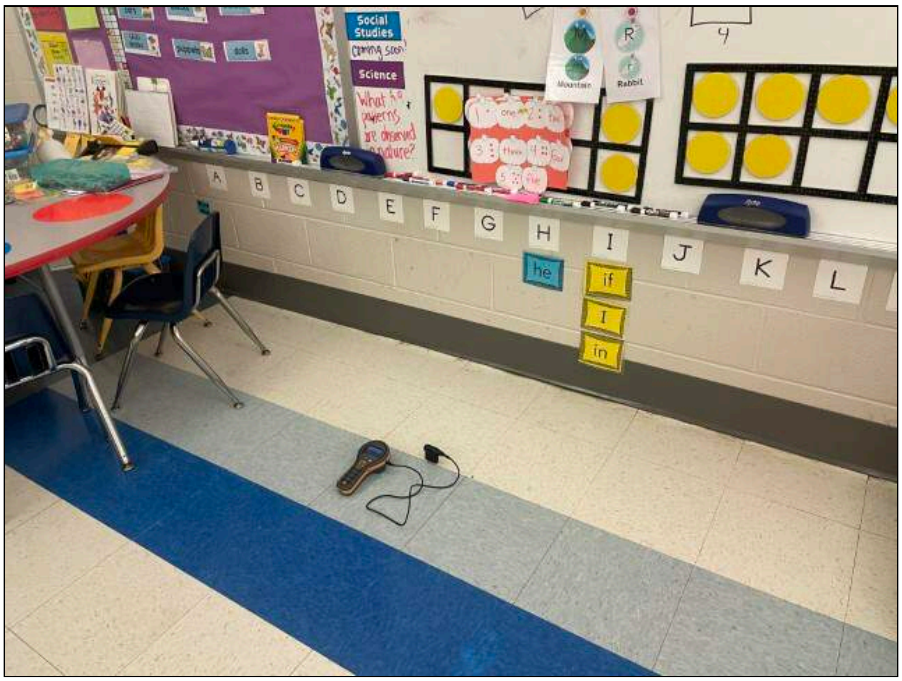
3 - Mold on the Diffusers in the Gym Equipment Storage Cage

4 - Dust Accumulation and Suspect Mold on the Stage Diffusers

5 - Elevated Relative Moisture Meter reading Beneath the Sink in the Office Break Room

