

Mold and Moisture Investigation Report: Findings of Initial Assessment

John Muir Elementary School & SMASH Elementary School Classrooms 205, 400, 415, 440, 600, 615, 660, and Media Center 2526 Sixth Street Santa Monica, CA 90405

Prepared for:

Mr. Gary Bradbury Santa Monica-Malibu Unified School District 310-450-8338x70310 | gbradbury@ASCIP.org

Prepared By:

Lydia Feng, MS CIH Forensic Analytical Consulting Services 2959 Pacific Commerce Drive Rancho Dominguez, CA 90292 310-668-5600 | Ifeng@forensicanalytical.com

FACS Project #PJ35033

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Executive Summary

Forensic Analytical Consulting Services, Inc. performed a mold and moisture assessment of classrooms 205, 400, 415, 440, 600, 615, 660, and the Media Center at John Muir Elementary / SMASH School, on September 21, 2017. A previous assessment was performed in classrooms 205, 600, 615, and the Media Center on March 6, 2017 (FACS report dated March 20, 2017), which identified either mold growth or moisture in each room, requiring corrective actions. To date various efforts to identify and repair the suspected sources have gone underway at the school. However, not all corrective actions recommended by FACS have been performed. At the request of SMMUSD, FACS returned to the school to reassess the areas, along with additional locations. Findings during the September assessment indicated similar conditions with regard to visible mold and moisture as identified during the March assessment. Additionally, based on the minor presence of visible mold growth per room, its general location (behind basecoves) and air sampling conducted on September 21, 2017, elevated mold spore levels in the air in areas assessed is not suspected. A more complete discussion of findings, conclusions and recommendations is provided below.

Introduction

Forensic Analytical Consulting Services, Inc. (FACS) was retained by Mr. Gary Bradbury of Santa Monica-Malibu Unified School District (SMMUSD) to perform a follow-up mold and moisture assessment of 205, 400, 415, 440, 600, 615, 660, and the Media Center at John Muir Elementary / SMASH School located at 2526 Sixth Street, Santa Monica, CA. The assessment was performed on September 21, 2017. This report contains the findings and recommendations from our investigation. The purpose of the investigation was to determine if elevated mold spore levels are present in the air.

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 or 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 on a school holiday, thus the school was vacant.

Site History

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

- Refer to history provided in FACS report dated March 20, 2017.
- Over the summer the district has reportedly retained a leak specialist to assist in identifying leaks and moisture issues at the school. All deck issues have been identified and repaired. To date, not all leaks have reportedly been identified; however continued efforts are ongoing to identify leaks as they occur and repair. Additionally, all corrective actions generated by FACS have not been completed.
- September 2017: At the request of SMMUSD, FACS returned to the school to reassess the areas in order to address teacher concerns regarding exposure to mold in the areas previously assessed, as well as other classrooms where teachers have expressed concerns (400, 415, 440, 660).

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, 400, 415, 440, 600, 615, 660; three (3) air samples in the Media Center (library, textbook room, and media tech office), and three (3) 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. Refer to findings provided in FACS report dated March 20, 2017 regarding classrooms 205, 600, 615, and the Media Center (library, textbook room, media tech office). With regard to the classrooms 400, 415, 440, and 660, no visible mold growth was observed. However, water damage/staining indicative of water impact was observed on ceiling and walls in 400. 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 the areas assessed is not suspected. This is based on the minor presence of visible mold growth per room, its general location (behind basecoves) and air sampling conducted on September 21, 2017, in which results indicated concentrations of spores indoors lower than outdoor controls. Specific locations, descriptions, conclusions and supporting reasoning are provided in Table 2.
- 4. Occupant Exposure. Elevated occupant exposure to airborne mold spores in the areas assessed is not suspected. This is based on the minor presence of visible mold growth per room, its

general location (behind basecoves) and air sampling conducted on September 21, 2017, in which results indicated concentrations of spores indoors lower than outdoor controls. 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.
- 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, continue efforts to 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. Refer to recommendations previously provided in FACS report dated March 20, 2017.

