EA GROUP
Environmental Analysis and Management

December 15, 2017

Mr. Jeremy McDevitt
Kenston Local Schools
1719 Snyder Road
Chagrin Falls, Ohio 44022

RE: **Indoor Air Quality Evaluation**
Kenston Middle School, 17425 Snyder Road, Kenston, Ohio
OH41465

Description of Work

EA Group, Mentor, Ohio was contracted by Kenston Local Schools to assist in the evaluation of potential airborne contaminants in Kenston Middle School following roof removal and replacement activities. During initial roof replacement work, odors from the roofing products used were drawn into the building, resulting in occupant concerns. Activities included a review of the chemical constituents associated with the Carlisle Syntec Systems roofing products and related products to identify primary chemical constituents which may remain in the building following completion of the work, sampling for the primary chemical constituents identified in the roofing products, sampling for fungal (mold) structures that may be associated with past roof leaks, and sampling for airborne fibers in the event building materials considered asbestos-containing materials (ACM) were disturbed.

Sampling was conducted on December 7, 2017 by EA Group representative Michael Kovell. Based on the agreed upon sampling plan, five locations were identified to evaluate primary chemical constituents, 29 locations were identified to evaluate fungal structures, and ten locations were identified to evaluate airborne fibers. Sampling locations are identified on Tables 1 through 3, and on Figures 1 and 2.

Roofing Product Evaluation

Safety Data Sheets (SDS) for the Carlisle Syntec Systems roofing products and rusted metal coatings were provided to identify primary chemical constituents. SDS for the following were reviewed:

FAST 100-LV Adhesive Part-A 3
FAST 100-LV Adhesive Part-B 18
Weathered Membrane Cleaner SDS 27
Sure-Seal HP-250 Primer 36
Low VOC Bonding Adhesive 48
Sure-Seal 90-8-30A Bonding Adhesive GHS SDS 3-15
Sherwin Williams Low VOC Rusted Deck Primer
Rust-o-leum Rusty Metal Primer

Based on our review, the following primary chemical constituents were identified for sampling:

Acetone
Toluene
Xylenes
Heptane

7118 Industrial Park Boulevard • Mentor, Ohio 44060-5314
440-951-3514 • 800-875-3514 • Fax: 440-951-3774 • www.eagroupohio.com

Butyl acetate
Naphtha
Methylene bisphenyl isocyanate (MDI)
Polymethylene polyphenyl isocyanate (P-MDI)

Area Air Sampling for Chemical Constituents

Area air sampling was conducted in two locations where initial concerns were noted (one on each floor), and three additional representative locations within the building, as shown on Table 1 and on Figures 1 and 2. All samples were secured using low volume sampling pumps and sampling media.

Sampling for acetone, toluene, xylenes, heptane and butyl acetate was conducted in accordance with Occupational Safety and Health Administration (OSHA) Method 7. Sampling for naphtha was conducted in accordance with National Institute of Occupational Safety and Health (NIOSH) Method 1550. Sampling for MDI and P-MDI was conducted in accordance with OSHA Method 42/47.

The results for the air samples are summarized in Table 1and detailed in the laboratory reports in Appendix A. The analytical results in the summary tables are expressed in either parts per million (ppm) or milligrams per cubic meter (mg/m^3) to facilitate comparison to available standards.

For indoor air quality evaluations, it is common to compare results to one-tenth available and accepted occupational exposure limits, or the Agency for Toxic Substances Disease Registry (ATSDR) Minimal Risk Levels (MRLs), if available. For purposes of comparison, results were compared to either one-tenth the OSHA Permissible Exposure Levels (PELs), one-tenth the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLV), one -tenth the NIOSH Recommended Exposure Level (REL), or the ASTDR MRL. Since none of the indicated agencies have a standard for naphtha, results were compared to one-tenth the German Maximum Concentration Value in Workplace (MAK) standard.

As shown in Table 1, toluene was detected in four of the five locations, and naphtha was detected in one of the five locations. The concentrations detected for each were below the standard of comparison, and in fact were orders of magnitude lower. For all other constituents, concentrations were below the limit of detection for the analysis, and in some cases orders of magnitude lower. All limits of detection for these constituents were also below the standards of comparison.

Area Air Sampling for Fungal Structures

To address the potential for mold growth having resulted from the history of roof leaks, spore trap sampling was conducted in 29 locations indoors where concerns were noted and outdoors to assess total concentrations of airborne fungal structures (viable and non-viable spores, fragments, etc.). Samples were secured on 37-mm Air-O-Cell cassettes, which have a slit opening to control air flow and a sticky surface that captures both viable and non-viable fungal spores and non-viable fungal particles, as well as other airborne particulates. The

cassettes are analyzed by microscopic methods, with results expressed as total fungal structures per cubic meter (FS/m³) of air.

Results are summarized in Table 2, attached, and detailed in the attached laboratory report in Appendix B.

As shown in Table 2, total fungal spore concentrations in the indoor samples were lower than outdoors in all First Floor locations and most of the Second Floor locations, with no significant amplification of individual types. Although the concentrations of Basidiospores and *Penicillium/Aspergillus*-type spores in Room 217 were higher than outdoors, Basidiospores are generally from outdoors and it is not uncommon to find concentrations of *Penicillium/Aspergillus*-type spores at higher concentrations outdoors in December in Ohio. The total concentrations in Room 220 exceed those found outdoors, primarily due to the amplified levels of *Penicillium/Aspergillus*-type spores. While the total concentration of spores in Room 215 was less than that found outdoors, there was a low level of *Stachybotrys* present. Both *Penicillium/Aspergillus*-type spores and *Stachybotrys* spores are commonly associated with water damaged building materials. *Stachybotrys* is common when cellulose-based building materials have been exposed to moisture for long periods of time. Observations at the time of sampling in Rooms 215, 217 and 220 did not reveal any obvious mold growth or extensive water damage, although some ceiling tiles were discolored and were sagging, possibly due to previous exposure to roof leaks and/or high humidity over time.

Area Air Sampling for Airborne Fibers

Air sampling for airborne fibers was conducted in ten representative locations throughout Kenston Middle School. All samples were collected and analyzed by Ohio Department of Health (ODH) Certified Asbestos Hazard Evaluation Specialist (CAHES) Michael Kovell (ES34424) using phase contrast microscopy methods in accordance with the National Institute of Occupational Safety and Health (NIOSH) 7400A method.

The area air samples were compared to the ODH standard for "clean air" (Ohio Administrative Code Chapter 3701-34-11) of 0.01 fibers per cubic centimeter (f/cm³). As indicated on the attached Air Monitoring Report, each sample had a concentration of no more than 0.004 f/cm³, below the clean air standard

Summary of Findings

Following the completion of roof removal and replacement activities, indoor concentrations of primary chemical constituents in the products used do not exceed the standards of comparison and in most cases were not detected at orders of magnitude below the standards of comparison. Although no odors were noted at the time of sampling, some sensitive individuals may detect them since some odor thresholds may be below the standards of comparison.