6 - Mold observed within the back of a refrigerator in Room 235

7 - The refrigerator in Room 235 with mold in the back

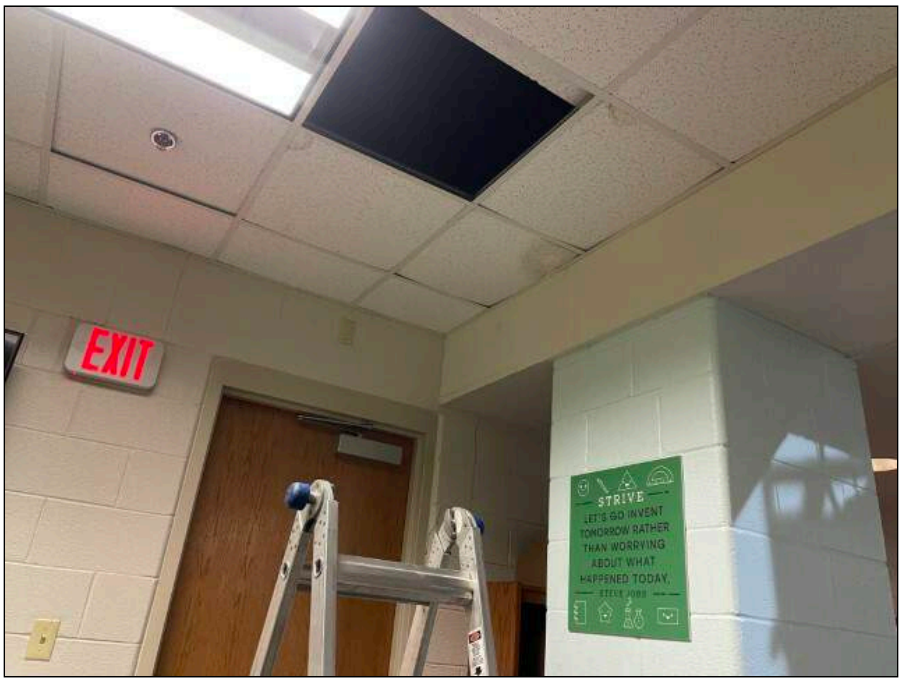


8 - Damaged Floor Tile Along the North Perimeter Wall in Room 105

9 - Elevated Moisture Meter Reading From Floor Tile in Room 105

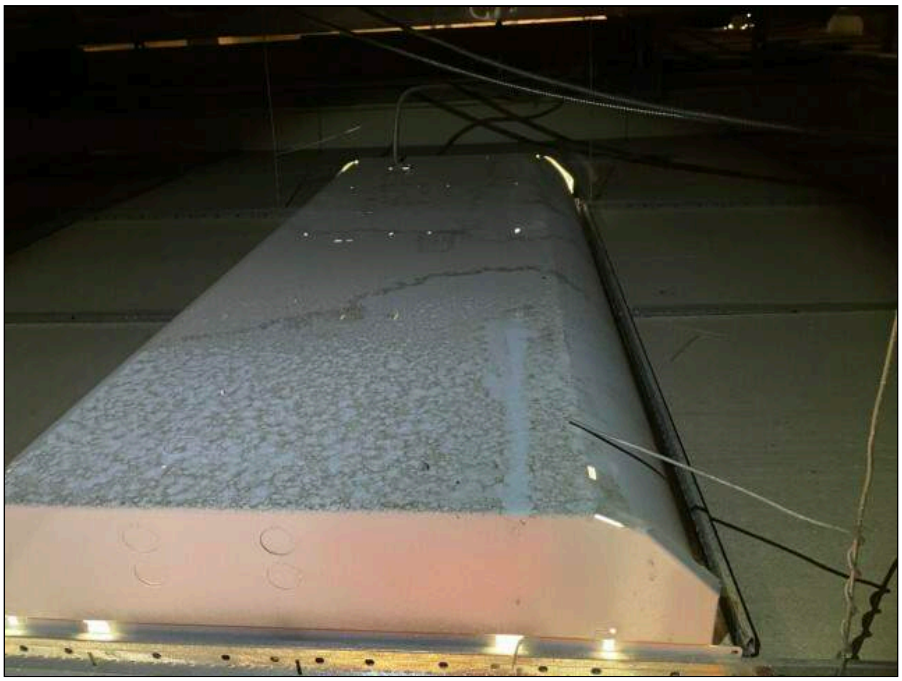
10 - Elevated Relative Moisture Meter Reading at the back door in Room 118

11 - Lower Moisture Meter Reading in the Middle of Room 118 Relative to elevated Reading by the Back Door



12 - Moisture Stained Ceiling Tile in the NE Corner of the Media Center

13 - Moisture Damaged Drywall Above the Ceiling in the NE Corner of the Media Center



14 - Moisture Staining on a Light Fixture in the NE Corner of the Media Center

15 - Staining Possibly Indicating Moisture Intrusion Above the Metal Roof Deck in the Media Center

Appendix III: Mold Laboratory Report(s)

Non-Viable Spore Trap Analysis Report

Environmental Hazards Services, L.L.C.
7469 Whitepine Rd
Richmond, VA 23237

Telephone: 800.347.4010

Client: ECS Mid-Atlantic - Richmond
2119 D North Hamilton St
Richmond, VA 23230

Report Number: 23-10-02596

Received Date: 10/17/2023
Analyzed Date: 10/23/2023, 10/24/2023
Reported Date: 10/25/2023

Project/Test Address: RPS Blackwell Elementary

Client Number:
200625

Fax Number:
804-353-9478

Laboratory Results

Lab # :	23-10-02596-001		23-10-02596-002		23-10-02596-003		23-10-02596-004		23-10-02596-005	
Client Sample ID :	3721-9122		3721-9116		3722-4707		3721-9180		3722-4684	
Date Collected :	10/16/2023		10/16/2023		10/16/2023		10/16/2023		10/16/2023	
Collection Location :	OUTSIDE MAIN ENTRANCE WEST SIDE		OFFICE WAITING AREA		OFFICE NORTHWEST END OF HALL		MEDIA CENTER		CLASSROOM 101	
Sampling Media :	Air-O-Cell		Air-O-Cell		Air-O-Cell		Air-O-Cell		Air-O-Cell	
Analytical Sensitivity (spores/m3) :	6.7		6.7		6.7		6.7		6.7	
Volume (L) :	150		150		150		150		150	
Spore ID	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**
Cladosporium spores	120	800	31	210	7	47	2	13		
Penicillium/Aspergillus group spores	28	190	3	20	2	13	1	6.7	1	6.7
Alternaria spores	2	13								
Aureobasidium spores	2	13	2	13	2	13	1	6.7		
Drechslera/Bipolaris group spores			2	13	3	20				
Curvularia spores	1	6.7	7	47	3	20	1	6.7		
Torula spores	4	27								
Chaetomium spores			1	6.7						
Pithomyces spores			3	20	1	6.7				
Epicoccum spores	4	27	2	13	1	6.7				
Pestalotia spores	3	20								
Fusarium spores	1	6.7								
smuts, Periconia, myxomycetes	16	110	40	270	1	6.7				
Bispora spores			2	13						
TOTAL SPORES(Spores/m3)		**1200**		**620**		**130**		**33**		**6.7**
Analyst:	Kitana Usher		Kitana Usher		Kitana Usher		Kitana Usher		Kitana Usher	

Non-Viable Spore Trap Analysis Report

Environmental Hazards Services, L.L.C.
7469 Whitepine Rd
Richmond, VA 23237

Telephone: 800.347.4010

Report Number: 23-10-02596

Received Date: 10/17/2023
Analyzed Date: 10/23/2023, 10/24/2023
Reported Date: 10/25/2023

