



March 20, 2017

Mold and Moisture Investigation Report: Findings of Initial Assessment

**John Muir Elementary School
Classrooms 600, 615, 205 and the
Media Center
2526 Sixth Street
Santa Monica, CA 90405**

Prepared for:

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Executive Summary

Forensic Analytical Consulting Services, Inc. performed an initial mold and moisture assessment of classrooms 205, 600, 615, the custodial closet adjacent to 615, and the Media Center at John Muir Elementary School on March 6, 2017. Mold growth and/or conditions conducive to mold growth were identified in each classroom, the custodial closet and in areas of the Media Center requiring corrective actions or further investigation. Based on the air sample results, elevated mold spore levels in the air and on surfaces is suspected in classroom 600 and 615. Although air samples weren't collected in the custodial closet, based on visual findings (substantial growth), elevated mold spore levels in the air and on surfaces is suspected. A more complete discussion of findings, conclusions and recommendations is provided below.

Introduction

Forensic Analytical Consulting Services, Inc. (FACS) was retained by Ms. Toni Consolo of ASCIP on behalf of Santa Monica-Malibu Unified School District (SMMUSD) to perform an initial mold and moisture assessment of classrooms 600, 615, the custodial closet adjacent to 615, and the Media Center at John Muir Elementary School located at 2526 Sixth Street, Santa Monica, CA. Classroom 205 was added by SMMUSD representatives while onsite. The assessment was performed on March 6, 2017. This report contains the findings and recommendations from our investigation. The purpose of the investigation was to attempt to identify areas of water intrusion and mold growth, make recommendations regarding corrective actions, and provide information for consideration in assessing risk to occupants.

Site Characterization

All of the subject areas are housed in fixed buildings on the John Muir campus located in a primarily residential neighborhood. Interior construction generally consists of gypsum board walls, ceilings consist of gypsum board, 2' x 2' or 2' x 4' suspended ceiling tiles. Flooring includes carpeting, and vinyl and ceramic floor tile. Exterior construction consists of stucco finish. The assessment was performed prior to school starting, thus all of the classroom were vacant; however, the Media Center was occupied and operating normally during FACS' assessment. The subject areas are each ventilated by roof mounted package air-handling units (AHUs); which appeared to be functioning normally.

Site History

Based on information provided by ASCIP and SMMUSD district representatives, the following history was developed:

- During a period of heavy rain, approximately three weeks prior to FACS' assessment, several buildings on campus were impacted by moisture intrusion.
- Classroom 600: roof leaks impacted the carpeting which resulted in musty odors and concerns by the occupants about potential mold growth.
- Classroom 615: the north wall was impacted resulting in musty odors. The teacher reported that this area has leaked during every heavy rain for at least the past three years.
- Media Center: four areas experienced moisture intrusion; two in the main room and two adjoining offices (MDF and Textbook). The Textbook storage room employee has reported allergy type symptoms.
- During FACS assessment, a fifth area impacted by moisture was discovered in the southeast corner of the Media Center. In addition, Classroom 205 was added to the scope of investigation due to discovery of additional moisture intrusion.
- March 6, 2017: FACS conducted an initial mold and moisture assessment of the subject areas.

Scope Of Work

In the course of this project, FACS conducted the following scope of work:

1. Development of a site characterization and history (see sections above).
2. Visual assessment of accessible areas of the interior and exterior of the subject areas.
3. Selective moisture meter assessment of building materials in inspected areas.
4. Collection of one (1) spore trap air sample in classrooms 205, 600 and 615; three (3) air samples in the Media Center, and two (2) outdoor control locations. The indoor sampling locations were selected to be representative of indoor air. Outdoor sampling locations were selected to be representative of air entering the buildings.

The data collected in the course of the investigation and supporting information is presented in this report as follows:

- Appendix A: Data collection methodologies
- Appendix B: Observations and Mold growth conclusions and repair recommendations tables
- Appendix C: Laboratory report
- Appendix D: Photographs (depicting inspection observations)
- Appendix E: Site Floor-plans

Conclusions

Based on this investigation, the following conclusions are reached:

1. *Mold Growth & Remediation (General)*. Mold (a.k.a., “fungal”) growth can occur when organic building materials or accumulated organic debris is impacted by moisture. This may occur within 24-48 hours from the time such materials become wet, hence it is critical that materials are substantially dried within this time frame in order to minimize the potential for mold growth to develop. Mold growth has the potential to elicit negative health effects in sensitive persons. This most frequently manifests as allergic respiratory symptoms which may range from mild to severe depending on individual sensitivities. Irritant and infectious effects are possible. It is generally accepted that mold growth in buildings should be removed following appropriate precautions to protect workers involved in the clean-up and the surrounding environment. Greater precautions are taken for greater amounts of mold growth. In addition, the underlying cause of mold and moisture intrusion should be identified and corrected in order to minimize the potential for recurrent mold growth. Additional information can be found at the U.S. Environmental Protection Agency website (<http://www.epa.gov/mold/>).
2. *Locations of Mold Growth*. No visible mold growth was observed in classroom 600; however, conditions conducive to mold growth (i.e. staining) were observed on the carpeting along the north perimeter adjacent to the cabinet. No visible mold growth was observed in classroom 615; however, conditions conducive to mold growth (i.e. elevated moisture, staining and strong musty odors) were observed along the base of the north wall. Substantial moisture impact and mold growth was observed throughout the adjacent custodial closet and adjacent hallway. Visible mold growth and/or conditions to mold growth (i.e. staining, elevated moisture) were observed in Classroom 205 and in areas of the Media Center requiring remediation and/or additional assessment. Specific locations, descriptions, conclusions and supporting reasoning are provided in Table 2.
3. *Airborne & Settled Mold Spore Contamination*. Elevated mold spore levels in the air and in settled dust on surfaces in classroom 600 and 615 is suspected based on the air sample results.

Although air samples weren't collected in the custodial closet, based on visual findings (substantial growth), elevated mold spore levels in the air and on surfaces is suspected. Elevated mold spore levels in the air and in settled dust on surfaces in the other areas assessed is not suspected, based on assessment findings along with air sample results which demonstrated lower to substantially lower concentrations when compared to the outdoor control samples on the day of sampling. Specific locations, descriptions, conclusions and supporting reasoning are provided in Table 2.

4. *Occupant Exposure.* Elevated occupant exposure to airborne mold spores in classroom 600 and 615 and the adjacent custodial closet is suspected based on air sample results or visual findings. Elevated occupant exposure to airborne mold spores in the other areas assessed is not suspected, based on visual findings as well as air sample results. In general, when considering the risk of occupant exposure to indoor mold growth, the following should be recognized:
 - a. No accepted quantitative standards currently exist by which to assess the health risks related to fungal exposure. Since fungus and airborne fungal spores are common in the natural environment, most guidelines focus on the amount and location of visible fungal growth present and comparison of indoor and outdoor spore levels.
 - b. Airborne fungal spore levels can vary greatly over time due to changes in environmental conditions and activity patterns.
 - c. Based on these limitations, and on the potential presence of other adverse biological agents that may develop on moisture impacted materials, mold growth and dampness in buildings should be controlled and impacted areas should be appropriately addressed in order to promote a healthful indoor environment.
5. *Causal Conditions.* Conditions resulting in moisture impact upon organic building materials should be determined and corrected in order to prevent the development of mold growth. These findings should be reviewed and verified by an appropriately qualified construction professional in order to ensure accurate identification and correction of the causes of moisture intrusion issues.

Recommendations

It is the understanding of FACS that SMMUSD maintenance is currently in the process of addressing conditions they have identified that may negatively impact indoor environmental quality in the subject areas. Based on FACS's assessment, these actions should include the following:

1. All mold cleaning, removal and drying activities should be conducted in accordance with commonly accepted guidelines for mold remediation and water damage restoration as summarized in the FACS General Mold Remediation Guidelines provided in Appendix F and as further specified below.
2. Prior to and during the removal of building materials, consider the potential for disturbance of materials containing asbestos, lead or other hazardous substances and take appropriate measures in accordance with applicable federal, state and local regulations.
3. Remove identified areas of mold growth following appropriate guidelines to protect workers and control contamination as called for in Appendix B, Table 2 and the FACS General Mold Remediation Guidelines referenced therein.
4. Dry out any discovered wet organic building materials following appropriate guidelines as identified in the FACS General Mold Remediation Guidelines referenced therein.

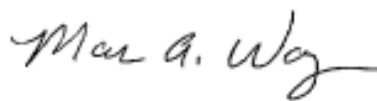
5. Clean areas of identified airborne and settled mold spore contamination following appropriate guidelines to protect workers and control contamination as called for in Appendix B, Table 2 and the FACS General Mold Remediation Guidelines referenced therein.
6. Following completion of mold remediation activities, conduct a post-remediation assessment to confirm that the recommended mold cleaning and removal activities have been completed appropriately. Specific post-remediation assessment recommendations are provided in Appendix B, Table 2 and the FACS General Mold Remediation Guidelines referenced therein.
7. Concurrent with remediation activities, identify and correct the source(s) of moisture impacting the subject areas, in consultation with an appropriately qualified construction professionals in order to prevent additional moisture impact and potential mold growth from occurring. The primary source(s) of moisture impacting the subject areas are suspected to be from roof and building envelope leaks.
8. In consultation with an appropriately qualified construction professional, inspect classroom 600's north window. The window is suspected to leak based on visual findings.
9. Replace all moisture-impacted ceiling tiles and monitor during next period of heavy rains. If staining re-occurs, reassess and repair roof leaks.
10. Inspect and repair hole in ceiling of classroom 600. During this process, inspect the ceiling cavity for additional moisture issues including mold growth.
11. Inspect and ensure all roof drains are clear and functioning proper including the southwest corner drain above classroom 205. In addition, inspect all gutters, downspouts and other drainage systems to ensure proper function and drainage away from all structures.
12. Inspect and repair any plumbing leaks at mop sink in custodial closet adjacent to classroom 615.

Limitations

This investigation is limited to the conditions and practices observed and information made available to FACS. The methods, conclusions and recommendations provided are based on FACS' judgment, expertise and the standard of practice for professional service. They are subject to the limitations and variability inherent in the methodology employed. As with all environmental investigations, this investigation is limited to the defined scope and does not purport to set forth all hazards, nor indicate that other hazards do not exist.

