MOLD AND MOISTURE ASSESSMENT REPORT

HUGUENOT HIGH SCHOOL JROTC ROOMS

7945 FOREST HILL AVE
RICHMOND, VIRGINIA 23225

ECS PROJECT NO. 47:14153-N

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-N

Reference: Mold and Moisture Assessment, Huguenot High School JROTC Rooms, 7945 Forest Hill Ave, 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 Huguenot High School in the JROTC rooms located at 7945 Forest Hill Ave 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 47:47:30369-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

Robert Curran
Environmental Project Manager
rcurran@ecslimited.com
806-246-3457

Christopher J. Chapman, CIH
Director of Industrial Hygiene
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804-353-6333

TABLE OF CONTENTS

PAGE

TABLE OF APPENDICES

1.0 PROJECT DESCRIPTION

The building located at 7945 Forest Hill Ave in Richmond, Virginia is a school building known as Huguenot High School. The building was reportedly originally constructed in 2015. The scope of the survey was limited to the JROTC classrooms, storage rooms, offices and armory as depicted in the highlighted diagram in the appendices of this report as requested by the client.

Based on information provided by Richmond Public Schools Facility Services representatives, ECS understands that building occupants have reported mold and moisture concerns in the school to Richmond Public School Facility Services. Richmond Public School Facility Services has requested ECS to conduct a Mold and Moisture Assessment to evaluate these concerns. In addition, ECS was requested to collect samples of suspect asbestos containing materials that are determined to be moisture or mold impacted requiring remediation.

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 and determine if asbestos containing materials are present in the tested areas that may require mold remediation.

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 and asbestos containing 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. 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.

Ambient temperature and relative humidity were measured during the survey using a 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.

ECS measured the moisture content in various building materials in multiple locations within the surveyed areas utilizing a Delmhorst brand hand-held moisture probe (Model BD 2100). Based on the Delmhorst moisture meter scales for materials, moisture levels greater than 0.5% are considered elevated for drywall wallboard materials and are considered at risk for mold growth. Levels greater than 15% for wood materials and greater than 85% for plaster surfaces are considered elevated. 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 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

Room G - 008

- No mold or moisture impacted materials were observed in this classroom.

Room G - 008B (Supply room)

- Supply room was densely packed with items. ECS notes that limited airflow may support mold growth under humid conditions;
- Stained and/or damaged ceiling tiles were observed in the changing area and above the central storage shelf; The cause of the staining was not clear (roof leaks or condensate pipe leaks would be suspected).
- Suspect staining was observed on the outside of a black travel bag located on the bottom of the central storage shelf;

Room G - 007

- Stained ceiling tiles were observed in this room. Upon investigation, ECS observed that the stained ceiling tiles were located directly below an open-ended metal pipe penetrating the floor above. It appears that the moisture impacting the ceiling tiles is coming from the pipe, although the purpose of the pipe and the source of the moisture was not evident at the time of this assessment. The stained materials were determined to be dry at the time of this assessment;
- Carpet by the exterior door may be a harbor for moisture and potentially support mold growth (from general foot traffic and exterior moisture);
- The exterior door did not appear to be well sealed, which may be allowing exchange with outdoor air, and also which may result in moisture intrusion.

Room G - 007B (Gun closet)

- The results for the air sample collected in this room showed a higher spore count of the individual genera *smuts, Periconia, myxomycetes* than the outside comparison samples. Moisture impacted materials or suspect mold were not observed at the time of this assessment. This may be indicative of long term storage of materials and associated buildup of dust and debris and associated mold and disturbance of the stored materials, or normal variation between indoor and outdoor spore counts.

Room G - 007Cb (Storage room)

- Mold or moisture impacted materials were not observed in this area.

Offices (General)

- Mold or moisture impacted materials were not observed in the three faculty offices located within the areas included in this assessment.

Hallway (outside of room G-008)

- An area of several feet of stained/damaged ceiling tiles were observed in the hallway, outside room G-008. Based on information provided to ECS by faculty present during this assessment, it appears the ceiling tiles were impacted due to a domestic water line leak. The leak was reportedly addressed, and the stained materials impacted were dry at the time of this assessment. Suspect staining was also observed on the duct sealant on the duct above this area.