Client: ECS Mid-Atlantic - Richmond
2119 D North Hamilton St
Richmond, VA 23230

Project/Test Address: RPS Blackwell Elementary

Client Number:
200625

Fax Number:
804-353-9478

Laboratory Results

Lab # :	23-10-02596-006		23-10-02596-007		23-10-02596-008		23-10-02596-009		23-10-02596-010	
Client Sample ID :	3722-4689		3722-4686		3722-4690		3721-9121		3721-9118	
Date Collected :	10/16/2023		10/16/2023		10/16/2023		10/16/2023		10/16/2023	
Collection Location :	CLASSROOM 102		CLASSROOM 103		CLASSROOM 104		CLASSROOM 105		CLASSROOM 106	
Sampling Media :	Air-O-Cell		Air-O-Cell		Air-O-Cell		Air-O-Cell		Air-O-Cell	
Analytical Sensitivity (spores/m3) :	6.7		6.7		6.7		6.7		6.7	
Volume (L) :	150		150		150		150		150	
Spore ID	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**
Cladosporium spores	1	6.7	4	27	1	6.7	5	33	19	130
Penicillium/Aspergillus group spores	4	27	4	27	1	6.7			1	6.7
Curvularia spores									1	6.7
Pithomyces spores			1	6.7					1	6.7
smuts, Periconia, myxomycetes	2	13			4	27			2	13
Bispora spores					1	6.7				
TOTAL SPORES(Spores/m3)		**47**		**60**		**47**		**33**		**160**
Analyst:	Kitana Usher		Kitana Usher		Kitana Usher		Kitana Usher		Kitana Usher	

Non-Viable Spore Trap Analysis Report

Environmental Hazards Services, L.L.C.
7469 Whitepine Rd
Richmond, VA 23237

Telephone: 800.347.4010

Client: ECS Mid-Atlantic - Richmond
2119 D North Hamilton St
Richmond, VA 23230

Report Number: 23-10-02596

Received Date: 10/17/2023
Analyzed Date: 10/23/2023, 10/24/2023
Reported Date: 10/25/2023

Project/Test Address: RPS Blackwell Elementary

Client Number:
200625

Fax Number:
804-353-9478

Laboratory Results

Lab # :	23-10-02596-011		23-10-02596-012		23-10-02596-013		23-10-02596-014		23-10-02596-015	
Client Sample ID :	3721-9123		3722-4697		3721-9132		3722-4681		3722-4688	
Date Collected :	10/16/2023		10/16/2023		10/16/2023		10/16/2023		10/16/2023	
Collection Location :	CLASSROOM 107		CLASSROOM 108		CLASSROOM 109		CLASSROOM 110		CLASSROOM 111	
Sampling Media :	Air-O-Cell		Air-O-Cell		Air-O-Cell		Air-O-Cell		Air-O-Cell	
Analytical Sensitivity (spores/m3) :	6.7		6.7		6.7		6.7		6.7	
Volume (L) :	150		150		150		150		150	
Spore ID	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**
Cladosporium spores	22	150	1	6.7	8	53	8	53	1	6.7
Penicillium/Aspergillus group spores	2	13					3	20	4	27
Aureobasidium spores					1	6.7				
Drechslera/Bipolaris group spores	1	6.7					1	6.7		
Curvularia spores	1	6.7							1	6.7
Pithomyces spores	1	6.7					1	6.7		
smuts, Periconia, myxomycetes	4	27	1	6.7	3	20	4	27	1	6.7
TOTAL SPORES(Spores/m3)		**210**		**13**		**80**		**110**		**47**
Analyst:	Kitana Usher		Kitana Usher		Kitana Usher		Felicia Butler		Felicia Butler	

Non-Viable Spore Trap Analysis Report

Environmental Hazards Services, L.L.C.
7469 Whitepine Rd
Richmond, VA 23237

Telephone: 800.347.4010

Report Number: 23-10-02596

Received Date: 10/17/2023
Analyzed Date: 10/23/2023, 10/24/2023
Reported Date: 10/25/2023

Client: ECS Mid-Atlantic - Richmond
2119 D North Hamilton St
Richmond, VA 23230

Project/Test Address: RPS Blackwell Elementary

Client Number:
200625

Fax Number:
804-353-9478

Laboratory Results

Lab # :	23-10-02596-016		23-10-02596-017		23-10-02596-018		23-10-02596-019		23-10-02596-020	
Client Sample ID :	3721-9157		3721-9138		3722-4685		3722-4703		3721-9189	
Date Collected :	10/16/2023		10/16/2023		10/16/2023		10/16/2023		10/16/2023	
Collection Location :	CLASSROOM 112		CLASSROOM 113		CLASSROOM 114		CLASSROOM 115		CLASSROOM 116	
Sampling Media :	Air-O-Cell		Air-O-Cell		Air-O-Cell		Air-O-Cell		Air-O-Cell	
Analytical Sensitivity (spores/m3) :	6.7		6.7		6.7		6.7		6.7	
Volume (L) :	150		150		150		150		150	
Spore ID	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**
Cladosporium spores	2	13					3	20	4	27
Penicillium/Aspergillus group spores			1	6.7	1	6.7	3	20	1	6.7
Curvularia spores							1	6.7		
Stachybotrys spores									2	13
Pithomyces spores							1	6.7		
smuts, Periconia, myxomycetes			4	27			4	27	5	33
Bispora spores			1	6.7						
TOTAL SPORES(Spores/m3)		**13**		**40**		**6.7**		**80**		**80**
Analyst:	Felicia Butler		Felicia Butler		Felicia Butler		Felicia Butler		Felicia Butler	