Concentrations of fungal spores were less than those found outdoors with no significant amplification of individual types in all locations with the exception of Rooms 215, 217 and 220. Though concentrations of Basidiospores and *Penicillium/Aspergillus*-type spores in Room 217 were higher than outdoors, they were within the range that are commonly found outdoors in Ohio in December, and may just reflect a buildup of dust

EA GROUP
Environmental Analysis and Management

and debris in the room. In Room 220, the concentration of *Penicillium/Aspergillus*-type spores was much higher than outdoors or any other indoor area, suggesting a potential source of mold growth. While the total concentration of fungal spores in Room 215 was less than outdoors, there was a low level of *Stachybotrys* present. *Stachybotrys* is typically associated with building materials that have been exposed to high levels of moisture over longer periods of time. While no obvious or significant potential sources of mold growth were identified in these or any other rooms, further inspection is recommended to confirm that no active moisture sources or affected building materials remain. Consideration may be given to replacing ceiling panels that show evidence of past water damage or exposure to high levels of moisture. Cleaning may reduce any buildup of dust and debris that has occurred over time.

Concentrations of airborne fibers in all areas evaluated were well below the ODH standard for clean air.

If there are any questions regarding the information provided, please contact the undersigned. Thank you for consulting EA Group.

Sincerely,

EA Group

Timothy S. Bowen,
Vice President/Technical Director

Michael Kovell,
Environmental Technician

Table 1. Summary of Volatile Organic Compound (VOC) Air Sample Analysis
Kenston Local Schools
Kenston Middle School

December 7, 2017 Sampling

Compound	Guidance Office	Libarary Main Desk	Rooms 230	Room 121	Room105	Standard
	120717-01,-02,-03	120717-04,-05,-06	120717-07,-08,-09	120717-10,-11,-12	12017-13,-14,-15	
Acetone	<0.063	<0.033	<0.030	<0.029	<0.034	13 [A1]
Toluene [*benzene, methyl-*]	0.067	0.014	0.017	0.014	<0.014	1 [A1]
m,p -Xylenes	<0.046	<0.024	<0.022	<0.021	<0.025	0.05 [A1]
Heptane	<0.024	<0.013	<0.012	<0.011	<0.013	8.5 [N]
Acetic acid, butyl ester [*n-Butyl Acetate*]	<0.031	<0.017	<0.015	<0.015	<0.017	15 [O]
Naphtha	0.82	<0.47	<0.48	<0.58	<0.58	14 [M]
Methylene bisphenyl isocyanate (MDI)	<0.00089	<0.00089	<0.00090	<0.00093	<0.00091	0.001 [A1]
Polymethylene polyphenyl isocyanate (P-MDI)	<0.0044	<0.0044	<0.0045	<0.0046	<0.0046	0.005 [A]

Notes:
Results expressed as parts per million (ppm) or milligrams per cubic meter (mg/m^3)
[O] = 1/10th Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (PEL) (ppm)
[A] = 1/10th American Conference of Governmental and Industrial Hygienists (ACGIH) Threshold Limit Value (TLV) (mg/m^3)
[N] = 1/10th National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limit (REL) (ppm)
[M] = 1/10th Germany: Maximum Concentration Value in Workplace (MAK) (mg/m^3)
[A1] = Agency for Toxic Substances Disease Registry - Minimal Risk Levels (ATSDR MRL; June 2017) (mg/m^3)

Table 2. Summary of Air Sample Results for Fungal Structures
Kenston Local Schools
Kenston Middle School

December 7, 2017 Sampling

Location	Outdoors Roof nr Intakes	Room 125	Room 124	Room 121	Room 115	Room 113	Room 112	Room 107	Room 116
Fungal Spore / Sample I.D.	**120717-28**	**120717-29**	**120717-30**	**120717-31**	**120717-32**	**120717-33**	**120717-34**	**120717-35**	**120717-36**
Basidiospores	80	40	27		40	27	13	13	40
Penicillium/Aspergillus types	80		13						13
Cladosporium	27		13	27	27		13		
Smuts/*Myxomycetes/Periconia*	13		13						
Ascospores			13						
Pithomyces				13					
Total Fungal Spores	**200**	**40**	**80**	**40**	**67**	**27**	**27**	**13**	**53**
Hyphal Fragments	13								13
Pollen									13
Debris Rating	1+	2+	2+	2+	2+	1+	1+	<1+	2+

Results expressed as fungal structures per cubic meter of air (FS/m^3)

No spores detected in field blank:

Debris Rating:

Background debris is indication of amount of non-biological particulate matter (dust) present on slide;
graded from 1+ to 4+, with 4+ indicating largest amount. Counts with 4+ may be higher than reported.
Background debris is indication of amount of non-biological particulate matter (dust) present on slide; graded from 1+ to 4+, with 4+ indicating largest amount.
Counts with 4+ may be higher than reported.

Table 2. Summary of Air Sample Results for Fungal Structures
Kenston Local Schools
Kenston Middle School

December 7, 2017 Sampling

Location	Outdoors Roof nr Intakes	Room 105	Room 217	Room 218	Room 215	Room 219	Room 220	Room 221	Room 222
Fungal Spore / Sample I.D.	**120717-28**	**120717-37**	**120717-38**	**120717-39**	**120717-40**	**120717-41**	**120717-42**	**120717-43**	**120717-44**
Basidiospores	80	13	250	110	27				
Penicillium/Aspergillus types	80	27	190	13	13	13	1,000		
Cladosporium	27		40		27		27	27	
Smuts/*Myxomycetes/Periconia*	13							40	
Ascospores			53	13	13	53	120		13
Curvularia				13					
Pithomyces			93	53	13		27		
Rusts			13	27	13	13			
Stachybotrys					27				
Total Fungal Spores	**200**	**40**	**640**	**230**	**130**	**80**	**1,200**	**67**	**13**
Hyphal Fragments	13		27	80	13				
Pollen			13						
Debris Rating	1+	1+	2+	3+	2+	3+	3+	3+	1+

Results expressed as fungal structures per cubic meter of air (FS/m^3)

No spores detected in field blank:

Debris Rating:

Background debris is indication of amount of non-biological particulate matter (dust) present on slide;
graded from 1+ to 4+, with 4+ indicating largest amount. Counts with 4+ may be higher than reported.

Background debris is indication of amount of non-biological particulate matter (dust) present on slide; graded from 1+ to 4+, with 4+ indicating largest amount.
Counts with 4+ may be higher than reported.