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	Outdoors, door nine by JROTC	240
A2	Room G-008	20
A3	Room G-007	120
A4	Room G-108B, Supply room	210
A5	Room G-107B, Gun closet	440
A6	Outdoors, door nine by JROTC	570

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 total airborne mold spores reported on the outside samples. The fungal genera detected were also generally comparable with fungal genera detected outdoors. A minor elevation was observed in the individual fungal genera *smuts, Periconia, myxomycetes* in the sample collected in storage room G-107B, which was above the levels of the same fungal genera collected on the outside comparison samples. This elevation does not seem significant or indicate an active source of water or mold growth in this area. The concentrations identified seem more indicative of disturbance of mold on dust/debris buildup on stored materials in this room, or just a variation between indoor and outdoor mold counts.

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

All materials tested during this assessment were found to have moisture content within normal ranges for each material. Elevated moisture readings were not identified associated with the materials tested that included the moisture stained ceiling tiles.

[Discuss results here]

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.

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

Temperature and Relative Humidity

Location	Relative Humidity (%)	Temperature (°F)
Outdoors, door nine by JROTC rooms	39.6	32.5
Room G-008	18.3	65.6
Room G-007	17.1	67.6
Room G-108B, Supply room	21.8	69.1

Location	Relative Humidity (%)	Temperature (°F)
Room G-107B, Gun closet	18.1	71.1
Outdoors, door nine by JROTC rooms	30.1	36.5

4.2 Asbestos Containing Materials

In total, 2 bulk samples from one homogeneous area were submitted to the laboratory of which 2 layers were analyzed.

The suspect asbestos containing material sampled during this assessment include: fissure/pinhole style ceiling tiles, drywall and joint compound walls, CMU block wall filler paint, 6" gray vinyl cove baseboard and mastic, 4" navy vinyl cove baseboard and mastic, Off-white 12"x12" floor tile and mastic and white 12"x12: floor tile and mastic.

None of the bulk samples submitted to EHS were reported to contain detectable concentrations of asbestos. If additional suspect asbestos-containing materials are uncovered which were not accessible during this sampling event, it is recommended that these materials be sampled or tested immediately upon discovery for asbestos content by an asbestos inspector in accordance with 29 CFR 1926.1101.

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

ECS recommends remediation be performed for all water and mold impacted materials within the surveyed areas as soon as reasonably possible. 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.

General

ECS recommends that a qualified mold remediation/drying contractor be retained to properly remove 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).

Due to the complexity of the project, ECS recommends that the remediation contractor, the owner, and ECS meet on-site to review the project in order to review and discuss the scope of work.

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

All impacted drywall materials that have visible growth and/or have sustained water impacts should be removed 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. **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 abatement of mold and/or moisture impacted materials in the building:

Room G - 008

- No mold or moisture impacted materials were observed in this classroom. No further action is recommended;

Room G - 008B (Supply room)

- The supply room was densely packed with items. ECS notes that limited airflow could support mold growth under humid conditions; Remove and clean the room and its contents and review the housekeeping schedule and storage practices in these areas; This is not believed to be an immediate concern.
- Stained and/or damaged ceiling tile observed in the changing area and above the central storage shelf. Determine and correct the source of moisture and remove and replace the water stained ceiling tiles and monitor the affected areas for any further moisture intrusion (ceiling tiles were determined not to contain asbestos; see the Asbestos Containing Materials section below);

- Suspect staining was observed on the outside of a black travel bag located on the bottom of the central storage shelf. The bag was observed to be dry at the time of this assessment and suspect staining was not observed on other materials stored in this area. This appears to be more of a housekeeping type issue. ECS recommends the bag be removed and cleaned;

Room G - 007

- Stained ceiling tiles were observed in this room. The stained materials were determined to be dry at the time of this assessment. Determine and correct the source of moisture and remove and replace the water impacted ceiling tiles and monitor the affected areas for any further moisture intrusion (ceiling tiles were determined not to contain asbestos; see the Asbestos Containing Materials section below);
- The exterior door is not well sealed. Have qualified maintenance staff inspect the weather stripping associated with this door and repair/replace as necessary;

Room G - 007B (Gun closet)

- The results for the air sample collected in this room showed a higher spore count of the individual genera *smuts, Periconia, myxomycetes* than the outside comparison samples. Moisture impacted materials or suspect mold were not observed at the time of this assessment. Remove and clean the room and its contents and review the housekeeping schedule and practices in these areas; This is not believed to be an immediate concern;