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 SMMUSD in promoting a more healthful environment.

Respectfully,

Lydia Feng, MS, CIH Project Manager



Reviewed by:

Michelle Rosales

Michelle Rosales, MPH, CIH Senior Project Manager



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 samples numbers and information recorded on field chain of custody forms. The samples are promptly delivered to the laboratory for analysis.

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	Photo # ^d	Sample # ^d
А	General Exterior	Outdoor control samples	١	١	١	١	OA1, OA2, OA3
В	Classroom 205	See FACS report dated 3/20/17. 9/21/17: Elevated moisture was no longer detected in areas previously identified with elevated moisture (bathroom walls). Bubbling paint was observed.	١	~2 ft ² (bubbling paint)	Drywall: 0.3% (9/21/17)	١	IA8
С	Classroom 600	See FACS report dated 3/20/17 9/21/17: Stained carpeting along north wall still present, as is a hole was identified in the ceiling above.	١	>10 ft ² (stained carpet)	١	١	IA2
D	Classroom 615	See FACS report dated 3/20/17 9/21/17: Slight elevated moisture was detected in areas previously identified with elevated moisture (base of wall common to custodial closet). Custodial closet locked.	١	١	Drywall: 0.5-0.6% (9/21/17)	١	IA1
Ш	Media Center – Library	See FACS report dated 3/20/17 9/21/17: Slight elevated moisture was detected in areas previously identified with elevated moisture (base of wall by circulation desk, and base of wall at SE corner of library)	١	١	Drywall: 0.5-0.6% (9/21/17)	١	IA5
F	Media Center – Textbook Room	See FACS report dated 3/20/17 9/21/17: Stained ceiling tiles still present.	١	~1 ft ² (stained ceiling tile)	١	١	IA6
G	Media Center – MDF Media Tech Office	See FACS report dated 3/20/17 9/21/17: Stained ceiling tile and stained carpeting still present.	١	<pre><1 ft² (stained ceiling tile) ~5 ft² (stained carpeting)</pre>	١	١	IA7

Ref #	Functional Area/Location	Observations/History	Area of Mold ^a	Area of Moisture ^b	Moisture Readings	Photo # ^d	Sample # ^d
н	Classroom 400	9/21/17: Water damage observed around door to break room, and on ceiling above. No elevated moisture noted.	١	~5-10 ft ² (damaged wall)	Drywall: 0.2%	2-4	IA4
Ι	Classroom 415	9/21/17: No significant findings with respect to mold or moisture.	١	/	١	5	IA3
J	Classroom 440	9/21/17: No significant findings with respect to mold or moisture.	١	/	١	6	IA9
К	Classroom 660	9/21/17: No significant findings with respect to mold or moisture.	١	/	١	7	IA10
Note	s:						

^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	Classrooms 205, 600, 615, and Media Center (Library, Textbook Room, MDF Media Tech Office) Refer to FACS report dated 3/20/17	Suspected, Potential	١	Refer to FACS report dated 3/20/17	١
2	Classroom 400 Mold growth is not suspected. This conclusion is based on the absence of visible mold growth or elevated moisture.	Not Suspected	١	 Repair cause of historic water intrusion, likely a roof leak. 	Roof leak
3	Classroom 415 Mold growth is not suspected. This conclusion is based on the absence of visible mold growth or elevated moisture.	Not Suspected	١	No recommendations	١
4	Classroom 440 Mold growth is not suspected. This conclusion is based on the absence of visible mold growth or elevated moisture.	Not Suspected	١	No recommendations	١
5	Classroom 660 Mold growth is not suspected. This conclusion is based on the absence of visible mold growth or elevated moisture.	Not Suspected	١	No recommendations	١

John Muir Elementary / SMASH School – Multiple Areas Mold and Moisture Assessment (9/29/17)