Table 2. Summary of Air Sample Results for Fungal Structures
Kenston Local Schools
Kenston Middle School

December 7, 2017 Sampling

Location	Outdoors Roof nr Intakes	Room 223	Room 231	Room 230	Art Storage	Boy's Restroom	Room 203	Room 204	Room 205
Fungal Spore / Sample I.D.	**120717-28**	**120717-45**	**120717-46**	**120717-47**	**120717-48**	**120717-49**	**120717-50**	**120717-51**	**120717-52**
Basidiospores	80	13	13		27	13	13	53	27
Penicillium/Aspergillus types	80	13		13	53				
Cladosporium	27	13	120	53	27		13	53	13
Smuts/*Myxomycetes/Periconia*	13					13			
Ascospores						13			
Pithomyces			13						
Rusts						13			
Total Fungal Spores	**200**	**40**	**150**	**67**	**110**	**53**	**27**	**110**	**40**
Hyphal Fragments	13			13	13				
Pollen									
Debris Rating	1+	2+	2+	2+	2+	3+	1+	2+	1+

Results expressed as fungal structures per cubic meter of air (FS/m^3)

No spores detected in field blank:

Debris Rating:

Background debris is indication of amount of non-biological particulate matter (dust) present on slide;
graded from 1+ to 4+, with 4+ indicating largest amount. Counts with 4+ may be higher than reported.
Background debris is indication of amount of non-biological particulate matter (dust) present on slide; graded from 1+ to 4+, with 4+ indicating largest amount.
Counts with 4+ may be higher than reported.

Table 2. Summary of Air Sample Results for Fungal Structures
Kenston Local Schools
Kenston Middle School

December 7, 2017 Sampling

Location	Outdoors Roof nr Intakes	Room 206	Room 207	Room 208	Stairs by Rooms 207 & 209	Library
Fungal Spore / Sample I.D.	**120717-28**	**120717-53**	**120717-54**	**120717-55**	**120717-56**	**120717-57**
Basidiospores	80	27	13			
Penicillium/Aspergillus types	80	27	13	13		
Cladosporium	27	67	53		53	
Smuts/*Myxomycetes/Periconia*	13					13
Ascospores					27	
Pithomyces				13		
Total Fungal Spores	**200**	**120**	**80**	**27**	**80**	**13**
Hyphal Fragments	13	13	27			13
Pollen						13
Debris Rating	1+	2+	2+	1+	1+	3+

Results expressed as fungal structures per cubic meter of air (FS/m³)

No spores detected in field blank:

Debris Rating:

Background debris is indication of amount of non-biological particulate matter (dust) present on slide;
graded from 1+ to 4+, with 4+ indicating largest amount. Counts with 4+ may be higher than reported.

Background debris is indication of amount of non-biological particulate matter (dust) present on slide; graded from 1+ to 4+, with 4+ indicating largest amount.
Counts with 4+ may be higher than reported.

Table 2. Summary of Air Sample Results for Fungal Structures
Kenston Local Schools
Kenston Middle School

December 7, 2017 Sampling

Location	Outdoors Roof nr Intakes	Room 206	Room 207	Room 208	Stairs by Rooms 207 & 209	Library
Fungal Spore / Sample I.D.	**120717-28**	**120717-53**	**120717-54**	**120717-55**	**120717-56**	**120717-57**
Basidiospores	80	27	13			
Penicillium/Aspergillus types	80	27	13	13		
Cladosporium	27	67	53		53	
Smuts/*Myxomycetes/Periconia*	13					13
Ascospores					27	
Pithomyces				13		
Total Fungal Spores	**200**	**120**	**80**	**27**	**80**	**13**
Hyphal Fragments	13	13	27			13
Pollen						13
Debris Rating	1+	2+	2+	1+	1+	3+

Results expressed as fungal structures per cubic meter of air (FS/m³)

No spores detected in field blank:

Debris Rating:

Background debris is indication of amount of non-biological particulate matter (dust) present on slide;
graded from 1+ to 4+, with 4+ indicating largest amount. Counts with 4+ may be higher than reported.

Background debris is indication of amount of non-biological particulate matter (dust) present on slide; graded from 1+ to 4+, with 4+ indicating largest amount.
Counts with 4+ may be higher than reported.

Date December 7, 2017

Client Kenston Local Schools

Project Kenston Middle School

EA GROUP

AIR MONITORING REPORT

All samples analyzed by NIOSH 7400A
All fibers by definition assumed to be asbestos

EAL W.O.# OH 41465

Client W.O.#

DESCRIPTIVE INFORMATION

SAMPLE I.D.	SAMPLE TYPE	WORKER'S NAME	SOCIAL SECURITY #	LOCATION	ACTIVITY	RESPIRATOR TYPE
120717-16	ENV			Corridor outside Rooms 117 & 121		
120717-17	ENV			Room 109		
120717-18	ENV			Room 101		
120717-19	ENV			Cafeteria		
120717-20	ENV			Room 215		
120717-21	ENV			Room 222		
120717-22	ENV			Room 204		
120717-23	ENV			Main Office		
120717-24	ENV			Gym		
120717-25	ENV			Choir		
120717-26	FB					
120717-27	FB					

ANALYTICAL INFORMATION

FILTER COLLECTION AREA 385 mm²

GRATICULE FIELD AREA 0.00785 mm²

SAMPLE I.D.	PUMP #	CALIB. FLOW RATE (L/min)			Running Time (min)			VOLUME (Liters)	FIBERS/ FIELDS	FIBERS/ mm² (Blank Corr)	LOQ FIBERS/ cm³	FIBERS/ cm³ (Blank Corr)
		BEGINNING	END	MINIMUM	START	STOP	DURATION					
120717-16	0996	10.0	10.0	10.0	0900	1108	128	1280	7/100	8.92	0.004	< 0.004
120717-17	0997	10.0	10.0	10.0	0904	1110	126	1260	10/100	12.74	0.004	0.004
120717-18	0690	10.0	10.0	10.0	0909	1113	124	1240	8/100	10.19	0.004	< 0.004
120717-19	0697	10.0	10.0	10.0	0913	1115	122	1220	8/100	10.19	0.004	< 0.004
120717-20	0668	10.0	10.0	10.0	0919	1119	120	1200	3/100	3.82	0.004	< 0.004
120717-21	0959	10.0	10.0	10.0	0922	1122	120	1200	5/100	6.37	0.004	< 0.004
120717-22	0959	10.0	10.0	10.0	1224	1424	120	1200	4/100	5.10	0.004	< 0.004
120717-23	0690	10.0	10.0	10.0	1228	1428	120	1200	10/100	12.74	0.004	0.004
120717-24	0697	10.0	10.0	10.0	1233	1433	120	1200	5/100	6.37	0.004	< 0.004
120717-25	0997	10.0	10.0	10.0	1236	1436	120	1200	3/100	3.82	0.004	< 0.004
120717-26	FB								0/100	< 0.01		
120717-27	FB								0/100	< 0.01		