Room G - 007Cb (Storage room)

- Mold or moisture impacted materials were not observed in this area. No further action is recommended;

Offices (general)

- No mold or moisture impacted materials were observed in the three faculty offices located within the areas included in this assessment. No further action is recommended in these areas;

Hallway (outside of room G-008)

- ECS investigated the damaged ceiling tiles and observed that the affected areas were not currently wet. Determine and correct the source of moisture and staining and remove and replace the impacted ceiling tiles and the impacted areas monitored for any further moisture intrusion (the ceiling tiles were determined not to contain asbestos; see the Asbestos Containing Materials section below). Clean the suspect staining on the duct sealant above this area with an anti-microbial cleaner and apply an anti-microbial sealer to the treated areas.

The correction of all sources of moisture or moisture intrusion into the building or this area of the building should be corrected in conjunction with or prior to any corrective measures being performed. In addition, prior to performing any work the remediation contractor shall review all asbestos reports for the school building.

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 average moisture content of materials within the work area should be below 0.8% for gypsum, 15% for wood, and 60% for plaster and cement-based materials following remediation efforts. 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.

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.

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.

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. 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 and Scope of Assessment

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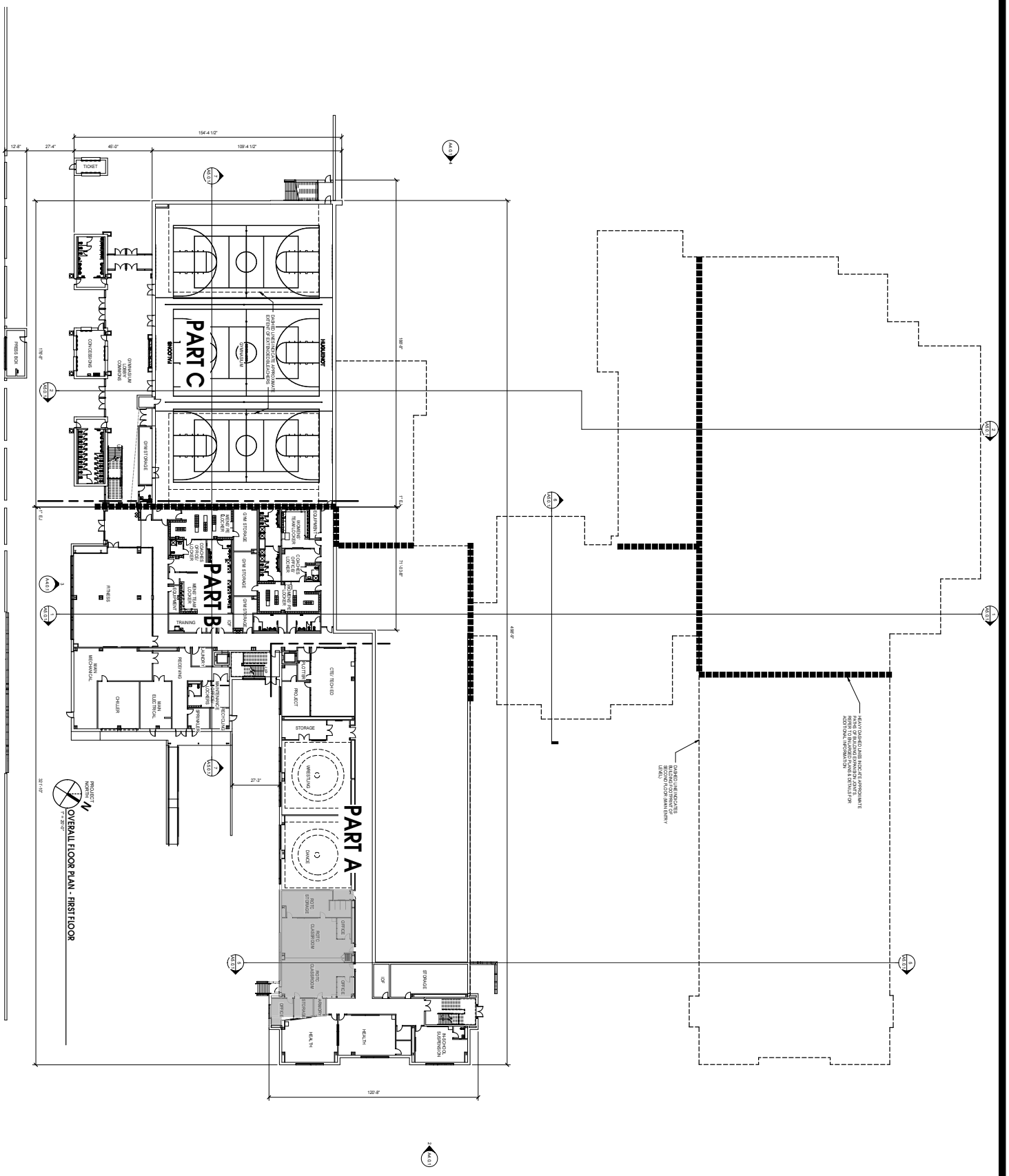