#	Mold Growth Location, Description & Reasoning	Mold Growth ^a	Repair Level ^b	Repair Detail	Preliminary Cause ^c
6	All Areas Assessed – General surfaces and air Contamination of surfaces and air is not suspected in areas where air sampling was conducted. This conclusion is supported by the minor presence of visible mold growth per room, its general location (behind basecoves) and the air sample results which indicated mold spore concentrations which were approximately the same or lower than outdoor controls on the day of sampling.	Not Suspected	١	 Upon completion of material/growth removal, the following actions may be taken to remove potential surface contamination: Clean all horizontal and vertical surfaces throughout using HEPA vacuum and damp-wipe methods. 	
^a Co	es: onclusion regarding presence of mold growth/c	ontamination (Sus	pected, Poter	ntial, Not Suspected), total surface area of mold growt	h anticipated

 (visible and hidden) and anticipated mold growth intensity (light, moderate, heavy).
 ^b Refer to appendix containing FACS General Mold Remediation Guidelines for description of work practices and guidance documents.
 ^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.

Appendix C Sampling Results Summary and Laboratory Report

Table 1: Spore Trap Air Samples (Lab Report # F122636)

Sample	Location	Summary of Comparison to Controls						
Number	Location	Types	Concentrations					
IA1	Classroom 615	Too low for comparison	Substantially lower than					
IA2	Classroom 600	Too low for comparison	Substantially lower than					
IA3	Classroom 415	Too low for comparison	Substantially lower than					
IA4	Classroom 400	Similar	Approximately the same					
IA5	Library	Too low for comparison	Substantially lower than					
IA6	Textbook room	NA	Substantially lower than (No spores or sporulating structures present)					
IA7	Media tech office	Too low for comparison	Substantially lower than					
IA8	Classroom 205	Similar	Approximately the same					
IA9	Classroom 440	Similar	Approximately the same					
IA10	Classroom 660	Too low for comparison	Substantially lower than					
OA1	Parking lot	Control sample	Control sample					
OA2	SW entrance of library	Control sample	Control sample					
OA3	Deck outside 670	Control sample	Control sample					
Notes: Findings	in bold considered elevated.	·						



Forensic Analytical Consulting Svcs Lydia Feng 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: PJ35033; Muir/SMASH ES - Mold Air Sampling (9) Rooms, 2526 - 6th Street, Santa Monica CA 90405
 Client ID:
 LA05

 Report Number
 F122636

 FALI Job ID:
 LA05

 Date Received:
 09/21/17

 Date Analyzed:
 09/22/17

 Date Printed:
 09/22/17

 First Reported:
 NA

Total Samples Submitted:13Total Samples Analyzed:13

Lab Number	60199835				601	99836		60199837						
Sample ID		C	DA1			(OA2		OA3					
Location		Park	king Lot		S	W Entrai	nce of Libr	ary	ary Deck Outside 670					
Sample Date		09/	/21/17			09/	/21/17		09/21/17					
Volume		7	5.0 L			7	5.0 L			7	5.0 L			
Organism	Spores⁺	%	LOD	S/m ³	Spores ⁺	%	LOD	S/m ³	Spores⁺	%	LOD	S/m ³		
Alternaria	2	1.9	13	27	ND	-	-	ND	ND	-	-	ND		
Ascospores	3	7	32	96	ND	-	-	ND	ND	-	-	ND		
Basidiospores	15	35.2	32	480	3	11.8	32	96	26	31.3	32	830		
Bipolaris / Drechslera	ND	-	-	ND	ND	-	-	ND	ND	-	-	ND		
Chaetomium	1	1	13	13	ND	-	-	ND	ND	-	-	ND		
Cladosporium	17	39.8	32	550	22	86.6	32	710	57	68.7	32	1,800		
Curvularia	ND	-	-	ND	1	1.6	13	13	ND	-	-	ND		
HYPHAL FRAGMENTS *	ND	-	-	ND	ND	-	-	ND	1	-	32	32		
Penicillium / Aspergillus	6	14.1	32	190	ND	-	-	ND	ND	-	-	ND		
Rusts/smuts/myxomycetes	ND	-	-	ND	ND	-	-	ND	ND	-	-	ND		
Ulocladium	1	1	13	13	ND	-	-	ND	ND	-	-	ND		
Particulate Density	40	м	linor	1,400	20	N	linor	620	03	N	linor	2,700		
Comments		W				IV								