Comments :

KEY TO ABBREVIATIONS

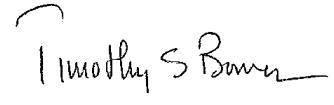
SAMPLE TYPE		ACTIVITY		RESPIRATOR
PRS=personal	BGD = background	REM=removal	PREP=site prep	HM=half mask
PRM=perimeter	CL = clearance	CLN=clean-up	IC=inside containment	FF=full face
ENV = environmental	FC=final clearance	GLBG = glovebag	OC=outside containment	P = powered
HEX = HEPA exhaust	EXC = excursion	BGLO=bag load out		APR=air purifying respirator
FB = field blank				SA = supplied air

Sampled by Mike Kovell, ES34424

Analyzed by Mike Kovell, ES34424

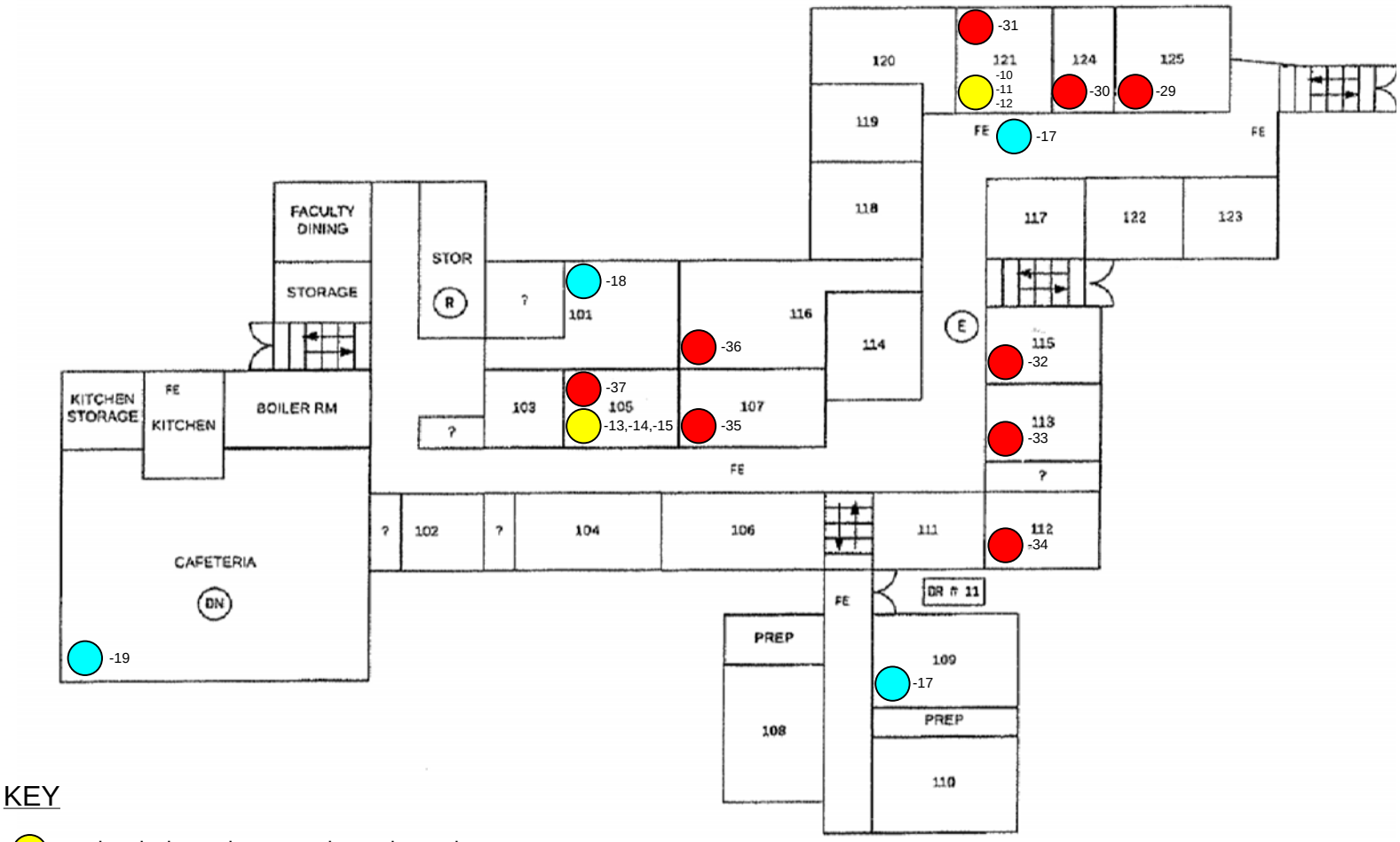
Reviewed by

Approved by



F:\PROJECTS\IAQ\OH41465, KENSTON LOCAL SCHOOLS\41465,KENSTON,DWG1.VSD

EA GROUP



KEY

= chemical constituents and sample numbers

= airborne fungi and sample number

= airborne fibers and sample number

N

Area Sampling Locations

Kenston Middle School

First Floor

EAG No. OH41465	Date: December 14, 2017	Figure 1

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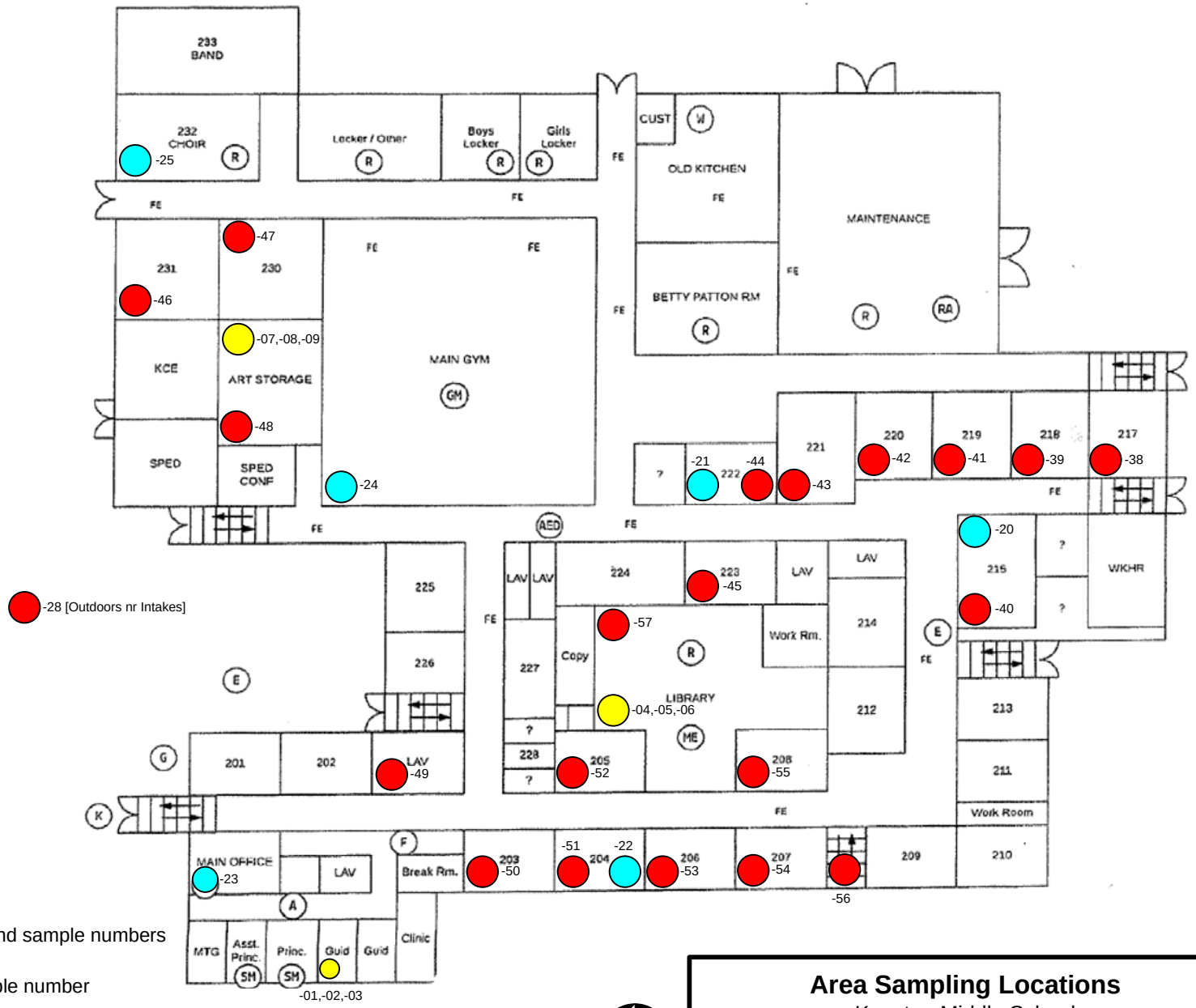

KEY

- = chemical constituents and sample numbers
- = airborne fungi and sample number
- = airborne fibers and sample number

N

Area Sampling Locations
Kenston Middle School
Second Floor

EAG No. OH41465	Date: December 14, 2017	Figure 2

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APPENDIX A

General Air Monitoring Report(s)
and
Laboratory Analytical Report(s)

Sample Date: December 7, 2017

Client: Kenston Local Schools

Project: Kenston Middle School

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GENERAL AIR MONITORING REPORT

EAG W.O.# OH 41465

DESCRIPTIVE INFORMATION

Sample ID OH41465-	Sample Type	Worker's Name	Employee Number	Location	Job Title / Activity
120717- 01	ENV			Guidance Office, Ms. Lucasell	
120717- 02	ENV			Guidance Office, Ms. Lucasell	
120717- 03	ENV			Guidance Office, Ms. Lucasell	
120717- 04	ENV			Library, Main Desk	
120717- 05	ENV			Library, Main Desk	
120717- 06	ENV			Library, Main Desk	
120717- 07	ENV			Room 230	
120717- 08	ENV			Room 230	
120717- 09	ENV			Room 230	
120717- 10	ENV			Room 121	
120717- 11	ENV			Room 121	
120717- 12	ENV			Room 121	

Pump Calibration Method Rotometer

Sample ID	Collection	Calib. Flow Rate (L/min)				Running Time [minutes]			Volume	Analytes																			