A2.0.1

OVERALL FLOOR PLAN - FIRST FLOOR

NO.	DATE	DESCRIPTION

PROJECT NO. 48.0601
DATE: JUNE 20, 2012
DRAWN BY: SEP, RTM, BW
REVIEWED BY: SBH

NEW HUGUENOT HIGH SCHOOL

SDE NO. 123-151-00-100
RICHMOND PUBLIC SCHOOLS
7945 FOREST HILL AVENUE, RICHMOND, VA 23225

ISSUED FOR CONSTRUCTION

COMMONWEALTH OF VIRGINIA
DOUGLAS WESTMORELAND
LICENSED ARCHITECT
06-20-2012

MOSELEYARCHITECTS

3200 NORFOLK STREET, RICHMOND, VA 23230
PHONE (804) 794-7555 FAX (804) 355-5690
MOSELEYARCHITECTS.COM

Appendix II: Mold Laboratory Report

Non-Viable Spore Trap Analysis Report

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

Telephone: 800.347.4010

Report Number: 23-11-03998

Received Date: 11/29/2023
Analyzed Date: 12/06/2023
Reported Date: 12/06/2023

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

Project/Test Address: Huguenot High School JROTC Rooms; 7945 Forest Hill Avenue; Richmond, Virginia

Client Number:
200625

Fax Number:
804-353-9478

Laboratory Results

Lab # :	23-11-03998-001		23-11-03998-002		23-11-03998-003		23-11-03998-004		23-11-03998-005	
Client Sample ID :	A1		A2		A3		A4		A5	
Date Collected :	11/29/2023		11/29/2023		11/29/2023		11/29/2023		11/29/2023	
Collection Location :	OUTDOORS DOOR 9 BY JROTC		CLASSROOM G-008		CLASSROOM G-007		SUPPLY ROOM G-008		GUN CLOSET G-007	
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	19	130	3	20	5	33	6	40	13	87
Penicillium/Aspergillus group spores	10	67			8	53	2	13	8	53
Alternaria spores									1	6.7
Aureobasidium spores	3	20					3	20	6	40
Curvularia spores							1	6.7	1	6.7
Stachybotrys spores							1	6.7	2	13
Torula spores									1	6.7
Pithomyces spores									3	20
Epicoccum spores	1	6.7			2	13	2	13	1	6.7
Pestalotia spores	1	6.7							1	6.7
Cercospora spores	1	6.7								
Nigrospora spores									1	6.7
smuts, Periconia, myxomycetes	1	6.7			3	20	17	110	28	190
TOTAL SPORES(Spores/m3)		**240**		**20**		**120**		**210**		**440**
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: 23-11-03998

Received Date: 11/29/2023
Analyzed Date: 12/06/2023
Reported Date: 12/06/2023

Project/Test Address: Huguenot High School JROTC Rooms; 7945 Forest Hill Avenue; Richmond, Virginia

Client Number:
200625

Fax Number:
804-353-9478

Laboratory Results

Lab # :	23-11-03998-006									
Client Sample ID :	A6									
Date Collected :	11/29/2023									
Collection Location :	OUTDOORS DOOR 9 BY JROTC									
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	46	310								
Penicillium/Aspergillus group spores	18	120								
Alternaria spores	1	6.7								
Aureobasidium spores	1	6.7								
Epicoccum spores	1	6.7								
Trichoderma spores	15	100								
smuts, Periconia, myxomycetes	4	27								
TOTAL SPORES(Spores/m3)		**570**								

Analyst: Felicia Butler

Sample Narratives:

(Sample 001)	M02:	Large amounts of particulate observed.
(Sample 004)	M02:	Large amounts of particulate observed.
(Sample 005)	M03:	Substantial amount of particulate observed, counts may be underestimated.
(Sample 006)	M02:	Large amounts of particulate observed.