Please do not hesitate to contact our offices at 310-668-5600 with any questions or concerns. Thank you for the opportunity to assist ASCIP and SMMUSD in promoting a more healthful environment.

Respectfully,



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Appendix A

FACS Data Collection Methods

Moisture Meter Readings. The moisture content of various building substrates was evaluated using a direct reading instrument. Forensic Analytical routinely uses a Delmhorst BD 2100 moisture meter. The BD 2100 is capable of measuring the moisture content of wood, concrete/plaster and wallboard using preset factory scales.

Non-Viable Air Sampling. Air samples are collected using an Allergenco D spore trap sampling cassette and portable high volume sampling pump. The sampling train is calibrated in the field to approximately 15 liters per minute with a target collection sample volume between 75 liters and 150 liters depending on the anticipated concentration of fungal spores or particulate matter in the air. The air samples are labeled with unique sample numbers and information recorded on field chain of custody forms. The samples are promptly delivered to the laboratory for analysis.

John Muir Elementary School – Multiple Areas
Initial Mold and Moisture Assessment (3/20/17)

Appendix B

Observations and Mold Growth Conclusions and Repair Recommendations Tables

Table 1: Observations

Ref #	Functional Area/Location	Observations/History	Area of Mold ^a	Area of Moisture ^b	Moisture Readings ^c	Photo # ^d	Sample # ^d
A	Classroom 615 – General Exterior	Classroom 615 Placard at entrance.	\	\	\	1	OA1
		Overview of exterior (1 st floor) of classroom 615.	\	\	\	2	
		First outdoor control air sample collected.	\	\	\	\	
B	Classroom 615 – General Interior	Overviews of classroom 615 interior – south and northeast.	\	\	\	3, 4	IA1
		Overview of north wall adjacent side entry.	\	\	\	5	
		Close-up of base of north wall. No visible mold growth observed; however, strong musty odors and significantly elevated moisture levels were present.	\	~5 ln. ft.	5.0% (gypsum)	6	
		Overview of backside of north wall in hallway.	\	\	\	7	
		Close-up of base of wall and staining on vinyl floor tile. No visible mold growth observed; however, strong musty odors and significantly elevated moisture levels were present.	\	~6 ln. ft.	>6.2% (gypsum)	8	
C	Custodial Closet Adjacent CR 615	Overview of Custodial closet in hallway adjacent to classroom 615.	\	\	\	9	\
		Overviews of the east wall in closet. Heavy moisture damage, visible mold growth and significantly elevated moisture present along base of the east wall.	>4 ln. ft.	>6 ln. ft.	>6.2% (gypsum)	10, 11	
		Additional moisture impact along north wall adjacent to the mop sink.	\	>2 ln. ft.		12	
		Additional moisture impact observed along base of south wall. Moisture measurements of wall materials significantly elevated.	\	>6 ln. ft.		13	



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Ref #	Functional Area/Location	Observations/History	Area of Mold ^a	Area of Moisture ^b	Moisture Readings ^c	Photo # ^d	Sample # ^d
		Additional moisture impact observed along the exterior walls of custodial closet.	\	>4 ln. ft.		\	
D	Classroom 600 – General Exterior	Classroom 600 Placard at entrance.	\	\	\	14	\
		Overview of Classroom 600 exterior (west).	\	\	\	15	
		Overview of Classroom 600 exterior (north). Staining observed below window.	\	\	\	16, 17	
E	Classroom 600 – General Interior	Overviews of classroom 600 interior – east and northwest.	\	\	\	18, 19	IA2
		Stained carpeting along north perimeter. A hole was observed in the ceiling above stained carpeting. The carpeting was dry at time of FACS assessment.	\	>10 ft. ² (stained)	\	20, 21	
		Overview of teacher's cabinet toe-kick along north perimeter adjacent staining. Moisture measurements of selected materials within recommended ranges.	\	\	\	22	
		No evidence of mold growth was observed in classroom. <i>However; we note that a full assessment of the classroom could not be conducted due to time constraints.</i>	\	\	\	\	
F	Media Center – General Exterior	Placard at west entrance.	\	\	\	23	OA2
		Overviews of Media Center exterior – west and north.	\	\	\	24, 25	
		Overview of Media Center exterior (south) directly outside the MDF Office; reported source of moisture along base of wall.	\	\	\	26	
		Second outdoor control sample collected.	\	\	\	\	
G	Media Center – General Interior (see floor-plan for detailed locations)	Overview of Media Center interior looking east.	\	\	\	27	IA3
		Overview of NW corner (impact area 1).	\	\	\	28	
		Overview of stained carpet in NW corner.	\	\	\	29	
		Overview of moisture damage along base of walls in northwest corner. Strong musty odors observed. Moisture measurements of gypsum wall materials significantly elevated 4 ft. up from floor.	<0.5 ft. ²	>6 ft. ²	>6.2% (gypsum)	30	
		Mold growth observed behind base-cove on west wall.				31	
		Overview of circulation desk along north perimeter (impact area 2).	\	\	\	32	
		Stained carpeting observed along north perimeter. The carpeting was dry at time of FACS assessment.	\	~4 ft. ² (stained)	\	33	

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Ref #	Functional Area/Location	Observations/History	Area of Mold ^a	Area of Moisture ^b	Moisture Readings ^c	Photo # ^d	Sample # ^d
		No visible mold growth observed; however, strong musty odors and significantly elevated moisture was present along base of the north wall between two center windows.	\	~6 ln. ft.	>6.2% (gypsum)	\	
H	Media Center – Textbook Room	Overview of Textbook Room (impact area 3).	\	\	\	34	IA4
		Stained ceiling tiles observed in SW corner.	\	~1 ft. ² (stained)	\	35	
		Overview of top of ceiling tile and staining/debris. Moisture measurements within recommended range.	\	>1 ft. ² (stained)	\	36	
		Overview of roofing materials in southwest corner. Close-up of staining on wooden beams.	\	>2 ft. ² (stained)	\	37, 38	
		Plastic bag placed on top of bookshelf in SW corner.	\	\	\	39	
		View down southwest corner. Access limited due to bookshelves; however no evidence of moisture impact or mold growth was observed.	\	\	\	40	
I	Media Center – MDF Office	Overview of MDF Office (impact area 4)	\	\	\	41	IA5
		Stained ceiling tile observed along the south perimeter.	\	~0.5 ft. ² (stained)	\	42	
		Stained carpeting observed along the south perimeter. Moisture reportedly came in along base of wall. Carpeting dry at time of FACS assessment.	\	~4 ft. ² (stained)	\	43	
		No visible mold growth observed.	\	\	\	\	
J	Media Center – Southeast corner	Overview of southeast corner (impact area 5).	\	\	\	44	\
		Large area of stained carpeting observed in southeast corner. Carpeting dry at time of FACS assessment.	\	>25 ft. ² (stained)	\	45	
		Moisture impact (e.g. bubbling) and light mold growth observed along base of south wall. Moisture measurements of gypsum wall within recommend range.	0.5 ln. ft. (visible)	~2.5 ln. ft (damaged)	0.2% (gypsum)	46, 47	
K	Classroom 205 – General Interior	Classroom 205 Placard at entrance.	\	\	\	48	
		Overview of classroom interior – west	\	\	\	49	
		Overview south including entry and bathroom in corner.	\	\	\	50	
		Missing and stained ceiling tiles observed in southwest corner adjacent entry. Roof drain observed above area.	\	>2 ft. ² (stained)	\	51	
		Staining observed on exposed roofing materials.	\	>10 ft. ² (stained)	\	52	
		Staining observed approximately 3 ft' up along west wall outside bathroom.	\	>2 ft. ² (stained)	\	53	



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Ref #	Functional Area/Location	Observations/History	Area of Mold ^a	Area of Moisture ^b	Moisture Readings ^c	Photo # ^d	Sample # ^d
		Overview of base of west wall. Mold growth and strong musty odors observed along base of west wall. Moisture measurements significantly elevated.	>2 ln. ft.	>3 ln. ft. (stained)	>6.2% (gypsum)	54	IA6
		Additional mold growth and strong musty odors observed along base of south walls (both sides of ext. door). Moisture measurements of wall materials significantly elevated.	>2 ln. ft.	>4 ln. ft. (stained)		55	
		Stained ceiling tiles observed along north perimeter	\	>4 ft. ² (stained)	\	56	
		Additional stained ceiling tiles in SW corner adjacent bathroom.	\	>4 ft. ² (stained)	\	57	
		Overview of SW corner including sink and cabinet.	\	\	\	58	
		Overview of south wall adjacent bathroom.	~4+ ln. ft.	>10 ln. ft.	1.3%-5.0% (gypsum)	59	
		Moisture impact, musty odors and mold growth observed along base of south and west walls. Moisture measurements of wall materials significantly elevated.	~6+ ln. ft.			60	
L	Classroom 205 – Bathroom	Moisture impact (e.g. bubbling paint) observed along west wall in bathroom.	\	~1.5+ ln ft (damage)	0.3% (gypsum)	61	
		Moisture impact (e.g. damage) observed to ceiling in bathroom. Moisture measurements of ceiling materials significantly elevated along approximately the western half.	\	>10 ft. ²	>6.2% (gypsum)	62	
		No visible mold growth observed.	\	\	\	\	

Notes:
^a Estimated total surface area of mold growth actually observed and mold growth intensity (light, moderate or heavy).
^b Estimated total cross-sectional area of moisture impact actually observed (i.e., staining/damage, elevated moisture meter readings, visible moisture).
^c Moisture meter readings and substrate.
^d Refer to photo appendix.