Non-Viable Spore Trap Analysis Report

Environmental Hazards Services, L.L.C.
7469 Whitepine Rd
Richmond, VA 23237

Telephone: 800.347.4010

Client: ECS Mid-Atlantic - Richmond
2119 D North Hamilton St
Richmond, VA 23230

Report Number: 23-10-02596

Received Date: 10/17/2023
Analyzed Date: 10/23/2023, 10/24/2023
Reported Date: 10/25/2023

Project/Test Address: RPS Blackwell Elementary

Client Number:
200625

Fax Number:
804-353-9478

Laboratory Results

Lab # :	23-10-02596-021		23-10-02596-022		23-10-02596-023		23-10-02596-024		23-10-02596-025	
Client Sample ID :	3721-9133		3722-4670		3722-4669		3721-9131		3721-9139	
Date Collected :	10/16/2023		10/16/2023		10/16/2023		10/16/2023		10/16/2023	
Collection Location :	CLASSROOM 117		CLASSROOM 118		CLASSROOM 119		CLASSROOM 120		CAFETERIA	
Sampling Media :	Air-O-Cell		Air-O-Cell		Air-O-Cell		Air-O-Cell		Air-O-Cell	
Analytical Sensitivity (spores/m3) :	6.7		6.7		6.7		6.7		6.7	
Volume (L) :	150		150		150		150		150	
Spore ID	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**
Cladosporium spores	7	47	9	60	8	53	6	40	1	6.7
Penicillium/Aspergillus group spores	1	6.7								
Alternaria spores					1	6.7				
Aureobasidium spores					1	6.7				
Drechslera/Bipolaris group spores					3	20				
Arthrinium spores			1	6.7						
Curvularia spores			1	6.7	1	6.7				
Stachybotrys spores	1	6.7								
Pithomyces spores			1	6.7	1	6.7			1	6.7
Epicoccum spores					1	6.7				
smuts, Periconia, myxomycetes			8	53	9	60	1	6.7	4	27
TOTAL SPORES(Spores/m3)		**60**		**130**		**170**		**47**		**40**
Analyst:	Felicia Butler		Felicia Butler		Felicia Butler		Kitana Usher		Kitana Usher	

Non-Viable Spore Trap Analysis Report

Environmental Hazards Services, L.L.C.
7469 Whitepine Rd
Richmond, VA 23237

Telephone: 800.347.4010

Client: ECS Mid-Atlantic - Richmond
2119 D North Hamilton St
Richmond, VA 23230

Report Number: 23-10-02596

Received Date: 10/17/2023
Analyzed Date: 10/23/2023, 10/24/2023
Reported Date: 10/25/2023

Project/Test Address: RPS Blackwell Elementary

Client Number:
200625

Fax Number:
804-353-9478

Laboratory Results

Lab # :	23-10-02596-026									
Client Sample ID :	3721-9129									
Date Collected :	10/16/2023									
Collection Location :	CLASSROOM 201									
Sampling Media :	Air-O-Cell									
Analytical Sensitivity (spores/m3) :	6.7									
Volume (L) :	150									

Spore ID	Raw Count	Results (Spores/m3)	Raw Count	Results (Spores/m3)	Raw Count	Results (Spores/m3)	Raw Count	Results (Spores/m3)	Raw Count	Results (Spores/m3)
Cladosporium spores	7	47								
Penicillium/Aspergillus group spores	1	6.7								
Aureobasidium spores	1	6.7								
smuts, Periconia, myxomycetes	1	6.7								
TOTAL SPORES(Spores/m3)		**67**								

Analyst: Kitana Usher

Sample Narratives:

(Sample 019) M02: Large amounts of particulate observed.
(Sample 023) M02: Large amounts of particulate observed.
(Sample 002) M02: Large amounts of particulate observed.

Client Number: 200625 **Report Number:** 23-10-02596
Project/Test Address: RPS Blackwell Elementary

Method: Non-Culturable Spore Trap Examination

Reviewed By Authorized Signatory: Melissa Kanode

Melissa Kanode
QA/QC Clerk

The condition of the samples analyzed was acceptable upon receipt per laboratory protocol unless otherwise noted on this report. Results represent the analysis of samples submitted by the client. Sample location, description, volume, etc., was provided by the client. The Client is hereby notified that due to the subjective nature of fungal analysis and the growth process of fungal infestation, laboratory samples can and do change over time relative to the originally sampled material. This report shall not be reproduced except in full, without the written consent of Environmental Hazards Services, L.L.C.