Environmental Hazards Services, L.L.C

Client Number: 200625 **Report Number:** 23-11-03998

Project/Test Address: Huguenot High School JROTC Rooms; 7945 Forest Hill Avenue; Richmond, Virginia

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	Huguenot Highschool JROTC Rooms, 7945 Forest Hill Avenue, Richmond, Virginia		
PO Number	47:14153-N	Collected By	Anan Sauter
Collection Date & Time	11/29/23	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	Cyctex 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	A1	Outdoors, door 9 by JROTC	B	AOC	150				5689163
2	A2	Classroom G-008	B	AOC	150				5689352
3	A3	Classroom G-007	B	AOC	150				5689168
4	A4	Supply room, G-008	B	AOC	150				5689390
5	A5	Gun closet, G-007	B	AOC	150				5689379
6	A6	Outdoors, door 9 by JROTC	B	AOC	150				5689363
7									
8									
9									
10									
11									
12									
13									

Released By:	Anan Sauter	Date:	11/29/23	Time:	1:40 pm
Signature:					

LAB USE ONLY – BELOW THIS LINE

Received By: ECHRISTMAS

Signature:

Date: 11,29,23 Time: 1 57 ☐ AM ☒ PM

☐ Portal Contact Added

23-11-03998

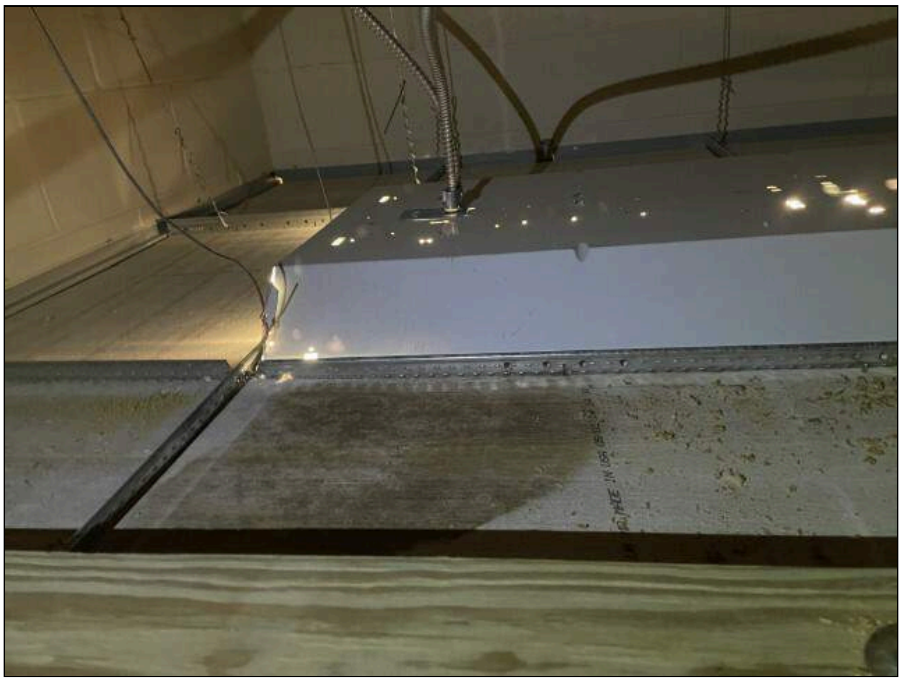
Due Date:
12/06/2023
(Wednesday)
ER

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

RESULTS VIA CLIENT PORTAL AVAILABLE @ www.leadlab.com

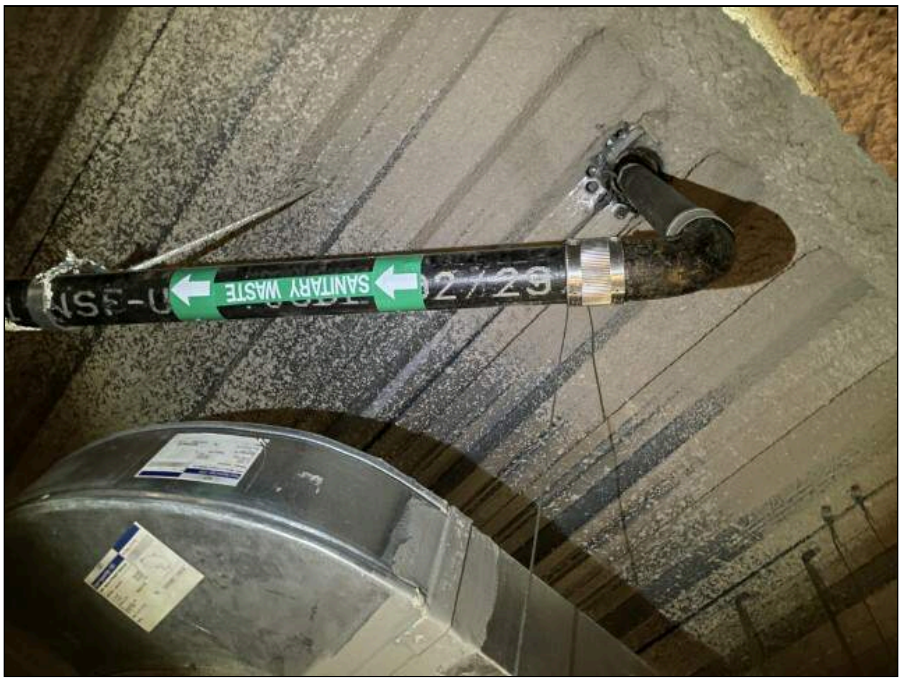
Appendix III: Mold and Moisture Photographs