OH41465-	Media	Pump #	Start	Stop	Min.	Start	Stop	Duration	[Liters]	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
120717- 01	226-01	0653	0.2	0.2	0.2	0756	1139	223	47	x																			
120717- 02	226-01	0968	0.1	0.1	0.1	0756	1140	224	20		x																		
120717- 03	225-9002	0940	1.0	1.0	1.0	0756	1141	225	225			x																	
120717- 04	226-01	0813	0.2	0.2	0.2	0747	1129	222	42	x																			
120717- 05	226-01	0969	0.2	0.2	0.2	0747	1131	224	38		x																		
120717- 06	225-9002	0942	1.0	1.0	1.0	0747	1132	225	225			x																	
120717- 07	226-01	0585	0.2	0.2	0.2	0807	1148	221	42	x																			
120717- 08	226-01	0661	0.2	0.2	0.2	0807	1149	222	42		x																		
120717- 09	225-9002	0935	1.0	1.0	1.0	0807	1150	223	223			x																	
120717- 10	226-01	0434	0.2	0.2	0.2	0825	1159	214	34	x																			
120717- 11	226-01	0927	0.2	0.2	0.2	0825	1200	215	43		x																		
120717- 12	225-9002	0936	1.0	1.0	1.0	0825	1201	216	216			x																	

Analyte:	PEL/STEL/CEILING	Analyte:	PEL/STEL/CEILING	Analyte:	PEL/STEL/CEILING
1= Naphtha	1= see Table 1	8=	8=	15=	15=
2= VOCs	2= see Table 1	9=	9=	16=	16=
3= Isocyanates	3= see Table 1	10=	10=	17=	17=
4=	4=	11=	11=	18=	18=
5=	5=	12=	12=	19=	19=
6=	6=	13=	13=	20=	20=
7=	7=	14=	14=		

COMMENTS:

Sampled by: Mike Kovell

Analyzed by: EAG / REF

Sample Date: December 7, 2017

Client: Kenston Local Schools

Project: Kenston Middle School

EA GROUP

GENERAL AIR MONITORING REPORT

EAG W.O.# OH 41465

DESCRIPTIVE INFORMATION

Sample ID OH41465-	Sample Type	Worker's Name	Employee Number	Location	Job Title / Activity
120717- 13	ENV			Room 105	
120717- 14	ENV			Room 105	
120717- 15	ENV			Room 105	

Pump Calibration Method Rotometer

Sample ID	Collection	Calib. Flow Rate (L/min)				Running Time [minutes]			Volume	Analytes																			
OH41465-	Media	Pump #	Start	Stop	Min.	Start	Stop	Duration	[Liters]	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
120717- 13	226-01	0811	0.2	0.2	0.2	0830	1207	217	35	x																			
120717- 14	226-01	0934	0.2	0.2	0.2	0830	1208	218	37		x																		
120717- 15	226-9002	0943	1.0	1.0	1.0	0830	1209	219	219			x																	