ENVIRONMENTAL HAZARDS SERVICES, LLC

Mold Chain of Custody Form

Company Name	ECS Mid-Atlantic	Account #	
Company Address	2119 North Hamilton Street	City/State/Zip	Richmond/VA/23230
Phone	804-353-6333	Email	rcurran@ecslimited.com
Project / Testing Address	RPS Blackwell Elementary		
PO Number	47:14153 - B	Collected By	Rob Curran
Collection Date & Time	10/16/2023	Outside Air Temp	Indoor Air Temp
Was there any precipitation (rain, sleet or snow) 2 hours of less before taking the samples?	☐ Yes	☑ No	

Turn-Around Time: ◉ 5 Day ○ 3 Day ○ 2 Day ○ 1 Day ○ Same Day / Weekend - Must Call Ahead

SAMPLE TYPE CODES

AIR/ NON VIABLE		SPORE TRAP		SWAB SAMPLE SURFACE	
Bulk	B	Air-O-Cell	AOC	Non Porous	NP
Swab	S	Cyclex D	C	Semi Porous	SP
Bio-Tape	T	BioSiS	B	Porous	P
Wall Check	W	Micro 5	M5		

LAB NUMBER	Client Sample ID	Collection Location	Sample Type	Air Samples: Spore Trap Type	Air Samples: Air Volume (Total Liter)	Swab Samples: Surface Type (NP/SP)	Swab Samples: Area of Mold (Square Feet)	Qualitative Particulate Analysis Additional $10.00 per sample	Comments
1	3721-9122	Outside, main entrance, west side		AOC	150				
2	3721-9116	Office, waiting area		AOC	150				
3	3722-4707	Office, northwest end of hall		AOC	150				
4	3721-9180	Media center		AOC	150				
5	3722-4684	Classroom 101		AOC	150				
6	3722-4689	Classroom 102		AOC	150				
7	3722-4686	Classroom 103		AOC	150				
8	3722-4690	Classroom 104		AOC	150				
9	3721-9121	Classroom 105		AOC	150				
10	3721-9118	Classroom 106		AOC	150				
11	3721-9123	Classroom 107		AOC	150				
12	3722-4697	Classroom 108		AOC	150				
13	3721-9132	Classroom 109		AOC	150				

Released By:	Anarke R. Saute	Date:	10/17/2023	Time:	2:58pm
Signature:					

LAB USE ONLY – BELOW THIS LINE

Received By: DBowen

Signature: KB

Date: 10.17.23 Time: 3:13 ☐ AM ☐ PM

☐ Portal Contact Added

23-10-02596

Due Date:
10/24/2023
(Tuesday)
ER

7469 WHITEPINE RD, RICHMOND, VA 23237 (800)-347-4010

RESULTS VIA CLIENT PORTAL AVAILABLE @ www.leadlab.com

ENVIRONMENTAL HAZARDS SERVICES, LLC

Mold Chain of Custody Form

Company Name	ECS Mid-Atlantic	Account #	
Company Address	2119 North Hamilton Street	City/State/Zip	Richmond/VA/23230
Phone	804-353-6333	Email	rcurran@ecslimited.com
Project / Testing Address			
PO Number	47:14153 - B	Collected By	Rob Curran
Collection Date & Time	10/16/2023	Outside Air Temp	Indoor Air Temp
Was there any precipitation (rain, sleet or snow) 2 hours of less before taking the samples?	☐ Yes	☑ No	

Turn-Around Time ○ 5 Day ○ 3 Day ○ 2 Day ○ 1 Day ○ Same Day / Weekend - Must Call Ahead

SAMPLE TYPE CODES

AIR/ NON VIABLE		SPORE TRAP		SWAB SAMPLE SURFACE	
Bulk	B	Air-O-Cell	AOC	Non Porous	NP
Swab	S	Cyclex D	C	Semi Porous	SP
Bio-Tape	T	BioSiS	B	Porous	P
Wall Check	W	Micro 5	M5		

LAB NUMBER	Client Sample ID	Collection Location	Sample Type	Air Samples: Spore Trap Type	Air Samples: Air Volume (Total Liter)	Swab Samples: Surface Type (NP/SP)	Swab Samples: Area of Mold (Square Feet)	Qualitative Particulate Analysis Additional $10.00 per sample	Comments
1	3722-4681	Classroom 110		AOC	150				
2	3722-4688	Classroom 111		AOC	150				
3	3721-9157	Classroom 112		AOC	150				
4	3721-9138	Classroom 113		AOC	150				
5	3722-4685	Classroom 114		AOC	150				
6	3722-4703	Classroom 115		AOC	150				
7	3721-9189	Classroom 116		AOC	150				
8	3721-9133	Classroom 117		AOC	150				
9	3722-4670	Classroom 118		AOC	150				
10	3722-4669	Classroom 119		AOC	150				
11	3721-9131	Classroom 120		AOC	150				
12	3721-9139	Cafeteria		AOC	150				
13	3721-9129	Classroom 201		AOC	150				

Released By:		Date:		Time:	
Signature:					