Table 2: Mold Growth Conclusions and Repair Recommendations

#	Mold Growth Location, Description & Reasoning	Mold Growth ^a	Repair Level ^b	Repair Detail	Preliminary Cause ^c
1	<p>Classroom 615 – General Interior</p> <p>There is the potential for mold growth along the base of the north wall and within the wall cavity.</p> <p>This conclusion is supported by the significantly elevated moisture levels in building materials, elevated air samples results, the suspected and reported pathway of moisture and strong musty odors.</p>	<p>Potential</p>	<p>MT</p>	<ul style="list-style-type: none"> • Use a HEPA filtered vacuum in the immediate work area(s) to control potential mold releases during invasive inspection activities. • Remove the base-cove along the north wall beginning at the accordion door extending at least 6 feet east in order to facilitate inspection along the base of the wall for evidence of mold growth. • If mold growth is observed, stop and perform remediation in accordance with M2 level FACS remediation guidelines provided in Appendix F. • If no visible mold growth is observed, remove 1-3 small sections (~0.5 ft.²) of wall materials along the base of the north wall (approximately every 1.5 feet – or in areas demonstrating elevated moisture) in order to facilitate inspection of the wall cavity for mold growth. • Following removal, inspect the wall cavities and adjacent building materials for staining and/or mold growth. If discovered, continue removing impacted materials in accordance with FACS remediation guidelines. • If applicable, remove and dispose of impacted insulation materials. • Thoroughly clean and dry all exposed wall cavities and areas of elevated moisture. • Thoroughly clean all impacted carpeting along north perimeter. • Identify and repair reported roof leaks. 	<p>Reported roof leaks</p>



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#	Mold Growth Location, Description & Reasoning	Mold Growth ^a	Repair Level ^b	Repair Detail	Preliminary Cause ^c
2	<p>Classroom 615 – General surfaces and air.</p> <p>Contamination of surfaces and air in Classroom 615 is suspected.</p> <p>This conclusion is supported by the air sample results which indicated substantially higher concentrations when compared to outdoor controls on the day of sampling.</p>	Suspected	MC	<p>FACS recommends the following actions be taken to remove potential surface contamination:</p> <ul style="list-style-type: none"> • Clean all horizontal and vertical surfaces throughout using HEPA vacuum and damp-wipe methods as noted in the guidance document. 	Reported roof leaks
3	<p>Custodial Closet and adjacent hallway</p> <p>Mold growth and/or moisture damage is present along the base of the walls inside the closet. There is the potential for additional mold growth within the wall cavities, on adjacent walls in the hallway and underneath flooring materials.</p> <p>These conclusions are supported by visible mold growth, significantly elevated moisture levels and the pathway of moisture.</p>	Suspected Potential >4 In. ft. <i>Moderate</i>	M2/MT	<ul style="list-style-type: none"> • Remove at a minimum, the bottom 2 ft. of all walls throughout the closet. • In the hallway, remove at a minimum, the bottom 2 ft. of wall materials along the east wall (adj. to the closet) and south wall (adj. to classroom 615). • Following removal, inspect the wall cavities and adjacent building materials for additional staining and/or mold growth. If discovered, continue removing impacted materials in accordance with FACS remediation guidelines. • If applicable, remove and dispose of impacted insulation materials. • Thoroughly clean all exposed wall cavities. • Evaluate need to remove flooring to inspect sub-floor materials. If flooring is removed, thoroughly clean sub-floor materials. • Identify and repair suspected plumbing and roof leaks. 	Suspected plumbing leaks/ reported roof leaks
4	<p>Custodial Closet and adjacent hallway – General surfaces and air.</p> <p>Contamination of surfaces and air in the custodial closet is suspected.</p> <p>This conclusion is supported by visible mold growth, extent of moisture impact and generally poor condition.</p>	Suspected	MC	<p>FACS recommends the following actions be taken to remove potential surface contamination:</p> <ul style="list-style-type: none"> • Clean all horizontal and vertical surfaces throughout using HEPA vacuum and damp-wipe methods. 	\

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#	Mold Growth Location, Description & Reasoning	Mold Growth ^a	Repair Level ^b	Repair Detail	Preliminary Cause ^c
5	<p>Classroom 600 – General Interior</p> <p>There is the potential for mold growth along the base and underneath the north cabinet, on adjacent flooring materials and in other areas of the classroom that could not be assessed due to time constraints.</p> <p>This conclusion is supported by the visible staining and pathway of moisture and the elevated mold air sample results. An additional assessment is recommended.</p>	Potential	MT	<ul style="list-style-type: none"> Conduct additional assessment of the north cabinetry as well as other areas of the classroom that may have been impacted by moisture including the southwest corner adjacent exterior door. Repair observed hole in ceiling along north perimeter. During this process, inspect ceiling cavity for moisture impact and potential mold growth. If discovered, remove impacted materials in accordance with applicable FACS remediation guidelines provided in Appendix F. 	Suspected roof and building envelop leaks
6	<p>Classroom 600 – General surfaces and air.</p> <p>Contamination of surfaces and air in Classroom 600 is suspected.</p> <p>This conclusion is supported by the air sample results which demonstrated substantially higher concentrations than outdoor controls on the day of sampling.</p>	Suspected	MC	<ul style="list-style-type: none"> Irrespective of the findings of the additional assessment, the following actions should be taken to remove potential surface contamination: <ul style="list-style-type: none"> Clean all horizontal and vertical surfaces throughout using HEPA vacuum and damp-wipe methods. 	Suspected roof and building envelop leaks

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#	Mold Growth Location, Description & Reasoning	Mold Growth ^a	Repair Level ^b	Repair Detail	Preliminary Cause ^c
7	<p>Media Center (General) – Northwest corner and Circulation Desk Areas</p> <p>Visible mold growth is present along the base of the west wall in the northwest corner. Mold growth is suspected along the base of the north wall behind the Circulation Desk. There is the potential for additional mold growth within these wall cavities.</p> <p>These conclusions are supported by visible mold growth and musty odors, significantly elevated moisture levels and the visible pathway of moisture (as evidenced by staining).</p>	<p>Suspected Potential 0.5 ft.² Light</p>	<p>M2/ MT</p>	<ul style="list-style-type: none"> Remove at a minimum, the bottom 4 ft. of impacted wall materials in the NW corner, extending 4 ft. out in each direction. Remove at a minimum, the bottom 2 ft. of impacted wall materials between the two windows behind the Circulation Desk. NOTE: This will require removal of the bookshelves in both areas. Following removal, inspect the wall cavities and adjacent building materials for staining and/or mold growth. If discovered, continue removing impacted materials in accordance with FACS remediation guidelines. If applicable, remove and dispose of impacted insulation materials. Thoroughly clean all exposed wall cavities. Thoroughly clean all impacted carpeting in both areas. Identify and repair building envelop leaks. 	<p>Reported building envelop leaks</p>
8	<p>Media Center (General) – Northwest corner and Circulation Desk Areas – General surfaces and air</p> <p>Contamination of surfaces and air in areas not directly adjacent to mold growth is not suspected.</p> <p>This conclusion is supported by the minor amount and location of mold growth (e.g. behind base-cove) and the air sample results which demonstrated substantially lower concentrations when compared to outdoor controls on the day of sampling.</p>	<p>Not Suspected</p>	<p>\</p>	<ul style="list-style-type: none"> Upon completion of material/growth removal, the following actions may be taken to remove potential surface contamination: <ul style="list-style-type: none"> Clean all horizontal and vertical surfaces throughout using HEPA vacuum and damp-wipe methods. 	<p>\</p>



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#	Mold Growth Location, Description & Reasoning	Mold Growth ^a	Repair Level ^b	Repair Detail	Preliminary Cause ^c
9	<p>Media Center – Textbook Room</p> <p>Mold growth is not suspected in the Textbook Room.</p> <p>This conclusion is supported by the absence of visible mold growth and the air samples which demonstrated substantially lower concentrations when compared to outdoor controls on the day of sampling.</p>	Not Suspected	\	<ul style="list-style-type: none"> Remove stained ceiling tiles and immediately place in a bag for disposal. Replace ceiling tiles and monitor during next periods of rain. If staining re-occurs, re-inspect roof and repair roof leaks. 	Reported roof leak
10	<p>Media Center – Textbook Room – General surfaces and air</p> <p>Contamination of surfaces and air in the Textbook Room is not suspected.</p> <p>This conclusion is supported by the absence of visible mold growth and the air samples which demonstrated substantially lower concentrations when compared to outdoor controls on the day of sampling.</p>	Not Suspected	\	<p>Due to occupant sensitivities and reported allergy type symptoms when occupying the room, a deep cleaning of surfaces is recommended including:</p> <ul style="list-style-type: none"> Clean all horizontal and vertical surfaces throughout using HEPA vacuum and damp-wipe methods. 	\
11	<p>Media Center – MDF Office</p> <p>Mold growth is not suspected in the MDF Office.</p> <p>This conclusion is supported by the absence of visible mold growth and the air samples which demonstrated moderately lower concentrations when compared to outdoor controls on the day of sampling.</p>	Not Suspected	\	<ul style="list-style-type: none"> Remove stained ceiling tile and immediately place in a bag for disposal. Replace ceiling tile and monitor during next periods of rain. If staining re-occurs, re-inspect roof and repair roof leaks. Thoroughly clean impacted carpeting. Identify and repair building envelope leaks. 	Reported building envelop leaks

John Muir Elementary School – Multiple Areas
Initial Mold and Moisture Assessment (3/20/17)

#	Mold Growth Location, Description & Reasoning	Mold Growth ^a	Repair Level ^b	Repair Detail	Preliminary Cause ^c
12	<p>Media Center – MDF Office – General surfaces and air</p> <p>Contamination of surfaces and air in the MDF Office is not suspected.</p> <p>This conclusion is supported by the absence of visible mold growth and the air samples which demonstrated moderately lower concentrations when compared to outdoor controls on the day of sampling.</p>	Not Suspected	\	\	\
13	<p>Media Center – Southeast corner</p> <p>Visible mold growth is present along the base of the south wall. There is the potential for additional mold growth along the base of the east wall and within the wall cavities.</p> <p>These conclusions are supported by visible mold growth and the visible pathway of moisture (as evidenced by staining).</p>	<p>Suspected Potential</p> <p>0.5 ft.²</p> <p>Light</p>	M1-M2/ MT	<ul style="list-style-type: none"> • Use a HEPA filtered vacuum in the immediate work area(s) to control potential mold releases during invasive inspection activities. • Remove all base-coves along the south and east walls in order to facilitate inspection along the base of the walls for evidence of additional mold growth. • If additional mold growth is observed, stop and perform remediation in accordance with M2 level FACS remediation guidelines provided in Appendix F. • If no additional visible mold growth is observed, remove 1-2 small sections (~0.5 ft.²) of wall materials along the base of each wall (approximately every 3 feet – or in areas demonstrating moisture staining) in order to facilitate inspection of the wall cavities for mold growth. • Following removal, inspect the wall cavities and adjacent building materials for staining and/or mold growth. If discovered, continue removing impacted materials in accordance with applicable FACS remediation guidelines. • If applicable, remove and dispose of impacted insulation materials. • Thoroughly clean and dry all exposed wall cavities. • Thoroughly clean all impacted carpeting. • Identify and repair reported roof leak(s). 	Suspected roof leaks

