



952 School Street #111  
Napa, CA 94559  
707-205-5706  
mmichie@fitenvironmental.com

November 7, 2023

Mr. Jaime Rico  
Supervisor, MOT  
Cabrillo Unified School District  
498 Kelly Avenue  
Half Moon Bay, CA 94109

**RE: Spores in Air Comparison Sampling at Half Moon Bay High School Building A Classrooms A-3, A-8, and A-10/11 for the Cabrillo Unified School District located at 1 Lewis Foster Dr. in Half Moon Bay, California**

**F.I.T. Job # 23-111**

Dear Mr. Rico,

F.I.T. Environmental Services (FIT) is pleased to present this letter report for the reporting of spores in air comparison sampling performed in the locations noted above at Half Moon Bay High School Building A 1 Lewis Foster Dr. in Half Moon Bay, California.

### **Overview**

On November 4, 2023, FIT mobilized to the above-mentioned site to sample Classrooms A-3, A-8, and A-10/11 with an outdoor sample collected for comparison.

### **Methodology**

Airborne mold spore sampling was accomplished by using a spore trap method. Air-O-Cell cassettes were used to collect approximately 75 liters of air at a calibrated flow rate of 15 liters per minute. Air-O-Cell samples provide rapid collection and analysis by microscopic examination and allow identification of fungal spores, plant pollens and other particulates. Airborne particulate is collected by the spore trap cassette and analyzed by the non-viable, direct microscopic examination method. Spores are counted and identified by species type. Results are expressed in spores per cubic meter of air sampled. Samples are collected both inside the building areas to be evaluated and at one or more locations outside the building. The inside building sample results are compared with the outside ambient air result(s) to determine if any elevated levels are present for one or more spore types in the building area of concern.

Typically, in buildings with a filtered HVAC system, interior samples in a normal non-problem building would be anticipated to be 30-80% of the outside levels. Indoor levels that are significantly higher than outdoor levels would suggest an indoor mold contamination source may be present requiring further investigation and possible remedial action.

All samples were sent to Eurofins EM Labs P&K (EM Labs), located in Burlingame, California for analysis under chain of custody procedures. EM Labs specializes in air sample analysis of fungi (mold) and is a successful participant in the American Industrial Hygiene Association (AIHA) EMPAT proficiency program.

### Results of the 11/4/2023 Comparison Sampling

The November 4, 2023, samples collected inside the locations at Half Moon Bay High School Building A were reported by the laboratory as follows, spore counts in Classroom A-3 were 210 total spores per cubic meter of air (spores/m<sup>3</sup>), spore counts in Classroom A-8 were 270 spores/m<sup>3</sup>, spore counts in Classroom A-10/11 were 230 spores/m<sup>3</sup>. Outside comparison spore counts were 3,900 total spores/m<sup>3</sup>. The Classroom A-3 sample was 5% of the total spores/m<sup>3</sup> of the outside sample, the Classroom A-8 sample was 7% of the total spores/m<sup>3</sup> of the outside sample, the Classroom A-10/11 sample was 6% of the total spores/m<sup>3</sup> of the outside sample. The results are summarized in Table I below.

**Table I**

Sampling Location and Date	Total Spores/m <sup>3</sup>	% of Outdoor
Classroom A-3 – 11/04/2023	210	5%
Classroom A-8 – 11/04/2023	270	7%
Classroom A-10/11 – 11/04/2023	230	6%
Outdoors - 03/14/2023	3900	N/A

Spore Types. Species of molds detected in the atmosphere outside the building included *Ascospores*, *Basidiospores*, *Cladosporium*, *Oidium*, *Penicillium/Aspergillus*, *Pithomyces*, and (*Smuts*, *Periconia*, *Myxomycetes*) group.

Species of molds present inside the building included *Ascospores*, *Basidiospores*, *Cladosporium*, *Penicillium/Aspergillus*, and (*Smuts*, *Periconia*, *Myxomycetes*) group.

### Conclusion

Based upon the 11/04/2023 certified laboratory report of the air samples conducted inside Classrooms A-3, A-8, and A-10/11 at Half Moon Bay High School, F.I.T. Environmental Services has determined that the indoor air quality is that of a “normal building environment” in the areas notated above in accordance with industry standard indoor air quality protocols and state of the art indoor air quality assessment.