LAB USE ONLY – BELOW THIS LINE

Received By: D Bowen

Signature: LR

Date: 10/17/23 Time: 313 ☐ AM ☑ PM

☐ Portal Contact Added

25916

EHS Laboratories™

Attach Laboratory Label Here

7469 WHITEPINE RD, RICHMOND, VA 23237 (800)-347-4010

RESULTS VIA CLIENT PORTAL AVAILABLE @ www.leadlab.com

Non-Viable Spore Trap Analysis Report

Environmental Hazards Services, L.L.C.
7469 Whitepine Rd
Richmond, VA 23237

Telephone: 800.347.4010

Report Number: 23-10-02978

Received Date: 10/17/2023
Analyzed Date: 10/23/2023
Reported Date: 10/24/2023

Client: ECS Mid-Atlantic - Richmond
2119 D North Hamilton St
Richmond, VA 23230

Project/Test Address: RPS Blackwell Elementary

Client Number:
200625

Fax Number:
804-353-9478

Laboratory Results

Lab # :	23-10-02978-001		23-10-02978-002		23-10-02978-003		23-10-02978-004		23-10-02978-005	
Client Sample ID :	3721-9197		3721-9153		3721-9150		3721-9156		3721-9173	
Date Collected :	10/16/2023		10/16/2023		10/16/2023		10/16/2023		10/16/2023	
Collection Location :	CLASSROOM 202		CLASSROOM 203		OUTSIDE MAIN ENTRANCE		CLASSROOM 204		CLASSROOM 205	
Sampling Media :	Air-O-Cell		Air-O-Cell		Air-O-Cell		Air-O-Cell		Air-O-Cell	
Analytical Sensitivity (spores/m3) :	6.7		6.7		6.7		6.7		6.7	
Volume (L) :	150		150		150		150		150	
Spore ID	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**
Cladosporium spores	5	33	3	20	57	380	3	20		
Penicillium/Aspergillus group spores			3	20	28	190			3	20
Alternaria spores					1	6.7				
Drechslera/Bipolaris group spores			2	13	1	6.7				
Arthrinium spores					1	6.7				
Curvularia spores			7	47	3	20			1	6.7
Torula spores					1	6.7				
Pithomyces spores			3	20						
Epicoccum spores			2	13			1	6.7		
Cercospora spores					1	6.7				
smuts, Periconia, myxomycetes			20	130	17	110	2	13	3	20
TOTAL SPORES(Spores/m3)		**33**		**270**		**730**		**40**		**47**
Analyst:	Kathy Fletcher		Kathy Fletcher		Kathy Fletcher		Kathy Fletcher		Kathy Fletcher	

Non-Viable Spore Trap Analysis Report

Environmental Hazards Services, L.L.C.
7469 Whitepine Rd
Richmond, VA 23237

Telephone: 800.347.4010

Report Number: 23-10-02978

Received Date: 10/17/2023
Analyzed Date: 10/23/2023
Reported Date: 10/24/2023

Client: ECS Mid-Atlantic - Richmond
2119 D North Hamilton St
Richmond, VA 23230

Project/Test Address: RPS Blackwell Elementary

Client Number:
200625

Fax Number:
804-353-9478

Laboratory Results

Lab # :	23-10-02978-006		23-10-02978-007		23-10-02978-008		23-10-02978-009		23-10-02978-010	
Client Sample ID :	3721-9168		3721-9202		3721-9185		3721-9200		3721-9193	
Date Collected :	10/16/2023		10/16/2023		10/16/2023		10/16/2023		10/16/2023	
Collection Location :	CLASSROOM 206		CLASSROOM 207		CLASSROOM 208		CLASSROOM 209		CLASSROOM 210	
Sampling Media :	Air-O-Cell		Air-O-Cell		Air-O-Cell		Air-O-Cell		Air-O-Cell	
Analytical Sensitivity (spores/m3) :	6.7		6.7		6.7		6.7		6.7	
Volume (L) :	150		150		150		150		150	
Spore ID	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**
Cladosporium spores	5	33	2	13	2	13			3	20
Penicillium/Aspergillus group spores	1	6.7	3	20	5	33	3	20	1	6.7
Drechslera/Bipolaris group spores									1	6.7
Pithomyces spores	1	6.7	2	13			1	6.7		
smuts, Periconia, myxomycetes			5	33	1	6.7			1	6.7
Bispora spores			1	6.7						
TOTAL SPORES(Spores/m3)		**47**		**87**		**53**		**27**		**40**
Analyst:	Kathy Fletcher		Kathy Fletcher		Kathy Fletcher		Kathy Fletcher		Kathy Fletcher	

Non-Viable Spore Trap Analysis Report

Environmental Hazards Services, L.L.C.
7469 Whitepine Rd
Richmond, VA 23237

Telephone: 800.347.4010

Report Number: 23-10-02978

Received Date: 10/17/2023
Analyzed Date: 10/23/2023
Reported Date: 10/24/2023

Client: ECS Mid-Atlantic - Richmond
2119 D North Hamilton St
Richmond, VA 23230

Project/Test Address: RPS Blackwell Elementary

Client Number:
200625

Fax Number:
804-353-9478

Laboratory Results

Lab # :	23-10-02978-011		23-10-02978-012		23-10-02978-013		23-10-02978-014		23-10-02978-015	
Client Sample ID :	3721-9148		3721-9187		3721-9160		3721-9147		3721-9144	
Date Collected :	10/16/2023		10/16/2023		10/16/2023		10/16/2023		10/16/2023	
Collection Location :	CLASSROOM 211		CLASSROOM 212		CLASSROOM 213		CLASSROOM 214		CLASSROOM 215	
Sampling Media :	Air-O-Cell		Air-O-Cell		Air-O-Cell		Air-O-Cell		Air-O-Cell	
Analytical Sensitivity (spores/m3) :	6.7		6.7		6.7		6.7		6.7	
Volume (L) :	150		150		150		150		150	
Spore ID	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**
Cladosporium spores			3	20	2	13			4	27
Penicillium/Aspergillus group spores	6	40	4	27	2	13			3	20
Nigrospora spores					1	6.7				
smuts, Periconia, myxomycetes	1	6.7			2	13				
No fungal spores observed								See Notes		
TOTAL SPORES(Spores/m3)		**47**		**47**		**47**				**47**
Analyst:	Kathy Fletcher		Kathy Fletcher		Kathy Fletcher		Kathy Fletcher		Kathy Fletcher	