Analyte:	PEL/STEL/CEILING	Analyte:	PEL/STEL/CEILING	Analyte:	PEL/STEL/CEILING
1= Naphtha	1= see Table 1	8=	8=	15=	15=
2= VOCs	2= see Table 1	9=	9=	16=	16=
3= Isocyanates	3= see Table 1	10=	10=	17=	17=
4=	4=	11=	11=	18=	18=
5=	5=	12=	12=	19=	19=
6=	6=	13=	13=	20=	20=
7=	7=	14=	14=		

COMMENTS:

Sampled by: Mike Kovell

Analyzed by: EAG / REF

EA GROUP
Environmental Analysis and Management

Kenston Local School
17419 Snyder Road
Chagrin Falls, OH 44022
Jeremy McDevitt

Client Project: Kenston Middle School
EA Group Workorder Number: 171200071
Received on December 8, 2017

The following analytical report contains results as requested for samples submitted to EA Group. The results included in this report have been reviewed for compliance with the analytical methods indicated in this report. All data has been found to be compliant with accepted laboratory protocol, except as noted in the QC narrative. Industrial hygiene reports, air and/or surface concentrations results are based upon sampling information provided by the client. Industrial hygiene results will not be blank corrected. Analyst initials of REF indicate analysis performed at a subcontract facility.

If you have questions, comments or require further assistance regarding this report, please contact your client services representative or one of the individuals listed below.

Data or reporting:
Debbie Lauer - Lab Manager
dlauer@eagroupohio.com

Mike Herbert - General Manager
mherbert@eagroupohio.com

Sample tracking, supplies:
Linetta Brown - Sample Control
sreceiving@eagroupohio.com

Invoice Related:
Bonnie Renbarger - Office Manager
brenbarger@eagroupohio.com

7118 Industrial Park Blvd. , Mentor, Ohio 44060-5314
(440) 951-3514 (800) 875-3514 FAX (440) 951-3774 www.eagroupohio.com

EA GROUP
Environmental Analysis and Management

Laboratory Analytical Report

Kenston Local School

17419 Snyder Road

Chagrin Falls, OH 44022

Attention:
Jeremy McDevitt

Client Project:

Kenston Middle School

OH41465

EA Group Workorder:
1712-00071

Deborah L. Lauer

Technical Manager

December 15, 2017

7118 Industrial Park Blvd. , Mentor, Ohio 44060-5314
(440) 951-3514 (800) 875-3514 FAX (440) 951-3774 www.eagroupohio.com

Sample Receive Date 12/ 8/2017

Sample Listing

EAG Sample Identification	Client Sample Identification	EAG Sample Identification	Client Sample Identification
171200071 - 001	OH41465-120717-01	171200071 - 002	OH41465-120717-02
171200071 - 003	OH41465-120717-03	171200071 - 004	OH41465-120717-04
171200071 - 005	OH41465-120717-05	171200071 - 006	OH41465-120717-06
171200071 - 007	OH41465-120717-07	171200071 - 008	OH41465-120717-08
171200071 - 009	OH41465-120717-09	171200071 - 010	OH41465-120717-10
171200071 - 011	OH41465-120717-11	171200071 - 012	OH41465-120717-12
171200071 - 013	OH41465-120717-13	171200071 - 014	OH41465-120717-14
171200071 - 015	OH41465-120717-15		

EA GROUP
Environmental Analysis and Management

Project Narrative
1712-00071

All analyses performed by EA Group were done using established laboratory SOPs. Management has reviewed the data for compliance with the laboratory QA/QC plan and data have been found to be compliant with the laboratory protocols unless otherwise noted below. All results listed for this report relate only to the samples submitted on this work order.

The temperature of the sample(s) upon receipt was 5.4°C. Samples were transported with ice packs.

Misc. QC Comments

Percent Moisture is used to report results on a dry weight basis.

When necessary, reporting limits of individual samples may be raised due to high concentration of interfering compounds or target analytes, or quantity of sample available for analysis.

pH method note: If this analysis was performed in the laboratory, it may not meet the "immediate analysis" requirement that applies to most wastewater monitoring samples. In such cases, analysis for pH should be done at the time of sampling.

The results listed in this report relate only to the samples submitted to EA Group per the chain of custody.

Data Flag Table

B	The method blank contained a standard laboratory contaminant (Methylene Chloride, Acetone, Hexane, Phthalates, etc.) above the standard laboratory method detection limit. If the analyte is present in the sample at a concentration up to ten times the blank level, the result is reported with a "B" indicating method blank contamination. Samples will be reported without a "B" if the analyte concentration in the sample is greater than ten times the blank level.
E	An analytical result marked with an "E" indicates the result reported is above the high end limit of the calibration curve and should be considered an estimated concentration.
DIL	Due to matrix interference or high analyte concentration, a dilution was required. The spikes and/or surrogates results could not be quantitated and therefore marked "DIL".
J	An analytical result marked with a "J" indicates the result reported was below the standard reporting limit and above the method detection limit. As the observed level approaches the MDL there is an increasing probability of a false positive response.
MI	Analytical results marked as "MI" indicate that due to inherent matrix interference, the result could not be quantitated.
#	Results flagged "#" indicate the reported result may be outside allowable permit levels as provided by the client, when applicable.
NA	A result or field marked as "NA" indicates that it was not applicable for this project.
Q	A quality control result flagged with a "Q" indicates the percent recovery was outside the acceptable range as determined by the laboratory.

** Positive results for this analyte represent a probable combination of 3-Methylphenol (m-Cresol) and 4-Methylphenol (p-Cresol).