November 7, 2023  
Mr. Jaime Rico  
Page 3

FIT Environmental Services appreciates the opportunity to provide our microbial services.  
Please contact Michael Michie at (707) 205-5706 if you have any questions.

Respectfully submitted,



A handwritten signature in black ink, appearing to read "Patrick Garrett".

Patrick Garrett, CAC (# 15-5359) CDPH (#110)  
Certified Commercial Mold Inspector  
Vice President/Principal Consultant

A handwritten signature in black ink, appearing to read "Michael Michie".

Michael Michie, CAC (#11-4729)  
Certified Commercial Mold Inspector  
President/Principal Consultant

Attachments: Certified Analytical Report  
Chain of Custody

Report for:

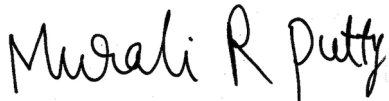
**Michael Michie**  
**F.I.T. Services, LLC**  
952 School St. #111  
Napa, CA 94559

---

Regarding: Eurofins EPK Built Environment Testing, LLC  
Project: 23-112; Half Moon Bay High School A Building  
EML ID: 3442952

Approved by:

Dates of Analysis:  
Spore trap analysis: 11-06-2023



Technical Manager  
Murali Putty

Service SOPs: Spore trap analysis (EB-MY-S-1038)  
AIHA-LAP, LLC accredited service, Lab ID #102856

---

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. Due to the nature of the analyses performed, field blank correction of results is not applied. The results relate only to the samples as received and tested. Information supplied by the client which can affect the validity of results: sample air volume.

Eurofins EPK Built Environment Testing, LLC ("the Company"), a member of the Eurofins Built Environment Testing group of companies, shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

Eurofins EPK Built Environment Testing, LLC's LabServe® reporting system includes automated fail-safes to ensure that all AIHA-LAP, LLC quality requirements are met and notifications are added to reports when any quality steps remain pending.

Client: F.I.T. Services, LLC  
 C/O: Michael Michie  
 Re: 23-112; Half Moon Bay High School A Building

Date of Sampling: 11-04-2023  
 Date of Receipt: 11-04-2023  
 Date of Report: 11-06-2023

**SPORE TRAP REPORT: NON-VIABLE METHODOLOGY**

Location:	3629 5836: Classroom A-3		3629 5813: Classroom A-8		3629 5831: Room A-10/11		3629 9986: Outside bldg	
Comments (see below)	None		None		None		A	
Lab ID-Version‡:	16765702-1		16765703-1		16765704-1		16765705-1	
Analysis Date:	11/06/2023		11/06/2023		11/06/2023		11/06/2023	
	raw ct.	spores/m3	raw ct.	spores/m3	raw ct.	spores/m3	raw ct.	spores/m3
Ascospores					3	160	144	1,800
Basidiospores	4	210	1	53	1	53	52	1,400
Botrytis								
Chaetomium								
Cladosporium			1	53			24	640
Curvularia								
Epicoccum								
Fusarium								
Myrothecium								
Nigrospora								
Oidium							3	20
Other colorless								
Penicillium/Aspergillus types†			3	160			2	53
Pithomyces							1	7
Rusts								
Smuts, Periconia, Myxomycetes					1	13	1	7
Stachybotrys								
Stemphylium								
Torula								
Ulocladium								
Zygomycetes								
Background debris (1-4+)††	2+		2+		1+		2+	
Hyphal fragments/m3	< 13		< 13		< 13		13	
Pollen/m3	< 13		< 13		27		< 7	
Skin cells (1-4+)	1+		1+		1+		< 1+	
Sample volume (liters)	75		75		75		150	
<b>§ TOTAL SPORES/m3</b>		<b>210</b>		<b>270</b>		<b>230</b>		<b>3,900</b>

**Comments:**A) 103 of the raw count Ascospores were present as a single clump.

Spore types listed without a count or data entry were not detected during the course of the analysis for the respective sample, indicating a raw count of <1 spore.

† The spores of *Aspergillus* and *Penicillium* (and others such as *Acremonium*, *Paecilomyces*) are small and round with very few distinguishing characteristics. They cannot be differentiated by non-viable sampling methods. Also, some species with very small spores are easily missed, and may be undercounted.