Notes (Sample 014): No fungal spores observed

Non-Viable Spore Trap Analysis Report

Environmental Hazards Services, L.L.C.
7469 Whitepine Rd
Richmond, VA 23237

Telephone: 800.347.4010

Client: ECS Mid-Atlantic - Richmond
2119 D North Hamilton St
Richmond, VA 23230

Report Number: 23-10-02978

Received Date: 10/17/2023
Analyzed Date: 10/23/2023
Reported Date: 10/24/2023

Project/Test Address: RPS Blackwell Elementary

Client Number:
200625

Fax Number:
804-353-9478

Laboratory Results

Lab # :	23-10-02978-016		23-10-02978-017		23-10-02978-018		23-10-02978-019		23-10-02978-020	
Client Sample ID :	3721-9146		3721-9143		3721-9142		3722-4687		3721-9155	
Date Collected :	10/16/2023		10/16/2023		10/16/2023		10/16/2023		10/16/2023	
Collection Location :	2ND FLOOR CLASSROOMS HALL		1ST FLOOR CLASSROOMS HALL		GYMNASIUM		ROOM 235		OUTSIDE MAIN ENTRANCE	
Sampling Media :	Air-O-Cell		Air-O-Cell		Air-O-Cell		Air-O-Cell		Air-O-Cell	
Analytical Sensitivity (spores/m3) :	6.7		6.7		6.7		6.7		6.7	
Volume (L) :	150		150		150		150		150	
Spore ID	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**
Cladosporium spores	6	40	1	6.7	7	47			79	530
Penicillium/Aspergillus group spores	6	40	1	6.7	3	20	107	710	22	150
Drechslera/Bipolaris group spores			1	6.7						
Curvularia spores			1	6.7	3	20			1	6.7
Pithomyces spores									1	6.7
smuts, Periconia, myxomycetes	7	47	8	53	8	53			31	210
TOTAL SPORES(Spores/m3)		**130**		**80**		**140**		**710**		**890**
Analyst:	Kathy Fletcher		Kathy Fletcher		Kathy Fletcher		Kitana Usher		Kathy Fletcher	

Method: Non-Culturable Spore Trap Examination

Reviewed By Authorized Signatory: Melissa Kanode

Melissa Kanode
QA/QC Clerk

ENVIRONMENTAL HAZARDS SERVICES, LLC

Mold Chain of Custody Form

Company Name	ECS Mid-Atlantic	Account #	
Company Address	2119 North Hamilton Street	City/State/Zip	Richmond/VA/23230
Phone	804-353-6333	Email	rcurran@ecslimited.com
Project / Testing Address			
PO Number	47:14153 - B	Collected By	Rob Curran
Collection Date & Time	10/16/2023	Outside Air Temp	
Indoor Air Temp			

Was there any precipitation (rain, sleet or snow) 2 hours of less before taking the samples? ☐ Yes ☑ No

Turn-Around Time ◯ 5 Day ◯ 3 Day ◯ 2 Day ◯ 1 Day ◯ Same Day / Weekend - Must Call Ahead

SAMPLE TYPE CODES

AIR/ NON VIABLE		SPORE TRAP		SWAB SAMPLE SURFACE	
Bulk	B	Air-O-Cell	AOC	Non Porous	NP
Swab	S	Cyclex D	C	Semi Porous	SP
Bio-Tape	T	BioSiS	B	Porous	P
Wall Check	W	Micro 5	M5		

LAB NUMBER	Client Sample ID	Collection Location	Sample Type	Air Samples: Spore Trap Type	Air Samples: Air Volume (Total Liter)	Swab Samples: Surface Type (NP/SP)	Swab Samples: Area of Mold (Square Feet)	Qualitative Particulate Analysis Additional $10.00 per sample	Comments
1	3721-9197	Classroom 202		AOC	150				
2	3721-9153	Classroom 203		AOC	150				
3	3721-9150	Outside, main entrance		AOC	150				
4	3721-9156	Classroom 204		AOC	150				
5	3721-9173	Classroom 205		AOC	150				
6	3721-9168	Classroom 206		AOC	150				
7	3721-9202	Classroom 207		AOC	150				
8	3721-9185	Classroom 208		AOC	150				
9	3721-9200	Classroom 209		AOC	150				
10	3721-9193	Classroom 210		AOC	150				
11	3721-9148	Classroom 211		AOC	150				
12	3721-9187	Classroom 212		AOC	150				
13	3721-9160	Classroom 213		AOC	150				