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Forensic Analytical Consulting Svcs Lydia Feng 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: PJ35033; Muir/SMASH ES - Mold Air Sampling (9) Rooms, 2526 - 6th Street, Santa Monica CA 90405

LA05
F122636
LA05
09/21/17
09/21/17
09/22/17
NA

Total Samples Submitted:13Total Samples Analyzed:13

Lab Number	60199838				601	199839		60199840						
Sample ID			IA1				IA2		IA3 Classroom 415					
Location		Classi	room 615			Class	room 600							
Sample Date		09/	/21/17			09	/21/17			09/21/17				
Volume		7	5.0 L			7	5.0 L			7	5.0 L			
Organism	Spores ⁺	%	LOD	S/m ³	Spores ⁺	%	LOD	S/m ³	Spores ⁺	%	LOD	S/m ³		
Alternaria	ND	-	-	ND	ND	-	-	ND	ND	-	-	ND		
Ascospores	1	100	32	32	1	50	32	32	ND	-	-	ND		
Basidiospores	ND	-	-	ND	ND	-	- 1	ND	2	66.7	32	64		
Bipolaris / Drechslera	ND	-	-	ND	ND	-	- 1	ND	ND	-	-	ND		
Chaetomium	ND	-	-	ND	ND	-	- 1	ND	ND	-	-	ND		
Cladosporium	ND	-	-	ND	1	50	32	32	1	33.3	32	32		
Curvularia	ND	-	-	ND	ND	-	- 1	ND	ND	-	-	ND		
HYPHAL FRAGMENTS *	ND	-	-	ND	ND	-	- 1	ND	ND	-	-	ND		
Penicillium / Aspergillus	ND	-	-	ND	ND	-	- 1	ND	ND	-	-	ND		
Rusts/smuts/myxomycetes	ND	-	-	ND	ND	-	-	ND	ND	-	-	ND		
Ulocladium	ND	-	-	ND	ND	-	-	ND	ND	-	-	ND		
Total Particulate Density				32	2		Ainor	64	3			96		
Comments														

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Forensic Analytical Consulting Svcs Lydia Feng 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: PJ35033; Muir/SMASH ES - Mold Air Sampling (9) Rooms, 2526 - 6th Street, Santa Monica CA 90405

Client ID:	LA05
Report Number:	F122636
FALI Job ID:	LA05
Date Received:	09/21/17
Date Analyzed:	09/21/17
Date Printed:	09/22/17
First Reported:	NA

Total Samples Submitted:13Total Samples Analyzed:13

Lab Number	60199841				601	99842		60199843					
Sample ID			IA4				IA5		IA6				
Location		Classr	oom 400			Li	brary		Textbook				
Sample Date		09/	/21/17			09/	/21/17		09/21/17				
Volume		7	5.0 L			7	5.0 L			7	5.0 L		
Organism	Spores⁺	%	LOD	S/m ³	Spores ⁺	%	LOD	S/m ³	Spores⁺	%	LOD	S/m ³	
Alternaria	1	0.9	13	13	1	6.5	13	13	ND	-	-	ND	
Ascospores	3	6.2	32	96	1	15.6	32	32	ND	-	-	ND	
Basidiospores	5	10.3	32	160	2	31.2	32	64	ND	-	-	ND	
Bipolaris / Drechslera	ND	-	-	ND	ND	-	-	ND	ND	-	-	ND	
Chaetomium	ND	-	-	ND	ND	-	-	ND	ND	-	-	ND	
Cladosporium	37	76.4	32	1,200	3	46.7	32	96	ND	-	-	ND	
Curvularia	ND	-	-	ND	ND	-	-	ND	ND	-	-	ND	
HYPHAL FRAGMENTS *	2	-	32	64	1	-	32	32	ND	-	-	ND	
Penicillium / Aspergillus	3	6.2	32	96	ND	-	-	ND	ND	-	-	ND	
Rusts/smuts/myxomycetes	ND	-	-	ND	ND	-	-	ND	ND	-	-	ND	
Ulocladium	ND	-	-	ND	ND	-	-	ND	ND	-	-	ND	
l otal Particulate Density	49	м	linor	1,600	1	M	linor	210	ND		linor	ND	
Comments					No spores or sporulat present. Sample					mple LOD	structures is 32.		