John Muir Elementary School – Multiple Areas
Initial Mold and Moisture Assessment (3/20/17)

#	Mold Growth Location, Description & Reasoning	Mold Growth ^a	Repair Level ^b	Repair Detail	Preliminary Cause ^c
14	<p>Media Center – Southeast corner General surfaces and air</p> <p>Contamination of surfaces and air in areas not directly adjacent to mold growth is not suspected.</p> <p>This conclusion is supported by the minor amount and location of mold growth (e.g. behind base-cove).</p>	Not Suspected	\	<ul style="list-style-type: none"> • Upon completion of material/growth removal, the following actions may be taken to remove potential surface contamination: <ul style="list-style-type: none"> • Clean all horizontal and vertical surfaces using HEPA vacuum and damp-wipe methods. 	\
15	<p>Classroom 205 – General Interior</p> <p>Mold growth is present along the base of several walls in the classroom. There is the potential for additional mold growth within the wall cavities.</p> <p>This conclusion is supported by the presence of visible mold growth and musty odors, significantly elevated moisture levels and the suspected pathway of moisture.</p>	<p>Suspected Potential ~14+ ln. ft. <i>Light-Moderate</i></p>	M2/ MT	<ul style="list-style-type: none"> • Remove at a minimum, the bottom 4 ft. of the entire west wall (common to bathroom) beginning at the south exterior wall and extending to the end of the bathroom. • Continue removing the bottom 2 ft. of the entire south wall materials (common to bathroom) and extend 6 ft. north along the west wall (common to library) behind the sink cabinet. • Remove at a minimum, the bottom 2 ft. of the south wall on either side of the classroom entrance door. • Following removal, inspect the wall cavities and adjacent building materials for staining and/or mold growth. If discovered, continue removing impacted materials in accordance with FACS remediation guidelines. • If applicable, remove and dispose of impacted insulation materials. • Thoroughly clean all exposed wall cavities. • Remove all remaining stained ceiling tiles and immediately place in bags for disposal. Replace ceiling tiles and monitor during next periods of rain. If staining re-occurs, re-inspect roof and repair roof leaks. • Identify and repair building envelope leaks 	Suspected building envelop leaks

John Muir Elementary School – Multiple Areas
Initial Mold and Moisture Assessment (3/20/17)

#	Mold Growth Location, Description & Reasoning	Mold Growth ^a	Repair Level ^b	Repair Detail	Preliminary Cause ^c
16	<p>Classroom 205 – General surfaces and air</p> <p>Contamination of surfaces and air in areas not directly adjacent to mold growth is not suspected.</p> <p>This conclusion is supported by the location of mold growth (e.g. behind base-cove) and the air sample results which demonstrated lower concentrations when compared to outdoor controls on the day of sampling.</p>	<p>Not Suspected</p>	<p>\</p>	<ul style="list-style-type: none"> • Upon completion of material/growth removal, the following actions should be taken to remove potential surface contamination: <ul style="list-style-type: none"> • Clean all horizontal and vertical surfaces throughout using HEPA vacuum and damp-wipe methods. 	<p>\</p>



John Muir Elementary School – Multiple Areas
Initial Mold and Moisture Assessment (3/20/17)

#	Mold Growth Location, Description & Reasoning	Mold Growth ^a	Repair Level ^b	Repair Detail	Preliminary Cause ^c
17	<p>Classroom 205 – Bathroom</p> <p>There is the potential for mold growth within the ceiling and west wall cavities.</p> <p>These conclusions are based on visible moisture impact, significantly elevated moisture levels and the suspected moisture pathways.</p>	Potential	MT	<ul style="list-style-type: none"> • Use a HEPA filtered vacuum in the immediate work area(s) to control potential mold releases during invasive inspection activities • Remove 2-3 small sections (~1 ft.²) of ceiling materials along the western perimeter in order to facilitate inspection of the ceiling cavities for mold growth. • Remove 2-3 small sections (~1 ft.²) of wall materials along the west wall in order to facilitate inspection of the wall cavities for mold growth. During this process inspect the north and south wall cavities as well. • Following removal, inspect the ceiling and wall cavities and adjacent building materials for staining and/or mold growth. If discovered, continue removing impacted materials in accordance with applicable FACS remediation guidelines. • In addition, remove all base-coves along the shared east, north and south walls in the library in order to facilitate inspection along the base of the wall for staining and/or mold growth. If discovered, continue removing impacted materials in accordance with applicable FACS remediation guidelines. • If applicable, remove and dispose of impacted insulation materials. • Thoroughly clean and dry all exposed cavities. • Identify and repair suspected roof leak(s). 	Suspected roof leaks
18	<p>Classroom 205 – Bathroom – General surfaces and air</p> <p>Contamination of surfaces and air in Classroom 205 bathroom is not suspected.</p> <p>This conclusion is supported by the classroom air sample results which demonstrated lower concentrations when compared to outdoor controls on the day of sampling.</p>	Not Suspected	\	<ul style="list-style-type: none"> • Upon completion of material/growth removal, the following actions should be taken to remove potential surface contamination: <ul style="list-style-type: none"> • Clean all horizontal and vertical surfaces throughout using HEPA vacuum and damp-wipe methods. 	\



John Muir Elementary School – Multiple Areas
Initial Mold and Moisture Assessment (3/20/17)

#	Mold Growth Location, Description & Reasoning	Mold Growth ^a	Repair Level ^b	Repair Detail	Preliminary Cause ^c
<p>Notes:</p> <p>^a Conclusion regarding presence of mold growth/contamination (Suspected, Potential, Not Suspected), total surface area of mold growth anticipated (visible and hidden) and anticipated mold growth intensity (light, moderate, heavy).</p> <p>^b Refer to appendix containing FACS General Mold Remediation Guidelines for description of work practices and guidance documents.</p> <p>^c Preliminary cause of moisture intrusion and mold growth based upon general observations. Construction related causal factors should be confirmed by an appropriately qualified building professional.</p>					



Appendix C

Sampling Results Summary and Laboratory Report

Table 1: Spore Trap Air Samples (Lab Report # F118828)

Sample Number	Location	Summary of Comparison to Controls	
		Types	Concentrations
IA1	Classroom 615 – Center	Similar	Substantially Higher Than (<i>Penicillium/Aspergillus</i>)
IA2	Classroom 600 – Center	Similar	Substantially Higher Than (<i>Penicillium/Aspergillus</i>)
IA3	Media Center – NW perimeter	Too Low For Comparison	Substantially Lower
IA4	Media Center – Textbook room	Similar	Lower
IA5	Media Center – MDF room	Similar	Moderately Lower
IA6	Classroom 205 / bathroom	Similar	Moderately Lower
OA1	Outdoors – West of CR 615	Control sample	Control sample
OA2	Outdoors – South of Media Center	Control sample	Control sample

Notes: Findings in bold considered elevated.



Non-Viable Air Fungal Analysis

Forensic Analytical Consulting Svcs
Marc Waz
2959 Pacific Commerce Drive

Rancho Dominguez, CA 90221

Sample Type: Allergenco-D

Analysis: Direct Microscopy; FALI Method IAQ 101; Modified ASTM D7391

Job ID / Site: PJ33115; John Muir Rms 600, 615 & Library - Moisture/Mold Assessment, 2526 Sixth Street, Santa Monica CA 90405

Client ID: LA05
Report Number: F118828
FALI Job ID: LA05
Date Received: 03/06/17
Date Analyzed: 03/09/17
Date Printed: 03/09/17
First Reported: NA

Total Samples Submitted: 8
Total Samples Analyzed: 8

Explanations:

Spores ⁺	Actual number of spores counted in portion of sample examined
%	Percent of Total
LOD	Limit of Detection (Units are the same as result units)
S/m ³	Spores per cubic meter of air sampled
Spores/S	Number of spores per sample
*	Not included in Totals Calculations
ND	None Detected
Particulate Density	Amount of background particulate present
-	Not Applicable

Background Particulate Density Estimated As Follows:

Trace	Very little present
Minor	Present but not in large quantity
Major	Present in most of sample
Abundant	Covering almost entire sample
Overloaded	Covering entire sample

Guidelines For Interpretation:

No accepted quantitative regulatory standards currently exist by which to assess the health risks related to mold exposure. Molds have been associated with a variety of health effects and sensitivity varies from person to person.

Several organizations, including: the American Conference of Governmental Industrial Hygienists (ACGIH); the American Industrial Hygiene Association (AIHA); the Indoor Air Quality Association (IAQA); the United States Environmental Protection Agency (USEPA); the Centers for Disease Control (CDC), as well as the California Department of Health Services (CADHS), have all published guidelines for assessment and interpretation of mold resulting from water intrusion in buildings.

FALI reports solely the organisms observed on the sample(s). The limit of detection is based on observing one spore/colony per area analyzed. This is not an inclusive list of the fungal types identified in the microbiology laboratory.