†† Background debris indicates the amount of non-biological particulate matter present on the trace (dust in the air) and the resulting visibility for the analyst. It is rated from 1+ (low) to 4+ (high). Counts from areas with 4+ background debris should be regarded as minimal counts and may be higher than reported. It is important to account for samples volumes when evaluating dust levels.

The analytical sensitivity is the spores/m<sup>3</sup> divided by the raw count, expressed in spores/m<sup>3</sup>, per spore and per sample.

For more information regarding analytical sensitivity, please contact QA by calling the laboratory.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

§ Total Spores/m<sup>3</sup> has been rounded to two significant figures to reflect analytical precision.

Client: F.I.T. Services, LLC  
 C/O: Michael Michie  
 Re: 23-112; Half Moon Bay High School A Building

Date of Sampling: 11-04-2023  
 Date of Receipt: 11-04-2023  
 Date of Report: 11-06-2023

**MoldRANGE™: Extended Outdoor Comparison**  
**Outdoor Location: 3629 9986, Outside bldg**

Fungi Identified	Outdoor data	Typical Outdoor Data for: November in California† (n‡=29292)						Typical Outdoor Data for: The entire year in California† (n‡=380349)					
		very low	low	med	high	very high	freq %	very low	low	med	high	very high	freq %
<b>Generally able to grow indoors*</b>													
Alternaria	-	13	13	27	67	110	53	13	13	27	56	110	51
Bipolaris/Drechslera group	-	10	13	13	27	53	14	7	13	13	27	53	12
Chaetomium	-	13	13	13	27	53	20	10	13	13	27	40	19
Cladosporium	640	160	270	910	2,700	5,100	97	110	210	590	1,600	2,700	96
Curvularia	-	7	13	13	27	53	8	7	13	13	29	53	6
Nigrospora	-	8	13	13	40	53	15	7	13	13	33	53	9
Penicillium/Aspergillus types	53	53	110	310	850	1,500	84	53	89	210	640	1,100	80
Pithomyces	7	7	13	13	27	53	5	7	13	13	27	53	4
Stachybotrys	-	13	13	13	33	67	4	8	13	13	40	67	4
Torula	-	8	13	13	40	67	8	10	13	13	40	67	11
<b>Seldom found growing indoors**</b>													
Ascospores	1,800	20	53	120	560	1,200	66	27	53	110	400	830	68
Basidiospores	1,400	53	80	320	2,200	5,800	91	53	67	230	1,000	2,500	91
Oidium	20	13	13	13	40	63	9	13	13	13	53	80	18
Rusts	-	13	13	13	53	80	24	13	13	13	53	89	24
Smuts, Periconia, Myxomycetes	7	13	13	40	110	190	71	13	13	40	120	230	68
<b>§ TOTAL SPORES/m3</b>	<b>3,900</b>												

†The 'Typical Outdoor Data' represents the typical outdoor spore levels for the location and time frame indicated. The last column represents the frequency of occurrence. The very low, low, med, high, and very high values represent the 10, 20, 50, 80, and 90 percentile values of the spore type when it is detected. For example, if the frequency of occurrence is 63% and the low value is 53, it would mean that the given spore type is detected 63% of the time and, when detected, 20% of the time it is present in levels above the detection limit and below 53 spores/m3. These values are updated periodically, and if enough data is not available to make a statistically meaningful assessment, it is indicated with a dash.

§ Total Spores/m3 has been rounded to two significant figures to reflect analytical precision.

\* The spores in this category are generally capable of growing on wet building materials in addition to growing outdoors. Building related growth is dependent upon the fungal type, moisture level, type of material, and other factors. *Cladosporium* is one of the predominant spore types worldwide and is frequently present in high numbers. *Penicillium/Aspergillus* species colonize both outdoor and indoor wet surfaces rapidly and are very easily dispersed. Other genera are usually present in lesser numbers.

\*\* These fungi are generally not found growing on wet building materials. For example, the rusts and smuts are obligate plant pathogens. However, in each group there are notable exceptions. For example, agents of wood decay are members of the basidiomycetes and high counts of a single morphological type of basidiospore on an inside sample should be considered significant.

‡n = number of samples used to calculate data.