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Forensic Analytical Consulting Svcs Lydia Feng 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: PJ35033; Muir/SMASH ES - Mold Air Sampling (9) Rooms, 2526 - 6th Street, Santa Monica CA 90405
 Client ID:
 LA05

 Report Number
 F122636

 FALI Job ID:
 LA05

 Date Received:
 09/21/17

 Date Analyzed:
 09/22/17

 Date Printed:
 09/22/17

 First Reported:
 NA

Total Samples Submitted:13Total Samples Analyzed:13

Lab Number	60199844				601	99845		60199846					
Sample ID			IA7				IA8		IA9 Classroom 440				
Location		Media 1	Fech Offic	e		Class	room 205						
Sample Date		09	/21/17			09	/21/17		09/21/17				
Volume		7	5.0 L			7	5.0 L			7	5.0 L		
Organism	Spores⁺	%	LOD	S/m ³	Spores ⁺	%	LOD	S/m ³	Spores ⁺	Spores⁺ % LOD		S/m ³	
Alternaria	ND	-	-	ND	ND	-	-	ND	ND	-	-	ND	
Ascospores	3	30	32	96	1	6.5	32	32	1	3	32	32	
Basidiospores	ND	-	-	ND	1	6.5	32	32	3	9.1	32	96	
Bipolaris / Drechslera	ND	-	-	ND	ND	-	-	ND	ND	-	-	ND	
Chaetomium	ND	-	-	ND	ND	-	-	ND	ND	-	-	ND	
Cladosporium	5	50	32	160	13	84.3	32	420	20	60.6	32	640	
Curvularia	ND	-	-	ND	1	2.7	13	13	ND	-	-	ND	
HYPHAL FRAGMENTS *	1	-	32	32	ND	-	-	ND	1	-	32	32	
Penicillium / Aspergillus	2	20	32	64	ND	-	-	ND	9	27.3	32	290	
Rusts/smuts/myxomycetes	ND	-	-	ND	ND	-	-	ND	ND	-	-	ND	
Ulocladium	ND	-	-	ND	ND	-	-	ND	ND	-	-	ND	
Total	10			320	16			490	33			1,100	
Particulate Density		N	linor	520		N	linor			N	linor	1,100	
Comments													

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Forensic Analytical Consult	ing Svcs								Client ID:	:	LA05			
Lydia Feng		Report Number:		F122636	1									
2959 Pacific Commerce Dri	ive								FALI Job) ID:	LA05			
										eived:	09/21/17			
Rancho Dominguez, CA 90)221								Date Analyzed: 09/21/17					
										Date Printed: 09/22/17				
Sample Type: Allergenco-D										First Reported: NA				
Analysis: Direct Mic	croscopy; I	FALI Met	hod IAQ 1	101; Modifie	ed ASTM [27391								
Job ID / Site: PJ35033;	, Muir/SMA	ASH ES -	Mold Air	Sampling (9) Rooms,	2526 - 6	oth Street,	Santa	Total Sar	mples S	ubmitted:	13		
Monica C	A 90405								Total Sar	mples A	nalyzed:	13		
Lab Number	— —	601	99847						Т					
Sample ID		L	A10	J										
Location		Classr	room 660											
				I								I		
Samula Data	┨────	09	/01/17		<u> </u>									
Volume	 	7!	5.0 L											
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Page 5 of 6 2959 Pacific Commerce Drive, Rancho Dominguez, CA 90221 / Telephone: (310) 763-2374 (888) 813-9417 / Fax: (310) 763-8684