**The data presented in this report has not been subject to final review and is therefore subject to change.
The recipient assumes full responsibility for the use and interpretation of this preliminary data.**

Tiffani Ludd, Microbiology Laboratory Supervisor, Rancho Dominguez Laboratory

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MICROBIAL AIR SAMPLING C.O.C. FORM

Sampled by:
MAW

PM:
Marc Waz

Date:
3/6/17

Page:
1 of 1

FACS ID./Client #: **LA05 FACS Los Angeles**

Analysis Req.:
 NVA / Other:

1-Day 3-Day Other
 2-Day 5-Day

Job #:
PJ33115

Client Name/Job Description: ASCIP
John Muir Rms 600, 615 & Library -

Client #:
C3729

Job ID/Site: PJ33115 John Muir Rms 600, 615 & Library - Moisture/Mold Assessment
2526 Sixth Street
Santa Monica CA 90405

Calibrator & SN:
ROTO 1014

Lab Instructions/Notes:
E-mail results to mwaz@forensicanalytical.com and agarcia@forensicanalytical.com

Sample Number	Location (& Activity)	Start Flow	Start Time	Total Time	Total Volume	Media / # Exp. Date	Wind Weather	HVAC	
		Stop Flow	Stop Time					Windows	On Off
PJ33115 - OA1	EXT - W. of 615	15 LPM	0705	5m	75L	2047006	<input type="checkbox"/> L <input checked="" type="checkbox"/> M <input type="checkbox"/> H	<input type="checkbox"/> On <input type="checkbox"/> Off	<input type="checkbox"/> Open <input type="checkbox"/> Closed
			0710			10/17	SUN	<input type="checkbox"/> On <input type="checkbox"/> Off	<input type="checkbox"/> Open <input type="checkbox"/> Closed
			0750			2047020	<input type="checkbox"/> L <input checked="" type="checkbox"/> M <input type="checkbox"/> H	<input checked="" type="checkbox"/> On <input type="checkbox"/> Off	<input type="checkbox"/> Open <input type="checkbox"/> Closed
			0755			10/17	SUN	<input type="checkbox"/> On <input type="checkbox"/> Off	<input type="checkbox"/> Open <input type="checkbox"/> Closed
			0655			16416981	<input type="checkbox"/> L <input type="checkbox"/> M <input type="checkbox"/> H	<input checked="" type="checkbox"/> On <input type="checkbox"/> Off	<input type="checkbox"/> Open <input checked="" type="checkbox"/> Closed
			0700			07/17			
IA1	CLASSROOM 615		0730			2047013	<input checked="" type="checkbox"/> L <input type="checkbox"/> M <input type="checkbox"/> H	<input type="checkbox"/> On <input checked="" type="checkbox"/> Off	<input type="checkbox"/> Open <input checked="" type="checkbox"/> Closed
			0735			10/17		<input type="checkbox"/> On <input checked="" type="checkbox"/> Off	<input type="checkbox"/> Open <input checked="" type="checkbox"/> Closed
IA2	CLASSROOM 600		0815			20416664	<input checked="" type="checkbox"/> L <input type="checkbox"/> M <input type="checkbox"/> H	<input checked="" type="checkbox"/> On <input type="checkbox"/> Off	<input type="checkbox"/> Open <input checked="" type="checkbox"/> Closed
			0820			10/17		<input type="checkbox"/> On <input checked="" type="checkbox"/> Off	<input type="checkbox"/> Open <input checked="" type="checkbox"/> Closed
IA3	MEDIA CENTER N/W Perm		0820			2046998	<input checked="" type="checkbox"/> L <input type="checkbox"/> M <input type="checkbox"/> H	<input checked="" type="checkbox"/> On <input type="checkbox"/> Off	<input type="checkbox"/> Open <input checked="" type="checkbox"/> Closed
			0825			10/17		<input type="checkbox"/> On <input checked="" type="checkbox"/> Off	<input type="checkbox"/> Open <input checked="" type="checkbox"/> Closed
IA4	" " TEXTBOOK ROOM.		0825			2046935	<input checked="" type="checkbox"/> L <input type="checkbox"/> M <input type="checkbox"/> H	<input checked="" type="checkbox"/> On <input type="checkbox"/> Off	<input type="checkbox"/> Open <input checked="" type="checkbox"/> Closed
			0830			10/17		<input type="checkbox"/> On <input checked="" type="checkbox"/> Off	<input type="checkbox"/> Open <input checked="" type="checkbox"/> Closed
IA5	Media CTR - MDF Room		0910			2047021	<input type="checkbox"/> L <input type="checkbox"/> M <input type="checkbox"/> H	<input checked="" type="checkbox"/> On <input type="checkbox"/> Off	<input type="checkbox"/> Open <input checked="" type="checkbox"/> Closed
			0915			10/17		<input type="checkbox"/> On <input type="checkbox"/> Off	<input type="checkbox"/> Open <input checked="" type="checkbox"/> Closed
IA6	CLASSROOM 205						<input type="checkbox"/> L <input type="checkbox"/> M <input type="checkbox"/> H	<input type="checkbox"/> On <input type="checkbox"/> Off	<input type="checkbox"/> Open <input type="checkbox"/> Closed
								<input type="checkbox"/> On <input type="checkbox"/> Off	<input type="checkbox"/> Open <input type="checkbox"/> Closed

Sample naming: OA=outside air, IA=inside air, WC=wall cavity. Weather: Sun, cloud, fog, rain, snow. Wind: Low (still to light breezes), Moderate (occasional gusts, some particulate suspension), High (sustained suspension of particulate & debris).

Relinquished by:
Marc Waz

Date & Time:
3/6/17

Received by:
J. Carrillo 9/6

Date & Time:
03/06/17 11:20 pm

Relinquished by:

Date & Time:

Received by:

Date & Time:

Appendix D Photographs



Photo #1: Classroom 615 Placard at entrance



Photo #2: Overview of exterior of Classroom 615
(1st floor)



Photo #3: Overview of classroom 615 interior - South

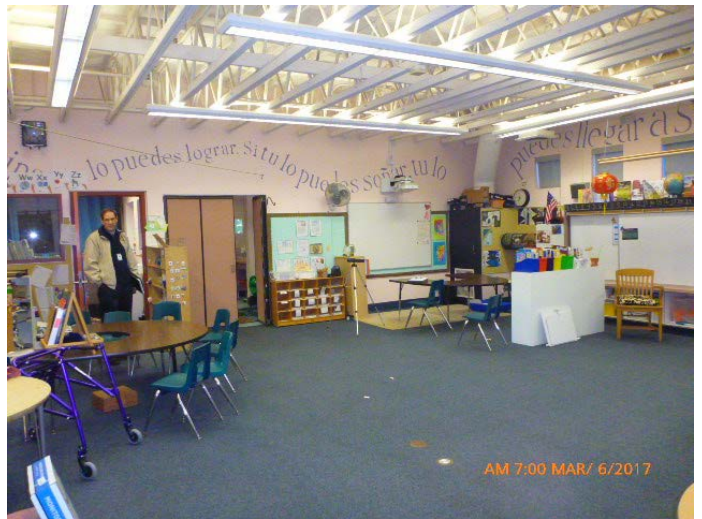


Photo #4: Overview of classroom 615 interior – NE



Photo #5: Overview of north wall



Photo #6: Close-up of base of north wall and moisture impact



Photo #7: Overview of backside of N wall in hallway



Photo #8: Close-up of base of wall and moisture impact. Staining observed on vinyl floor tile



Photo #9: Overview of Custodial closet in hallway adj. Classroom 615



Photo #10: Overviews of interior and east wall in closet



Photo #11: Heavy moisture damage, visible mold growth and elevated moisture along base of east wall



Photo #12: Additional moisture impact along north wall adjacent mop sink



Photo #13: Additional moisture impact observed along base of south wall



Photo #14: Classroom 600 Placard at entrance



Photo #15: Overview of Classroom 600 exterior (west)



Photo #16: Overview of Classroom 600 exterior (north)

John Muir Elementary School – Multiple Areas
Initial Mold and Moisture Assessment (3/20/17)



Photo #17: Staining observed below window along north perimeter



Photo #18: Overview of classroom 600 interior – east



Photo #19: Overview of classroom 600 interior – NW



Photo #20: Stained carpeting along north perimeter



Photo #21: Hole observed in ceiling above stained carpet



Photo #22: Overview of teachers cabinet toe-kick along north perimeter adjacent carpet staining



Photo #23: Media Center Placard at west entrance



Photo #24: Overview of Media Center exterior (west)



Photo #25: Overview of Media Center exterior (north)

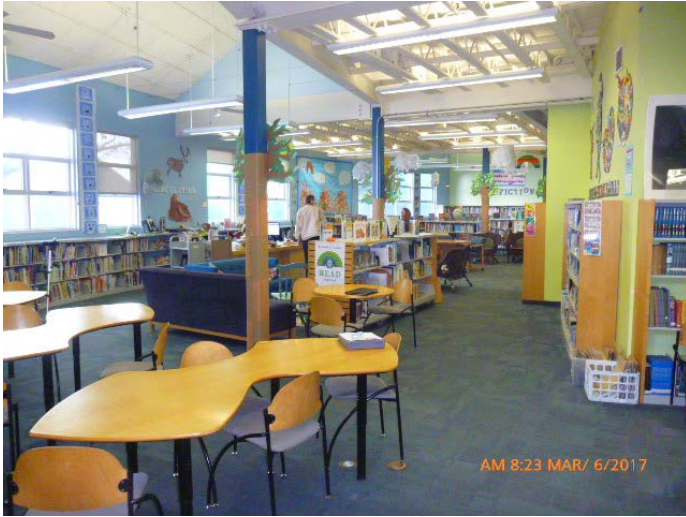


Photo #27: Overview of Media Center interior - east



Photo #29: Overview of stained carpet in NW corner

Photo #26: Overview of Media Center exterior (south)
directly outside MDF Office



Photo #28: Overview of NW corner (impact area 1)



Photo #30: Overview of moisture damage along base of
walls in NW corner



Photo #31: Mold growth observed behind base-cover on west wall



Photo #32: Overview of circulation desk along north perimeter (impact area 2)



Photo #33: Stained carpeting observed along north perimeter



Photo #34: Overview of Textbook Room (impact area 3)



Photo 35: Stained ceiling tiles observed in SW corner



Photo 36: Overview of top of ceiling tile and staining/debris



Photo 37: Overview of roofing materials in SW corner



Photo 38: Close-up of staining on wooden beams



Photo 39: Plastic bag placed on top of bookshelf in SW corner



Photo 40: View down SW corner. Limited access due to bookshelves.



