

Indoor Air Quality Report of Findings



Prepared for:

Penn Manor School District

2950 Charlestown Rd.

Lancaster PA 17603

September 10, 2018

Attn: Chip Mathias

Prepared by:

Airborne Contamination Identification
Associates, Ltd.

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Data Collected



- * Dates Sampled: August 31, 2018
- * Samples Collected by: Kyle Leaman
- * Sample Location: Eshleman Elementary, 545 Leaman Ave, Millersville, PA 17551
- * Equipment Used: Met One Model GT-526S Particle Counter Bio Test RCS Portable bio-aerosol Sampler. Vulcain SafetyPalm.

Guidelines for Evaluation of Airborne Microbial Contamination of Buildings



IAQ Evaluation	Category of Contamination	Bacteria CFU's/m ³	FUNGI CFU's/m ³
Excellent	Very Low	<100	<50
Good	Low	<500	<200
Marginal	Intermediate	<2,500	<1,000
Poor	High	<10,000	<10,000
Very Poor	Very High	>10,000	>10,000

By Brian Flanigan, PhD (Citing Wanner, et al, 1993) as presented to the International Conference on Fungi and Bacteria in Indoor Air Environments – Health Effects, Detection and Remediation; October 6-7, 1994

Table: Levels of Microbial Contamination of air and dust in naturally ventilated homes and non-industrial indoor work environments.

American Industrial Hygiene Association (AIHA), *The Synergist*, Geoffery Clark, *The Synergist*, 2001, updated 2003, and Godish 2001 (section).



Type	Normal Background*	Possible	Probable
Air Samples from Residential Buildings	<500 cfu/m ³	500-1,000 cfu/m ³	>1,000 cfu/m ³
Air Samples from Commercial Buildings (filtered HVAC system)	<250 cfu/m ³	250-1,000 cfu/m ³	>1,000 cfu/m ³
Bulk Samples	<10,000 cfu/g	10,000-100,000 cfu/g	>100,000 cfu/g
Swab Samples	<10,000 cfu/in ² <1,500 cfu/cm ²		>10,000 cfu/in ² >1,500 cfu/in ²
Tape Samples	NSFM, NSFC 1-5% <10,000 spores/in ²	5-25%	25-100% >10,000 spores/in ²

The table list mold spore levels considered to be a normal background, possible contamination, and probable contamination for a variety of sample collection methods.

- Types and relative proportions of fungal spores should be similar to outdoors.
- NSFM = no significant fungal material
- NSFC = no significant fungal contamination
- Cfu/m³ = colony forming units per cubic meter
- Cfu/g = colony forming units per gram of dust or material
- Cfu/in² = colony forming units per square inch of surface

“ Worldwide Exposure Standards for Mold and Bacteria”
 By Robert C. Brandys, PhD, MPH, PE, CIH, CSP, CMR
 Gail M. Brandys, MS, CSP, CMR

Data Collected



Location	3.0 Micron	5.0 Micron	10.0 Micron	RH%	Temp °F	Co/Co ²	Evaluation	Fungi CFU M ³
1- Office	650	270	120	65%	70°F	0/518	Good	138
2- Room 5	90	20	0	77%	70°F	0/499	Good	138
3- Room 6	90	20	10	78%	70°F	0/449	Excellent	38
4- Room 7	20	10	0	68%	70°F	0/441	Excellent	0
5- Room 8	220	70	10	73%	70°F	0/441	Good	138
6- Room 20	150	20	0	75%	70°F	0/562	Good	126

NOTES: Above particle counts are pieces per cubic foot of air. The fungi counts are in colony forming units per cubic meter of air. Locations with carbon dioxide levels above 2,000 parts per million should the ventilation checked to insure proper amount of outside air is being introduced.

Data Collected



Location	3.0 Micron	5.0 Micron	10.0 Micron	RH%	Temp °F	Co/Co ²	Evaluation	Fungi CFU M ³
7- Room 10	240	110	40	76%	70°F	0/586	Excellent	13
8- Room 19	190	40	20	74%	70°F	0/612	Excellent	38
9- Room 18	210	60	20	75%	70°F	0/622	Very Good	63
10- Room 17	80	60	10	78%	70°F	0/598	Poor	588
11- Room 16	160	30	20	77%	70°F	0/576	Excellent	25
12- Room 15	130	0	0	72%	70°F	0/601	Very Good	76

NOTES: Above particle counts are pieces per cubic foot of air. The fungi counts are in colony forming units per cubic meter of air. Locations with carbon dioxide levels above 2,000 parts per million should the ventilation checked to insure proper amount of outside air is being introduced.

Data Collected



Location	3.0 Micron	5.0 Micron	10.0 Micron	RH%	Temp °F	Co/Co ²	Evaluation	Fungi CFU M ³
13- Room 4	50	40	30	74%	70°F	0/510	Good	239
14- Room 3	30	0	0	75%	70°F	0/505	Excellent	0
15- Room 1	160	80	70	71%	71°F	0/521	Very Good	63
16-Outside Air	3,620	990	180	82%	72°F	0/407	N/A	101

NOTES: Above particle counts are pieces per cubic foot of air. The fungi counts are in colony forming units per cubic meter of air. Locations with carbon dioxide levels above 2,000 parts per million should the ventilation checked to insure proper amount of outside air is being introduced.

Recommendations



Airborne Contamination Identification Associates Ltd. would recommend visually inspecting sample 10, Room 17 for visible mold growth. The visible areas should then be wiped with Anabec Advanced Cleaning Solution. After wiping the surfaces, the room should also be fogged with Anabec Advanced Cleaning Solution. The room should remain vacant during the fogging treatment and smoke and fire detectors should be disabled. After fogging treatment, ACIA recommends installing two HEPA filtered air scrubbers over a weekend to remove the remaining airborne spores. The room should be re-sampled once remediation process is complete.

Regards,
Randall R. Leaman C.I.A.Q.P
Certified Indoor Air Quality Professional since 1996

Airborne Contamination Identification Associates Ltd.