EA GROUP
Environmental Analysis and Management

EAG Workorder: 1712-00071

Client Project: Kenston Middle School

Client ID: OH41465-120717-01 **Date/Time Sampled:** 12/07/2017/ 1139 **Received:** 12/08/2017
EAG ID: 1712-00071-1

Parameter	CAS #	Result	Reporting Limit	Units	Prep Date	Analysis Date	Time	Analyst
Naphtha: NIOSH 1550		**0.82**	0.44	mg/m3	12/12/2017	12/12/2017		REF

Client ID: OH41465-120717-02 **Date/Time Sampled:** 12/07/2017/ 1140 **Received:** 12/08/2017
EAG ID: 1712-00071-2

Parameter	CAS #	Result	Reporting Limit	Units	Prep Date	Analysis Date	Time	Analyst
Acetone: BV GC-FID	67-64-1	<0.063	0.063	ppm	12/12/2017	12/12/2017		REF
n-Butyl Acetate: BV GC-FID	123-86-4	<0.031	0.031	ppm	12/12/2017	12/12/2017		REF
Heptane: BV GC-FID	142-82-5	<0.024	0.024	ppm	12/12/2017	12/12/2017		REF
Toluene: BV GC-FID	108-88-3	**0.067**	0.024	ppm	12/12/2017	12/12/2017		REF
Xylenes (total): BV GC-FID	1330-20-7	<0.046	0.046	ppm	12/12/2017	12/12/2017		REF

Client ID: OH41465-120717-03 **Date/Time Sampled:** 12/07/2017/ 1141 **Received:** 12/08/2017
EAG ID: 1712-00071-3

Parameter	CAS #	Result	Reporting Limit	Units	Prep Date	Analysis Date	Time	Analyst
MDI: OSHA 42/47	101-68-8	<0.00089	0.00089	mg/m3		12/13/2017		REF
PMDI: OSHA 42/47	9016-87-9	<0.0044	0.0044	mg/m3		12/13/2017		REF

Client ID: OH41465-120717-04 **Date/Time Sampled:** 12/07/2017/ 1129 **Received:** 12/08/2017
EAG ID: 1712-00071-4

Parameter	CAS #	Result	Reporting Limit	Units	Prep Date	Analysis Date	Time	Analyst
Naphtha: NIOSH 1550		<0.47	0.47	mg/m3	12/12/2017	12/12/2017		REF

Client ID: OH41465-120717-05 **Date/Time Sampled:** 12/07/2017/ 1131 **Received:** 12/08/2017
EAG ID: 1712-00071-5

Parameter	CAS #	Result	Reporting Limit	Units	Prep Date	Analysis Date	Time	Analyst
Acetone: BV GC-FID	67-64-1	<0.033	0.033	ppm	12/12/2017	12/12/2017		REF
n-Butyl Acetate: BV GC-FID	123-86-4	<0.017	0.017	ppm	12/12/2017	12/12/2017		REF
Heptane: BV GC-FID	142-82-5	<0.013	0.013	ppm	12/12/2017	12/12/2017		REF
Toluene: BV GC-FID	108-88-3	**0.014**	0.013	ppm	12/12/2017	12/12/2017		REF
Xylenes (total): BV GC-FID	1330-20-7	<0.024	0.024	ppm	12/12/2017	12/12/2017		REF

EA GROUP
Environmental Analysis and Management

EAG Workorder: 1712-00071

Client Project: Kenston Middle School

Client ID: OH41465-120717-06 **Date/Time Sampled:** 12/07/2017/ 1132 **Received:** 12/08/2017
EAG ID: 1712-00071-6

Parameter	CAS #	Result	Reporting Limit	Units	Prep Date	Analysis Date	Time	Analyst
MDI: OSHA 42/47	101-68-8	<0.00089	0.00089	mg/m3		12/13/2017		REF
PMDI: OSHA 42/47	9016-87-9	<0.0044	0.0044	mg/m3		12/13/2017		REF

Client ID: OH41465-120717-07 **Date/Time Sampled:** 12/07/2017/ 1148 **Received:** 12/08/2017
EAG ID: 1712-00071-7

Parameter	CAS #	Result	Reporting Limit	Units	Prep Date	Analysis Date	Time	Analyst
Naphtha: NIOSH 1550		<0.48	0.48	mg/m3	12/12/2017	12/12/2017		REF

Client ID: OH41465-120717-08 **Date/Time Sampled:** 12/07/2017/ 1149 **Received:** 12/08/2017
EAG ID: 1712-00071-8

Parameter	CAS #	Result	Reporting Limit	Units	Prep Date	Analysis Date	Time	Analyst
Acetone: BV GC-FID	67-64-1	<0.030	0.030	ppm	12/12/2017	12/12/2017		REF
n-Butyl Acetate: BV GC-FID	123-86-4	<0.015	0.015	ppm	12/12/2017	12/12/2017		REF
Heptane: BV GC-FID	142-82-5	<0.012	0.012	ppm	12/12/2017	12/12/2017		REF
Toluene: BV GC-FID	108-88-3	**0.017**	0.012	ppm	12/12/2017	12/12/2017		REF
Xylenes (total): BV GC-FID	1330-20-7	<0.022	0.022	ppm	12/12/2017	12/12/2017		REF

Client ID: OH41465-120717-09 **Date/Time Sampled:** 12/07/2017/ 1150 **Received:** 12/08/2017
EAG ID: 1712-00071-9

Parameter	CAS #	Result	Reporting Limit	Units	Prep Date	Analysis Date	Time	Analyst
MDI: OSHA 42/47	101-68-8	<0.00090	0.00090	mg/m3		12/13/2017		REF
PMDI: OSHA 42/47	9016-87-9	<0.0045	0.0045	mg/m3		12/13/2017		REF

Client ID: OH41465-120717-10 **Date/Time Sampled:** 12/07/2017/ 1159 **Received:** 12/08/2017
EAG ID: 1712-00071-10

Parameter	CAS #	Result	Reporting Limit	Units	Prep Date	Analysis Date	Time	Analyst
Naphtha: NIOSH 1550		<0.58	0.58	mg/m3	12/12/2017	12/12/2017		REF

EA GROUP
Environmental Analysis and Management

EAG Workorder: 1712-00071

Client Project: Kenston Middle School

Client ID: OH41465-120717-11 **Date/Time Sampled:** 12/07/2017/ 1200 **Received:** 12/08/2017
EAG ID: 1712-00071-11

Parameter	CAS #	Result	Reporting Limit	Units	Prep Date	Analysis Date	Time	Analyst
Acetone: BV GC-FID	67-64-1	<0.029	0.029	ppm	12/12/2017	12/12/2017		REF
n-Butyl Acetate: BV GC-FID	123-86-4	<0.015	0.015	ppm	12/12/2017	12/12/2017		REF
Heptane: BV GC-FID	142-82-5	<0.011	0.011	ppm	12/12/2017	12/12/2017		REF
Toluene: BV GC-FID	108-88-3	**0.014**	0.011	ppm	12/12/2017	12/12/2017		REF
Xylenes (total): BV GC-FID	1330-20-7	<0.021	0.021	ppm	12/12/2017	12/12/2017		REF

Client ID: OH41465-120717-12 **Date/Time Sampled:** 12/07/2017/ 1201 **Received:** 12/08/2017
EAG ID: 1712-00071-12

Parameter	CAS #	Result	Reporting Limit	Units	Prep Date	Analysis Date	Time	Analyst
MDI: OSHA 42/47	101-68-8	<0.00093	0.00093	mg/m3		12/13/2017		REF
PMDI: OSHA 42/47	9016-87-9	<0.0046	0.0046	mg/m3		12/13/2017		REF