1 - Stained ceiling tile in dressing area of G-008B

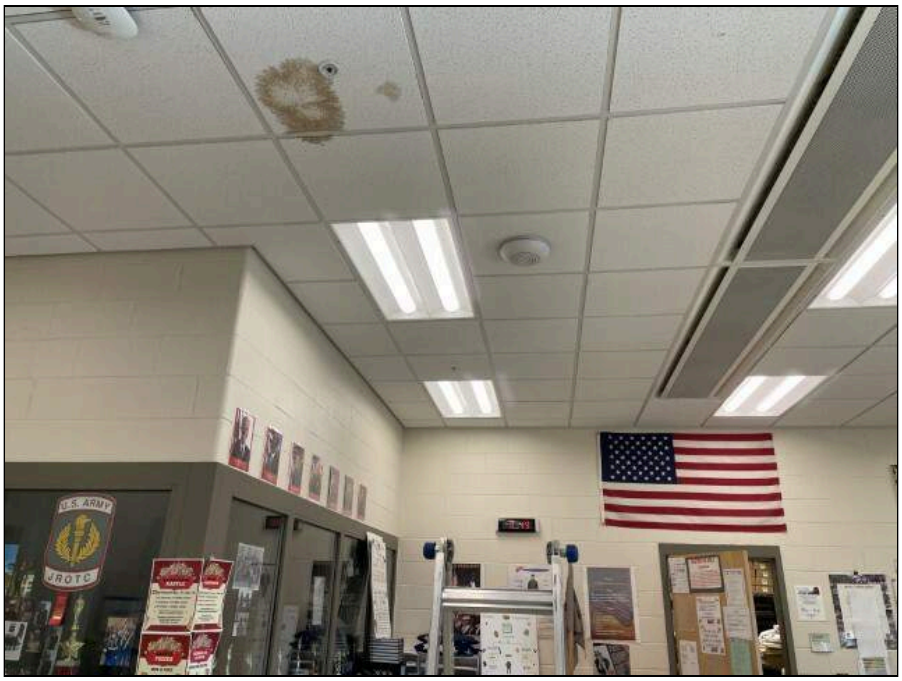


2 - Top of stained ceiling tile in G-008B

3 - Damaged and stained ceiling tiles in G-008B



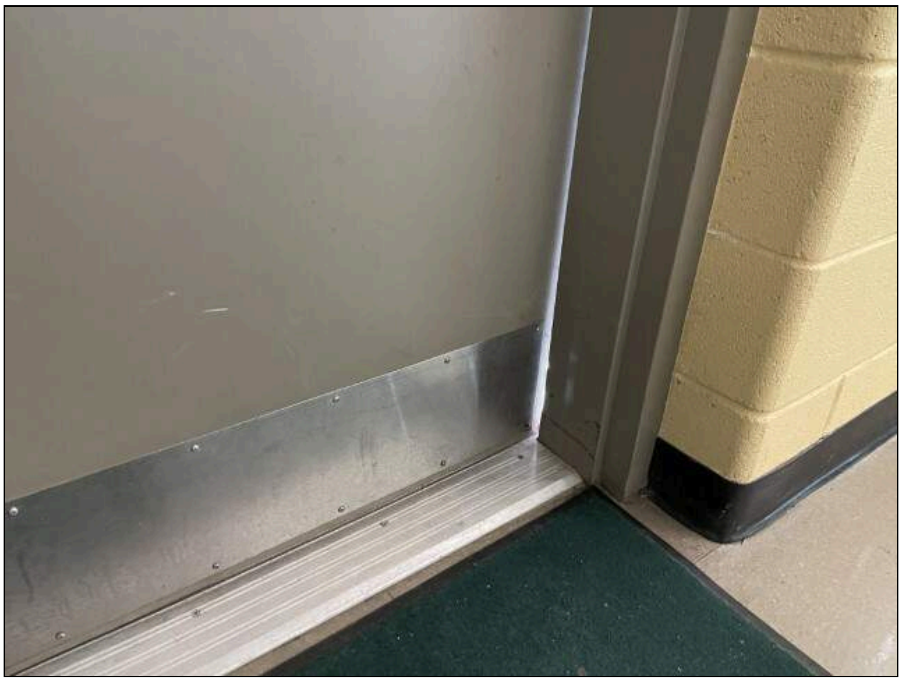
4 - Sanitary water line above damaged ceiling tile in G-008B



5 - Stained ceiling tiles in room G-007

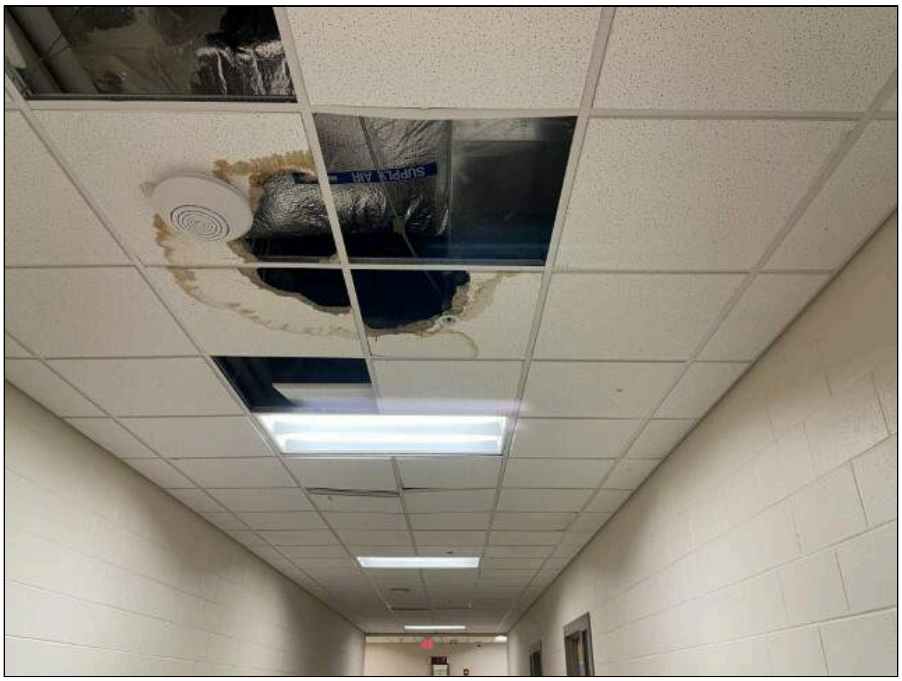
6 - Top of stained ceiling tile in G-007

7 - Pipe affixed in roof, suspected source of moisture intrusion above ceiling tile in G-007



8 - Exterior door in G-007, poorly sealed

9 - Suspect staining found on black travel bag located in G-008B



10 - Damaged and stained ceiling tiles in the hall outside G-008

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/