Photo 41: Overview of MDF Office (impact area 4)



Photo 43: Stained carpeting observed along south perimeter

Photo 42: Stained ceiling tile observed along south perimeter



Photo 44: Overview of SE corner(impact area 5)

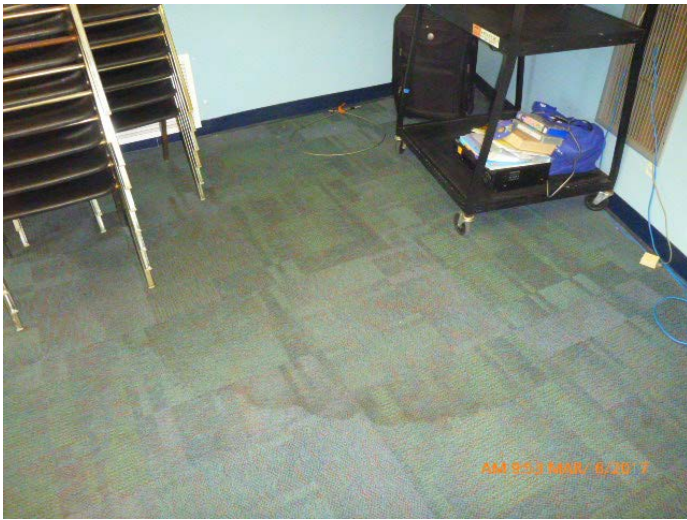


Photo 45: Large area of stained carpeting observed in SE corner



Photo 46: Moisture impact (e.g. bubbling) observed along base of south wall



Photo 47: Mold growth observed behind base-cove on south wall



Photo 48: Classroom 205 Placard at entrance



Photo 49: Overview of classroom interior – west



Photo 50: Overview south including entry and bathroom in corner



Photo 51: Missing and stained ceiling tiles observed in SW corner Adj. entry



Photo 52: Roof drain and staining observed on exposed roofing materials



Photo 53: Staining observed approximately 3 ft' up along west wall outside bathroom



Photo 54: Overview of base of west wall



Photo 55: Mold growth and strong musty odors observed along base of west and south walls (both sides of ext. door)



Photo 56: Stained ceiling tiles observed along north perimeter



Photo 57: Additional stained ceiling tiles in SW corner adj. bathroom



Photo 58: Overview of SW corner including sink cabinetry



Photo 59: Overview of south wall adj. bathroom



Photo 60: Moisture impact and mold growth observed along base of south and west walls



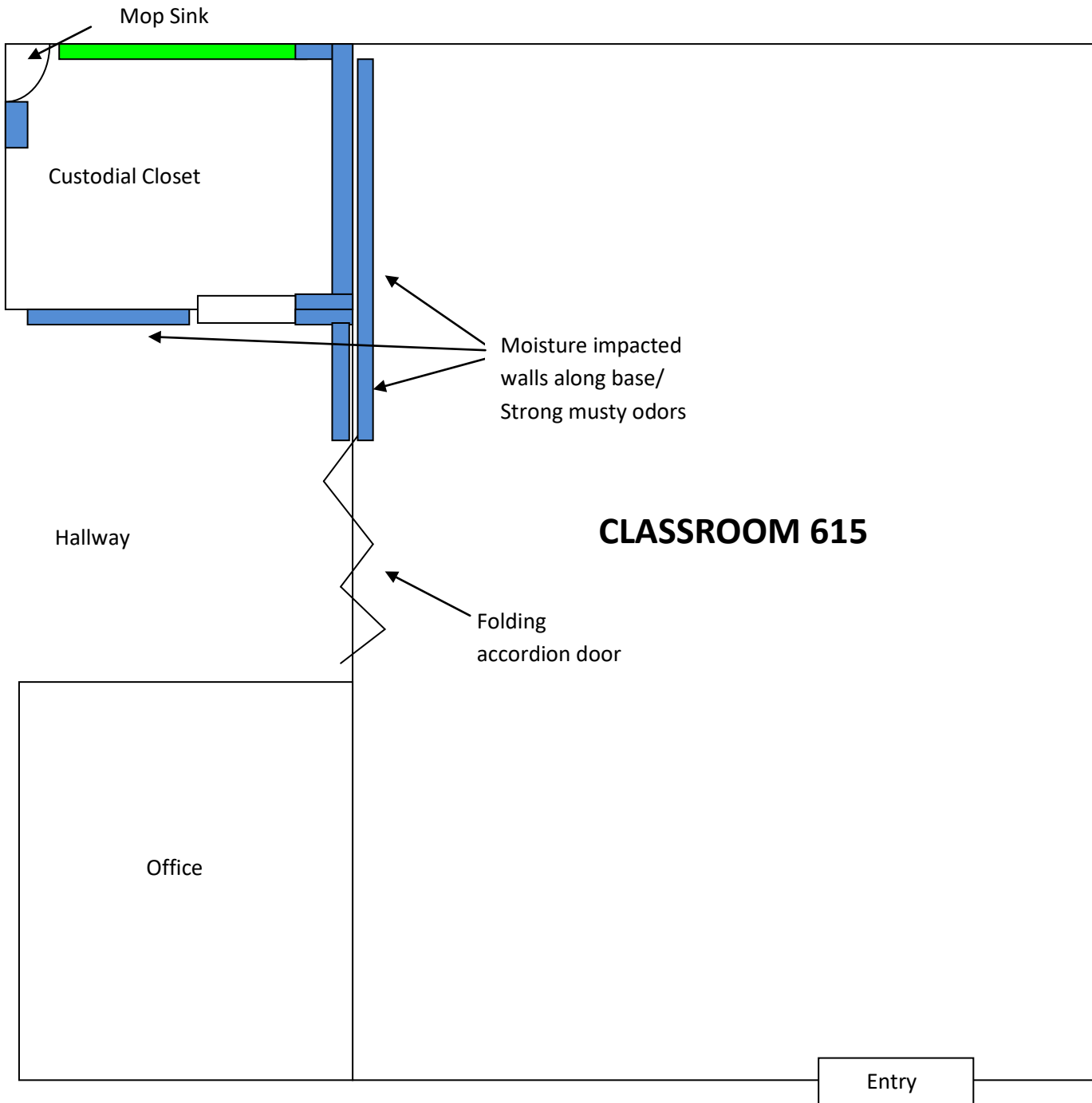
Photo 61: Moisture impact (e.g. bubbling paint) observed along west wall in bathroom





Photo 62: Moisture impact (e.g. damage) observed to ceiling in bathroom

Appendix E

Site Floor-Plan – Classroom 615



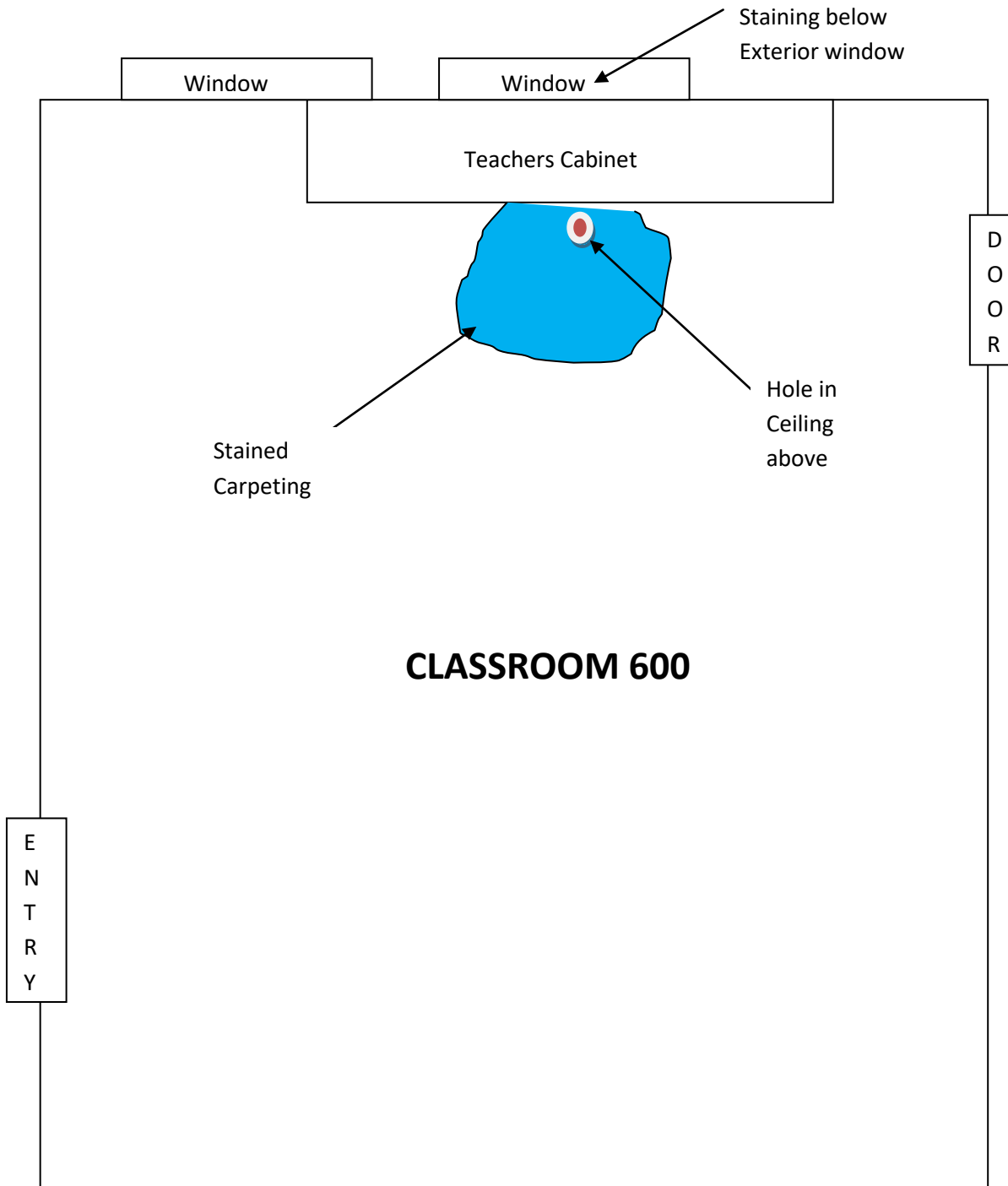
Legend:

-  - Visible mold growth / Superficial mold growth
-  - Moisture impacted materials / Potential mold growth