Released By:		Date:		Time:	
Signature:					

LAB USE ONLY – BELOW THIS LINE

Received By: DBowen

Signature: KB

Date: 10/17/23 Time: 3:13 ☐ AM ☐ PM

☐ Portal Contact Added

23-10-02978

Due Date:
10/24/2023
(Tuesday)
ER

7469 WHITEPINE RD, RICHMOND, VA 23237 (800)-347-4010

RESULTS VIA CLIENT PORTAL AVAILABLE @ www.leadlab.com

ENVIRONMENTAL HAZARDS SERVICES, LLC

Mold Chain of Custody Form

Company Name	ECS Mid-Atlantic	Account #	
Company Address	2119 North Hamilton Street	City/State/Zip	Richmond/VA/23230
Phone	804-353-6333	Email	rcurran@ecslimited.com
Project / Testing Address			
PO Number	47:14153 - B	Collected By	Rob Curran
Collection Date & Time	10/16/2023	Outside Air Temp	Indoor Air Temp

Was there any precipitation (rain, sleet or snow) 2 hours of less before taking the samples? ☐ Yes ☑ No

Turn-Around Time ○ 5 Day ○ 3 Day ○ 2 Day ○ 1 Day ○ Same Day / Weekend - Must Call Ahead

SAMPLE TYPE CODES

AIR/ NON VIABLE		SPORE TRAP		SWAB SAMPLE SURFACE	
Bulk	B	Air-O-Cell	AOC	Non Porous	NP
Swab	S	Cyclex D	C	Semi Porous	SP
Bio-Tape	T	BioSiS	B	Porous	P
Wall Check	W	Micro 5	M5		

LAB NUMBER	Client Sample ID	Collection Location	Sample Type	Air Samples: Spore Trap Type	Air Samples: Air Volume (Total Liter)	Swab Samples: Surface Type (NP/SP)	Swab Samples: Area of Mold (Square Feet)	Qualitative Particulate Analysis Additional $40.00 per sample	Comments
1	3721-9147	Classroom 214		AOC	150				
2	3721-9144	Classroom 215		AOC	150				
3	N/A	Sample corrupt, not submitted		AOC	150				
4	3721-9146	2nd floor classrooms hall		AOC	150				
5	3721-9143	1st floor classrooms hall		AOC	150				
6	3721-9142	Gymnasium		AOC	150				
7	3722-4687	Room 235		AOC	150				
8	3721-9155	Outside, main entrance		AOC	150				
9				AOC	150				
10				AOC	150				
11				AOC	150				
12				AOC	150				
13				AOC	150				

Released By:		Date:		Time:	
Signature:					

LAB USE ONLY – BELOW THIS LINE

Received By: D Bowen

Signature: KBo

Date: 10/17/23 Time: 3:13 ☐ AM ☑ PM

☐ Portal Contact Added

~~2596~~ KB

EHS Laboratories™

Attach Laboratory Label Here

2978

7469 WHITEPINE RD, RICHMOND, VA 23237 (800)-347-4010

RESULTS VIA CLIENT PORTAL AVAILABLE @ www.leadlab.com

Appendix IV: Mold Reference and Guidance Documents

MOLD REFERENCE DOCUMENTS AND GUIDANCE

Standards and Publications

Mold Remediation in Schools and Commercial Buildings, EPA, EPA 402-K-01-001, September 2008

A Brief Guide to Mold in the Workplace, Occupational Safety Health Administration (OSHA), SHIB 03-10-10, updated 11-08-13

ANSI/IICRC S520-2015 Standard and Reference Guide for Professional Mold Remediation, Institute of Inspection, Cleaning, and Restoration Certification, Third Edition

ANSI/IICRC S500-2021 Standard and Reference Guide for Professional Water Damage Restoration, Institute of Inspection, Cleaning, and Restoration Certification, Fifth Edition

Bioaerosols: Assessment and Control, American Conference of Governmental Industrial Hygienists, 1999.

Building Air Quality: A Guide for Building Owners and Facility Managers, National Institute for Occupational Safety and Health (NIOSH) and Environmental Protection Agency (EPA) EPA 402F-91-102, December 1991

Mold Moisture and Your Home, EPA, EPA-402-K-02-003, September 2012

WHO Guidelines for Indoor Air Quality: Dampness and Mould, World Health Organization (WHO), 2009

Guidelines on Assessment and Remediation of Fungi in Indoor Environments, New York City Department of Health and Mental Hygiene, November 2008.

Damp Buildings, Human Health, and HVAC Design, Report of the ASHRAE Multidisciplinary Task Group: Damp Buildings, American Society of Heating, Refrigerating, and Air Conditioning Engineers, 2020

Websites

EPA – Mold Resources, https://www.epa.gov/mold

Centers for Disease Control and Prevention (CDC), https://www.cdc.gov/mold/faqs.htm

Department of Energy and the Environment (DOEE), Mold Assessment and Remediation Licensure Regulations https://doee.dc.gov/service/mold-professional-licensing

Virginia Department of Health, Environmental Health, Public Health Toxicology, Mold https://www.vdh.virginia.gov/environmental-health/public-health-toxicology/mold/