Forensic Analytic	al Consulting Svcs		Client ID: LA05			
Lydia Feng		Report Number:	F122636			
2959 Pacific Corr	nmerce Drive		FALI Job ID:	LA05		
			Date Received:	09/21/17		
Rancho Domingu	lez, CA 90221		Date Analyzed:	09/21/17		
			Date Printed:	09/22/17		
Sample Type:	Allergenco-D		First Reported:	NA		
Analysis:	Direct Microscopy; FALI Method IAQ 101; Modified ASTM D73	391				
Job ID / Site:	PJ35033; Muir/SMASH ES - Mold Air Sampling (9) Rooms, 25	26 - 6th Street, Santa	Total Samples Submitted: 13			
	Monica CA 90405		Total Samples Analyzed: 13			
Explanations:		Background Partic	ulate Density Estim	ated As Follows:		
Spores ⁺	Actual number of spores counted in portion	Trace	Very little present			
	of sample examined	Minor	Present but not in	large quantity		
%	Percent of Total	Major	Present in most o	f sample		
LOD	Limit of Detection (Units are the same as result units)	Abundant	Covering almost e	entire sample		
S/m ³	Spores per cubic meter of air sampled	Overloaded	Covering entire sa	ample		
Spores/S	Number of spores per sample					
*	Not included in Totals Calculations					
ND	None Detected					
Particulate Densi	ty Amount of background particulate present					
-	Not Applicable					

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.

Vanessa Hurtado, Microbiology Laboratory Supervisor, Rancho Dominguez Laboratory

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Page 6 of 6

MICROBIAL AIR SAMPLING CHAIN OF CUSTODY Page _ of 2 Sand

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MICROBIAL AIR SAMPLING CHAIN OF CUSTODY

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Client Name/Job Description: Santa Monica - Malibu Unified School District Muir/SMASH ES - Mold Air Sampling (9) Rooms				Analysis Req M NVA / 🗌 (juested: Other:	Turnarou Same							
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Appendix D Photographs





Photo #1: Exterior overview of school

Photo #2: Classroom 400 - overview



Photo #3: Classroom 400 – water damaged walls around doorway to break room



Photo #4: Classroom 400 – water damaged ceiling above doorway to break room

John Muir Elementary / SMASH School – Multiple Areas Mold and Moisture Assessment (9/29/17)









Photo #6: Classroom 440 - overview



Photo #7: Classroom 660 - overview

John Muir Elementary / SMASH School – Multiple Areas Mold and Moisture Assessment (9/29/17)

Appendix E Site Floor Plan – Classroom 400

See floor plans for other areas assessed in FACS report dated 3/20/17



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

GLOBAL MOLD REMEDIATION GUIDELINES

- MC Removal of Mold Spore Contamination
- ME Exterior Mold Remediation
- MT Invasive Inspection for Mold
- 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. Retrieved 6/5/12: <u>http://www.epa.gov/mold/mold_remediation.html</u>
 - New York City Department of Health. (November 2008). Guidelines on Assessment and Remediation of Fungi in Indoor Environments. Appendix A. Retrieved 6/5/12: <u>http://www.nyc.gov/html/doh/html/epi/moldrpt1.shtml</u>
 - U.S. Department of Labor Occupational Safety and Health Administration (March 2010). Safety and Health Information Bulletin: A Brief Guide to Mold in the Workplace. SHIB 03-10-10. Retrieved 6/5/12: <u>http://www.osha.gov/dts/shib/shib101003.html</u>
 - 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
 - o 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

- \circ 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.
 - o 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).
 - o 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).
 - o 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.
 - o Following removal of mold growth, clean the work area and immediately adjacent surfaces using a HEPA vacuum or wet-wiping.



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• 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.
- o 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.
- o 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 \ge 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.
- o 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.



- o Clean horizontal and vertical surfaces in place.
- o Wet-wipe hard, non-porous surfaces.
- HEPA vacuum soft, porous surfaces. Disposal of porous materials exhibiting growth may be necessary.
- o 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., <1ft.²).
 - 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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