Appendix E

Site Floor-Plan – Classroom 600



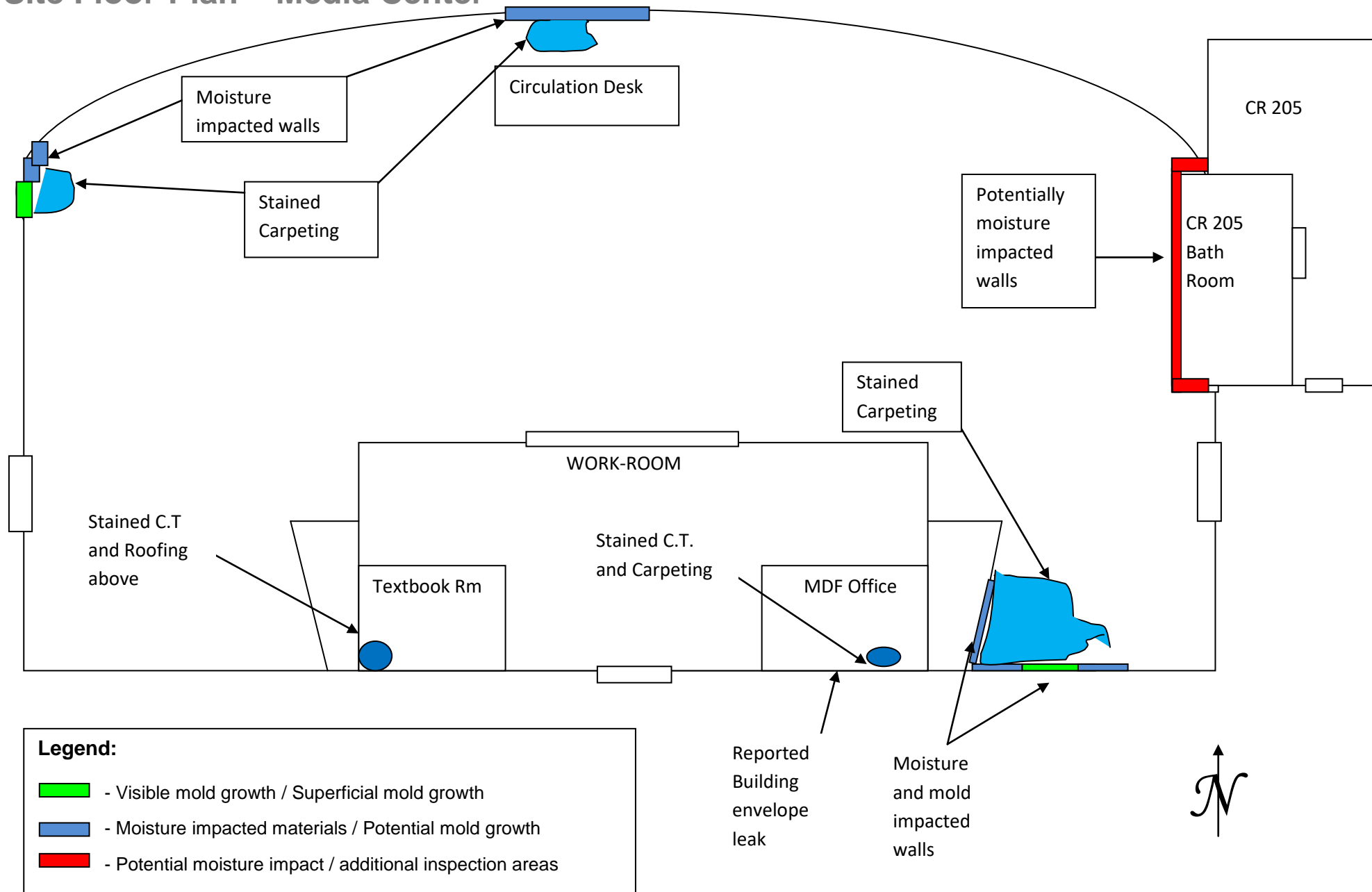
Legend:

-  - Visible mold growth / Superficial mold growth
-  - Moisture impacted materials / Potential mold growth



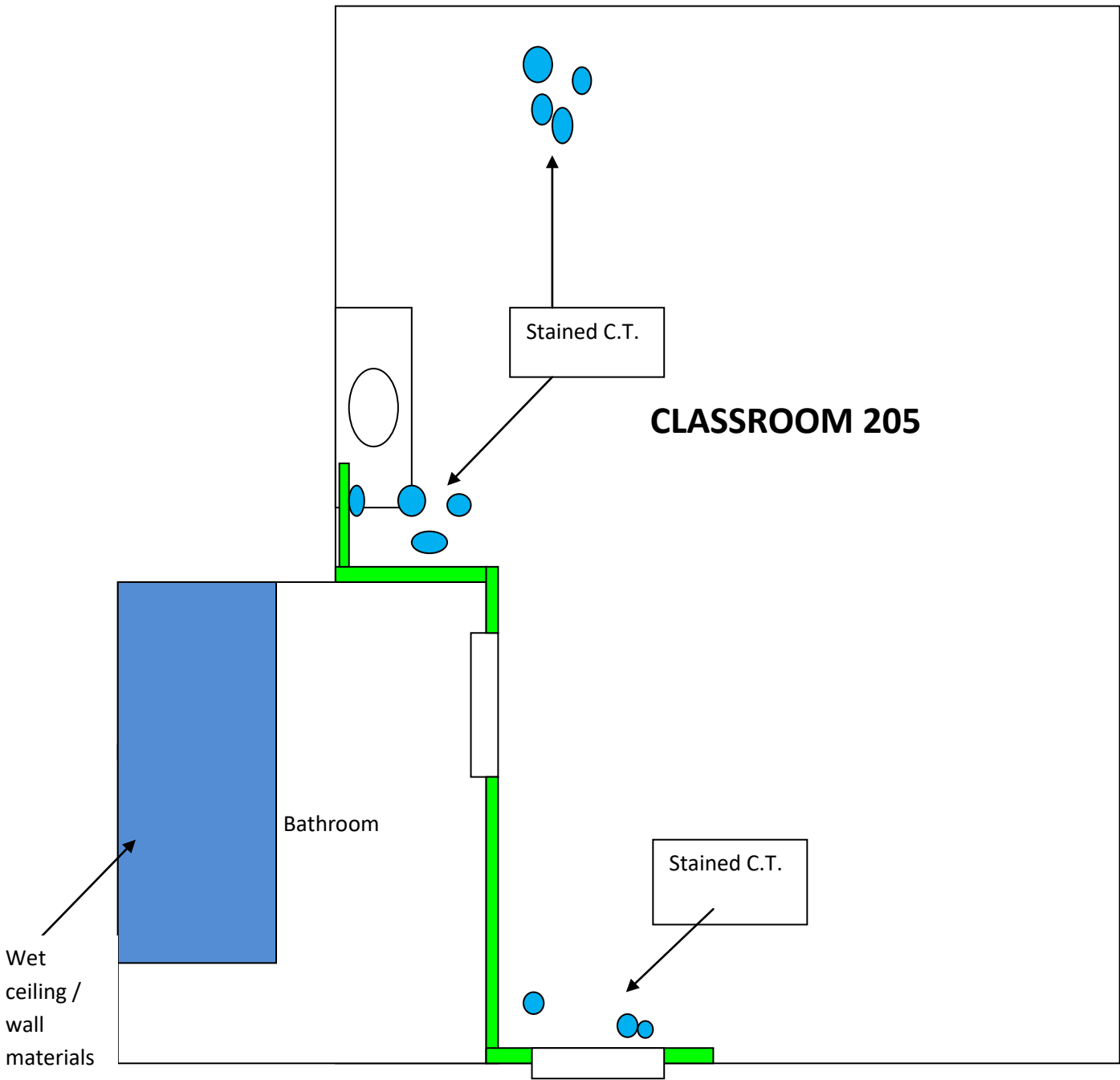
Appendix E

Site Floor-Plan – Media Center





Appendix E

Site Floor-Plan – Classroom 205 & Restroom



Legend:

-  - Visible mold growth / Superficial mold growth
-  - Moisture impacted materials / Potential mold growth



Appendix F

FACS General Mold Remediation Guidelines



CONTENTS

- Global Mold Remediation Guidelines
- General Procedures for:
 - M0 De Minimus Mold Remediation
 - M1 Small Scale Mold Remediation
 - M2 Medium Scale Mold Remediation
 - M3 Large Scale Mold Remediation
 - MC Removal of Mold Spore Contamination
 - ME Exterior Mold Remediation
 - MT Invasive Inspection for Mold

GLOBAL MOLD REMEDIATION GUIDELINES

1. *General Practices.* All work, which may result in the disturbance of mold growth or contamination, should be performed using work practices that minimize the disturbance of affected materials and dispersion of mold spores. Measures should also be taken to protect the health and safety of individuals performing remediation activities. At a minimum, work should be performed in accordance with the following guidelines addressing mold/water intrusion remediation:
 - Environmental Protection Agency. (September 2008). *Mold Remediation in Schools and Commercial Buildings*. EPA 402-K-01-001. Appendix B.
 - New York City Department of Health. (November 2008). *Guidelines on Assessment and Remediation of Fungi in Indoor Environments*. Appendix A.
 - U.S. Department of Labor Occupational Safety and Health Administration (November 8, 2013). *Safety and Health Information Bulletin: A Brief Guide to Mold in the Workplace*. SHIB 03-10-10.
 - American Industrial Hygiene Association. (2008). *Recognition, Evaluation and Control of Indoor Mold*. IMOM08-679.
 - Institute of Inspection, Cleaning and Restoration Contractors. (2006). *IICRC 500 Standard and Reference Guide for Professional Water Damage Restoration*. Third edition.
 - Institute of Inspection, Cleaning and Restoration Contractors. (2008). *IICRC S520 Standard and Reference Guide for Professional Mold Remediation*. Second edition.
2. *Material Removal.* In the course of removing building materials, bulk quantities of visible mold growth shall be removed from all wood structural members or other materials. Materials should be cleaned or removed 18 inches past visible mold growth unless otherwise specified.
3. *Regulated Materials.* Prior to commencing remediation activities, building materials that may be disturbed should be assessed for asbestos and lead-based paint hazards per applicable regulations.
4. *Sources of Moisture.* Mold growth is most frequently caused by a failure to adequately control moisture. Thus, whenever mold remediation is performed, measures should be taken to correct the conditions resulting in excess moisture and mold growth.



GENERAL PROCEDURES

M0: General Procedures for De Minimus Mold Remediation

The following procedures are provided for general guidance and may be modified as appropriate to address specific conditions on a case-by-case basis. All work should be performed in accordance the aforementioned guideline publications.

- **Example Applications**
 - Surface cleaning and non-aggressive removal of ≤ 1 ft.² of mold growth.
 - Surface cleaning of areas with light or minimal mold spore deposition/contamination.
 - Typical housekeeping activities.
- **Personal Protective Equipment**
 - May include the use of an N-95 disposable respirator, gloves and eye protection.
- **Containment Provisions**
 - None required.
- **Work Practices**
 - Mist surface and wet-wipe in a manner that minimizes disturbance of growth.
- **Post-Remediation Assessment**
 - Visual confirmation of removal of growth.

M1: General Procedures for Small Scale Mold Remediation

The following procedures are provided for general guidance and may be modified as appropriate to address specific conditions on a case-by-case basis. All work should be performed in accordance the aforementioned guideline publications.