Interpretation of the data contained in this report is left to the client or the persons who conducted the field work. This report is provided for informational and comparative purposes only and should not be relied upon for any other purpose. "Typical outdoor data" are based on the results of the analysis of samples delivered to and analyzed by Eurofins EMLab P&K and assumptions regarding the origins of those samples. Sampling techniques, contaminants infecting samples, unrepresentative samples and other similar or dissimilar factors may affect these results. In addition, Eurofins EMLab P&K may not have received and tested a representative number of samples for every region or time period. Eurofins EMLab P&K hereby disclaims any liability for any and all direct, indirect, punitive, incidental, special or consequential damages arising out of the use or interpretation of the data contained in, or any actions taken or omitted in reliance upon, this report.

Client: F.I.T. Services, LLC  
 C/O: Michael Michie  
 Re: 23-112; Half Moon Bay High School A Building

Date of Sampling: 11-04-2023  
 Date of Receipt: 11-04-2023  
 Date of Report: 11-06-2023

**MoldSTAT™: Supplementary Statistical Spore Trap Report**

**Outdoor Summary:** 3629 9986: Outside bldg

Species detected	Outdoor sample spores/m3				Typical outdoor ranges (North America)	Freq. %
	<100	1K	10K	>100K		
Ascospores				1,800	13 - 210 - 5,500	74
Basidiospores				1,400	13 - 430 - 22,000	89
Cladosporium				640	27 - 430 - 7,700	87
Oidium				20	7 - 25 - 230	10
Penicillium/Aspergillus types				53	19 - 190 - 2,700	61
Pithomyces				7	7 - 22 - 430	11
Smuts, Periconia, Myxomycetes				7	7 - 53 - 790	63
<b>Total</b>				3,900		

The "Typical outdoor ranges" and "Freq. %" columns show the typical low, medium, and high spore counts per cubic meter and the frequency of occurrence for the given spore type. The low, medium, and high values represent the 2.5, 50, and 97.5 percentile values when the spore type is detected. For example, if the low value is 53 and the frequency of occurrence is 63%, it would mean that we typically detect the given spore type on 63 percent of all outdoor samples and, when detected, 2.5% of the time it is present in levels below 53 spores/m3.

**Indoor Samples**

**Location:** 3629 5836: Classroom A-3

% of outdoor total spores/m3	Friedman chi-square* (indoor variation)	Agreement ratio** (indoor/outdoor)	Spearman rank correlation*** (indoor/outdoor)	MoldSCORE**** (indoor/outdoor)	
Result: 5%	dF: 2 Result: 0.3000 Critical value: 5.9915 Inside Similar: Yes	Result: 0.2500	dF: 7 Result: 0.5714 Critical value: 0.6786 Outside Similar: No	Score: 114 Result: Low	
Species Detected		Spores/m3			
		<100	1K	10K	>100K
	Basidiospores				210
	<b>Total</b>				210

Client: F.I.T. Services, LLC  
 C/O: Michael Michie  
 Re: 23-112; Half Moon Bay High School A Building

Date of Sampling: 11-04-2023  
 Date of Receipt: 11-04-2023  
 Date of Report: 11-06-2023

**MoldSTAT™: Supplementary Statistical Spore Trap Report**

**Location:** 3629 5813: Classroom A-8

% of outdoor total spores/m3	Friedman chi-square* (indoor variation)	Agreement ratio** (indoor/outdoor)	Spearman rank correlation*** (indoor/outdoor)	MoldSCORE**** (indoor/outdoor)	
Result: 6%	dF: 2 Result: 0.3000 Critical value: 5.9915 Inside Similar: Yes	Result: 0.6000	dF: 7 Result: 0.4286 Critical value: 0.6786 Outside Similar: No	Score: 125 Result: Low	
Species Detected		Spores/m3			
		<100	1K	10K	>100K
	Basidiospores				53
	Cladosporium				53
	Penicillium/Aspergillus types				160
	<b>Total</b>				270

**Location:** 3629 5831: Room A-10/11

% of outdoor total spores/m3	Friedman chi-square* (indoor variation)	Agreement ratio** (indoor/outdoor)	Spearman rank correlation*** (indoor/outdoor)	MoldSCORE**** (indoor/outdoor)	
Result: 5%	dF: 2 Result: 0.3000 Critical value: 5.9915 Inside Similar: Yes	Result: 0.6000	dF: 7 Result: 0.6071 Critical value: 0.6786 Outside Similar: No	Score: 103 Result: Low	
Species Detected		Spores/m3			
		<100	1K	10K	>100K
	Ascospores				160
	Basidiospores				53
	Smuts, Periconia, Myxomycetes				13
	<b>Total</b>				230