- **Example Applications**
 - Surface cleaning and non-aggressive removal of >1 to <10 ft.² of mold growth.
 - Aggressive removal of materials with ≤ 1 ft.² of dense mold growth, or <10 ft.² of sparse mold growth.
 - General construction dust control for removal of building materials.
- **Personal Protective Equipment**
 - N-95 disposable respirator, gloves and eye protection.
- **Containment Provisions**
 - Cover the immediate work area with plastic sheeting.
 - A floor to ceiling plastic barrier should be erected to further isolate the work area if greater than approximately 5 ft. of material is being aggressively removed (e.g., removal of drywall).
 - Ensure ventilation provisions in the area are turned off.
- **Work Practices**
 - Remediation performed by maintenance/construction personnel with awareness training regarding proper clean up methods, personal protection, and potential health hazards associated with mold.
 - Clean surfaces using a HEPA vacuum or dust suppression methods (e.g., misting).
 - Remove materials using methods to minimize the disturbance of growth and for general dust suppression (e.g., HEPA vacuum positioned at the point of operation/removal and misting).
 - If removal cannot be accomplished without significant disturbance of mold growth or more extensive mold growth is encountered, then work should stop and medium or large scale remediation procedures should be implemented.
 - All contaminated materials should be removed from the work area in a sealed plastic bag.
 - Following removal of mold growth, clean the work area and immediately adjacent surfaces using a HEPA vacuum or wet-wiping.



- **Post-Remediation Assessment**

- Assessment by a designated individual familiar with these procedures and with mold awareness training.
- Visual confirmation of removal of growth and absence of contamination and debris prior to removal of containment provisions.
- Materials should be dried and causes of moisture impact controlled to prevent future growth.

M2: General Procedures for Medium Scale Mold Remediation

The following procedures are provided for general guidance and may be modified as appropriate to address specific conditions on a case-by-case basis. All work should be performed in accordance the aforementioned guideline publications.

- **Example Applications**

- Surface cleaning and non-aggressive removal of 10 to <100 ft.² of mold growth.
- Aggressive removal of materials with >1 to <10 ft.² of dense mold growth, or 10 to <100 ft.² of sparse mold growth.

- **Personal Protective Equipment**

- ½-face respirator with HEPA filters, gloves, disposable coveralls and goggles. Consider the use of HEPA/organic vapor combination cartridges if strong musty odors are present.

- **Containment Provisions**

- Isolate the work area from the surrounding environment using 1 layer of plastic sheeting configured with a slit entry and covering flap.
- Seal all penetrations to surrounding areas using plastic and tape (e.g., outlets, light switches, ventilation grills).
- Negatively pressurize the work area and exhaust out of the work area with HEPA filtration.

- **Work Practices**

- Remediation performed by professional mold remediation contractors with appropriate training and experience in mold remediation practices.
- Clean surfaces using a HEPA vacuum or dust suppression methods (e.g., misting).
- Remove materials using methods to minimize the disturbance of growth to the extent feasible.
- All contaminated materials should be removed from the work area in a sealed plastic bag.
- Following removal of mold growth, clean the work area, immediately surrounding area, and worker egress pathways using a HEPA vacuum or wet-wiping.

- **Post-Remediation Assessment**

- Assessment performed by a professional mold consultant with appropriate training and experience.
- Visual confirmation of removal of growth and absence of contamination and debris.
- Collection and evaluation of air and surface samples as appropriate to support visual inspection.
- Materials should be dried and causes of moisture impact controlled to prevent future growth.
- Containment provisions remain in place until the work areas has passed the assessment criteria.

M3: General Procedures for Large Scale Mold Remediation

The following procedures are provided for general guidance and may be modified as appropriate to address specific conditions on a case-by-case basis. All work should be performed in accordance the aforementioned guideline publications.

- **Example Applications**

- Surface cleaning and non-aggressive removal of ≥100 ft.² of mold growth.



- Aggressive removal of materials with ≥ 100 ft.² of dense or sparse mold growth.
- **Personal Protective Equipment**
 - Full-face respirator with HEPA filters, gloves, disposable coveralls with head and foot coverings and goggles. Consider the use of HEPA/organic vapor combination cartridges if strong musty odors are present.
- **Containment Provisions**
 - Isolate the work area from the surrounding environment using 2 layers of plastic sheeting configured with a decontamination area between two slit entries with covering flaps.
 - Seal all penetrations to surrounding areas using plastic and tape (e.g., outlets, light switches, ventilation grills).
 - Negatively pressurize the work area and exhaust to the outdoor environment with HEPA filtration.
- **Work Practices**
 - Remediation performed by professional mold remediation contractors with appropriate training and experience in mold remediation practices.
 - Clean surfaces using a HEPA vacuum or dust suppression methods (e.g., misting).
 - Remove materials using methods to minimize the disturbance of growth to the extent feasible.
 - All contaminated materials should be removed from the work area in a sealed plastic bag.
 - Following removal of mold growth, clean the work area, immediately surrounding area, and worker egress pathways using a HEPA vacuum or wet-wiping.
 - Mist surface and wet-wipe in a manner that minimizes disturbance of growth.
- **Post-Remediation Assessment**
 - Assessment performed by a professional mold consultant with appropriate training and experience.
 - Visual confirmation of removal of growth and absence of contamination and debris.
 - Collection and evaluation of air and surface samples as appropriate to support visual inspection.
 - Materials should be dried and causes of moisture impact controlled to prevent future growth.
 - Containment provisions remain in place until the work areas has passed the assessment criteria.

MC: General Procedures for Removal of Mold Spore Contamination/Deposition

The following procedures are provided for general guidance and may be modified as appropriate to address specific conditions on a case-by-case basis. All work should be performed in accordance the aforementioned guideline publications.

- **Example Applications**
 - Removal of secondary mold spore deposition from surfaces and contents resulting from the presence of mold growth reservoirs in the shared environment.
 - Note: Areas of light or minimal contamination may be cleaned in accordance with procedure M0.
 - Note: Cleaning of HVAC systems should be conducted in accordance with procedure MV.
- **Personal Protective Equipment**
 - Minimum of N-95 disposable respirator, gloves and eye protection. More extensive protective equipment may be appropriate depending on the severity of contamination.
- **Containment Provisions**
 - Not generally required, however conditions of severe contamination may necessitate containment provisions depending on conditions in surrounding environments.
- **Work Practices**
 - Remediation performed by professional mold remediation contractors with appropriate training and experience in mold remediation practices.



- Clean horizontal and vertical surfaces in place.
 - Wet-wipe hard, non-porous surfaces.
 - HEPA vacuum soft, porous surfaces. Disposal of porous materials exhibiting growth may be necessary.
 - Launder or dry-clean textiles.
 - Consider use of HEPA filtered negative air machines to purge or scrub the air in the area.
- **Post-Remediation Assessment**
 - Assessment performed by a professional mold consultant with appropriate training and experience.
 - Visual confirmation of removal of growth and absence of contamination and debris.
 - Collection and evaluation of air and surface samples as appropriate to support visual inspection.

ME: General Procedures for Exterior Mold Remediation

The following procedures are provided for general guidance and may be modified as appropriate to address specific conditions on a case-by-case basis. All work should be performed in accordance the aforementioned guideline publications.

- **Example Applications**
 - Cleaning of ≥ 10 ft.² of mold growth from exterior surfaces.
 - General construction dust control for the exterior removal of building materials.
 - Note: Cleaning of < 10 ft.² of exterior mold growth may be conducted in accordance with procedure M0.
- **Personal Protective Equipment**
 - Minimum of N-95 disposable respirator, gloves and eye protection. More extensive protective equipment may be appropriate depending on the severity of growth or intensity of removal activities.
- **Containment Provisions**
 - Prior to commencing work, close all windows and doors in or adjacent to the work area and seal interior window and door penetrations with tape (easy release or painters tape).
 - If removal of exterior building materials is to occur, seal all wall penetrations (i.e., electrical outlets and light switches) and base of wall on the associated interior wall being repaired with tape (easy release or painters tape).
- **Work Practices**
 - Remediation performed by maintenance/construction personnel with awareness training regarding proper clean up methods, personal protection, and potential health hazards associated with mold. The use of a professional mold remediation contractor may be appropriate depending on the severity of mold growth.
 - Proceed with exterior cleaning or building material removal using dust control methods (e.g., misting).
 - Inspect the back of exposed interior wall systems for evidence of mold growth. If mold growth is observed, proceed with cleaning or removal in accordance with procedures M0-M3 as appropriate.
 - Use a HEPA vacuum to remove excess debris from the wall cavity prior to reconstruction.
- **Post-Remediation Assessment**
 - Assessment by a designated individual familiar with these procedures and with mold awareness training.
 - Visual confirmation of removal of growth and absence of contamination and debris prior to removal of containment provisions.
 - Materials should be dried and causes of moisture impact controlled to prevent future growth.

MT: General Procedures for Invasive Inspection for Mold

The following procedures are provided for general guidance and may be modified as appropriate to address specific conditions on a case-by-case basis. All work should be performed in accordance the aforementioned guideline publications.

- **Example Applications**
 - Removal of building materials in areas where there is the potential for mold growth (i.e., the presence of mold growth has not been confirmed).
- **Personal Protective Equipment**
 - May include the use of an N-95 disposable respirator, gloves and eye protection as appropriate for general construction activities.
- **Containment Provisions**
 - Follow practices for general construction dust control (see M1 above). No special provisions for controlling mold growth are required.
- **Work Practices**
 - Remove a small area of building material from the area in question to facilitate visual inspection (e.g., <math><1\text{ft.}^2</math>).
 - In the course of removal, proceed in a manner that minimizes disturbance of potential concealed mold growth reservoirs. For example, cut around and gently remove a section of drywall as a single piece rather than demolishing the area with a hammer. A HEPA vacuum nozzle placed at the point of removal may further control potential releases.
 - Continue removal of materials in a stepwise fashion in order to perform desired construction repairs or to determine if any hidden mold growth exists.
 - If mold growth is encountered in the course of removal, immediately stop and proceed in accordance with mold remediation procedures as appropriate (see M0-M3 above).
- **Post-Remediation Assessment**
 - No assessment is necessary if no mold growth is encountered. If mold growth is encountered, follow the appropriate post-remediation assessment guidelines as discussed in M0-M3 above.

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