\* The Friedman chi-square statistic is a non-parametric test that examines variation in a set of data (in this case, all indoor spore counts). The null hypothesis (H0) being tested is that there is no meaningful difference in the data for all indoor locations. The alternative hypothesis (used if the test disproves the null hypothesis) is that there is a difference between the indoor locations. The null hypothesis is rejected when the result of the test is greater than the critical value. The critical value that is displayed is based on the degrees of freedom (dF) of the test and a significance level of 0.05.

\*\* An agreement ratio is a simple method for assessing the similarity of two samples (in this case the indoor sample and the outdoor summary) based on the spore types present. A score of one indicates that the types detected in one location are the same as that in the other. A score of zero indicates that none of the types detected indoors are present outdoors. Typically, an agreement of 0.8 or higher is considered high.

\*\*\* The Spearman rank correlation is a non-parametric test that examines correlation between two sets of data (in this case the indoor location and the outdoor summary). The null hypothesis (H0) being tested is that the indoor and outdoor samples are unrelated. The alternative hypothesis (used if the test disproves the null hypothesis) is that the samples are similar. The null hypothesis is rejected when the result of the test is greater than the critical value. The critical value that is displayed is based on the degrees of freedom (dF) of the test and a significance level of 0.05.



Client: F.I.T. Services, LLC

Date of Sampling: 11-04-2023

C/O: Michael Michie

Date of Receipt: 11-04-2023

Re: 23-112; Half Moon Bay High School A Building Date of Report: 11-06-2023

### **MoldSTAT™: Supplementary Statistical Spore Trap Report**

\*\*\*\* MoldSCORE™ is a specialized method for examining air sampling data. It is a score between 100 and 300, with 100 indicating a greater likelihood that the airborne indoor spores originated from the outside, and 300 indicating a greater likelihood that they originated from an inside source. The Result displayed is based on the numeric score given and will be either Low, Medium, or High, indicating a low, medium, or high likelihood that the spores detected originated from an indoor source. Eurofins EMLab P&K reserves the right to, and may at anytime, modify or change the MoldScore algorithm without notice.

Interpretation of the data contained in this report is left to the client or the persons who conducted the field work. This report is provided for informational and comparative purposes only and should not be relied upon for any other purpose. "Typical outdoor ranges" are based on the results of the analysis of samples delivered to and analyzed by Eurofins EMLab P&K and assumptions regarding the origins of those samples. Sampling techniques, contaminants infecting samples, unrepresentative samples and other similar or dissimilar factors may affect these results. With the statistical analysis provided, as with all statistical comparisons and analyses, false-positive and false-negative results can and do occur. Eurofins EMLab P&K hereby disclaims any liability for any and all direct, indirect, punitive, incidental, special or consequential damages arising out of the data contained in, or any actions taken or omitted in reliance upon, this report.



**Microbial SAMPLE**

003442952

PAGE 1 OF 1

952 School St. #111  
Napa, CA 94559

Project Name/Address: Half Moon Bay High School A Building Report Recipient: \_\_\_\_\_

Client Name: CUSD F.I.T. Project #: 23-112 Sampled By: Michael M. Sampling Date: 11-4-2023

Sample(s) Sent To:  MAL  FEM Lab  Other: \_\_\_\_\_ Turnaround Time:  Rush  Standard

Email Report To:  mmichie@fiteenvironmental.com  pgarrett@fiteenvironmental.com

Sample ID. #	Date	Type	Sample Description				Sample Location	Volume Liters	Culture	Culture Screen	Direct Exam	Legionella	Analysis
			Air	Bulk	Swab	Water							
36295836	11-4	Spore Trap	✓				75						
36295813	11-4	Spore Trap	✓				75						
36295831	11-4	Spore Trap	✓				75						
3629986	11-4	Spore Trap	✓				150						

NAME:

SIGNATURE:

DATE:

REMARKS:

Relinquished By:	<u>Michael Michie</u>	<u>[Signature]</u>	<u>11-4-2023</u>
Received By:	<u>SPENCER WAN</u>		<u>11-4-2023 17:30</u>
Relinquished By:			
Received By:			