Client ID: OH41465-120717-13 **Date/Time Sampled:** 12/07/2017/ 1207 **Received:** 12/08/2017
EAG ID: 1712-00071-13

Parameter	CAS #	Result	Reporting Limit	Units	Prep Date	Analysis Date	Time	Analyst
Naphtha: NIOSH 1550		<0.58	0.58	mg/m3	12/12/2017	12/12/2017		REF

Client ID: OH41465-120717-14 **Date/Time Sampled:** 12/07/2017/ 1208 **Received:** 12/08/2017
EAG ID: 1712-00071-14

Parameter	CAS #	Result	Reporting Limit	Units	Prep Date	Analysis Date	Time	Analyst
Acetone: BV GC-FID	67-64-1	<0.034	0.034	ppm	12/12/2017	12/12/2017		REF
n-Butyl Acetate: BV GC-FID	123-86-4	<0.017	0.017	ppm	12/12/2017	12/12/2017		REF
Heptane: BV GC-FID	142-82-5	<0.013	0.013	ppm	12/12/2017	12/12/2017		REF
Toluene: BV GC-FID	108-88-3	<0.014	0.014	ppm	12/12/2017	12/12/2017		REF
Xylenes (total): BV GC-FID	1330-20-7	<0.025	0.025	ppm	12/12/2017	12/12/2017		REF

Client ID: OH41465-120717-15 **Date/Time Sampled:** 12/07/2017/ 1209 **Received:** 12/08/2017
EAG ID: 1712-00071-15

Parameter	CAS #	Result	Reporting Limit	Units	Prep Date	Analysis Date	Time	Analyst
MDI: OSHA 42/47	101-68-8	<0.00091	0.00091	mg/m3		12/13/2017		REF
PMDI: OSHA 42/47	9016-87-9	<0.0046	0.0046	mg/m3		12/13/2017		REF

71 5.4° C packs

FIELD REQUEST FOR LABORATORY ANALYSIS

Company Name: Kenston Local School

Address: 17425 Snyder Rd

Chagrin Falls, OH 44023

Attention: Jeremy McDevitt

Customer Number: 050235

Telephone: 440-543-9677 e-mail: _____

Sampled by: Kovell

Project Name: Kenston Middle School Project Number OH 41465

Rush Authorized by: PGH Project Category: IAQ

Special Billing/Reporting: _____

Results Needed By:	
Normal: _____	**RUSH:** ✓
Priority: _____	(confirm w/ lab)
Date: _____	Time: _____

Is this a VAP project requiring VAP lab analysis? Yes _____ No ✓

Is this a BUSTR project requiring BUSTR lab analysis? Yes _____ No ✓

Internal Contact: Bower

CHAIN OF CUSTODY

Relinquished by		Received by	
Name	Date/Time	Name	Date/Time
[signature]	12/8/17 / 0945	[signature]	12/8 0945

EA GROUP FIELD OPERATIONS - REQUEST FOR LABORATORY ANALYSIS

Page: 1 of 1

Sample No. OH 41465	Split ID	Date/Time Collected	Matrix/ Media	Area/Vol. (units)	1	2	3	4	5	6	7	8	9	Comments	VAP? BUSTR?
120717-01		12/7/17 / 1139	A3	46.83	X									Sealed	N
02		1140	↓	20.16		X								on	
03		1141		225			X							Ice	
04		1129	A3	42.18	X										
05		1131	↓	38.08		X									
06		1132		225			X								
07		1143	A3	41.49	X										
08		1149	↓	42.18		X									
09		1150		223			X								
10		1159	A3	34.24	X										
11		1200	↓	43		X									
12		1201		216			X								
13		1207	A3	34.72	X										
14		1208	↓	37.06		X									
15		1209		219			X								

Media:

A1	Air (25 mm)	A6	Air (impinger)	SL	Sludge/Slurry
A2	Air (37 mm)	B	Bulk	SW	Swab
A3	Air (sorbent)	R/CC	Char. Canister	O	Oil
A4	Air (badge)	R/AT	Alpha track	W	Water/Liquid
A5	Air (bag)	S	Soil	DW	Drinking Water

Sample condition upon receipt:
Intact ___
Not Intact ___

Analytes:
1 Naphtha
2 VOCs (see below)
3 Isocyanate Compounds (see below)
4 ___
5 ___
6 ___
7 ___
8 ___
9 ___

VOCs: Acetone, Toluene, Heptane, Xylenes, Butyl Acetate

Isocyanates: MDI and P-MDI

EMLab P&K
A TestAmerica Company

Report for:

Mr. Tim Bowen
EA Group
7118 Industrial Park Blvd.
Mentor, OH 44060

Regarding: Project: OH41465; Kenston
EML ID: 1846263

Approved by:

Operations Manager
Joshua Cox

Dates of Analysis:
Spore trap analysis: 12-11-2017 and 12-12-2017

Service SOPs: Spore trap analysis (EM-MY-S-1038)
AIHA-LAP, LLC accredited service, Lab ID #102297

EMLab P&K
1501 West Knudsen Drive, Phoenix, AZ 85027
(800) 651-4802 Fax (623) 780-7695 www.emlab.com

Client: EA Group
C/O: Mr. Tim Bowen
Re: OH41465; Kenston

Date of Sampling: 12-07-2017
Date of Receipt: 12-11-2017
Date of Report: 12-12-2017

SPORE TRAP REPORT: NON-VIABLE METHODOLOGY

Location:	28: Exterior, Roof				29: 125				30: 124				31: 121			
Comments (see below)	None				None				None				None			
Lab ID-Version‡:	8648584-1				8648585-1				8648586-1				8648587-1			
Analysis Date:	12/11/2017				12/11/2017				12/11/2017				12/11/2017			
Sample volume (liters)	75				75				75				75			
Background debris (1-4+)††	1+				2+				2+				2+			
	raw ct.	Count/m3	DL/m3*	%	raw ct.	Count/m3	DL/m3*	%	raw ct.	Count/m3	DL/m3*	%	raw ct.	Count/m3	DL/m3*	%
Hyphal fragments	1	13	13	n/a												
Pollen																
§ TOTAL FUNGAL SPORES	15	200	n/a	100	3	40	n/a	100	6	80	n/a	100	3	40	n/a	100
Ascospores									1	13	13	17				
Basidiospores	6	80	13	40	3	40	13	100	2	27	13	33				
Chaetomium																
Cladosporium	2	27	13	13					1	13	13	17	2	27	13	67
Curvularia																
Penicillium/Aspergillus types	6	80	13	40					1	13	13	17				
Pithomyces													1	13	13	33
Rusts																
Smuts, Periconia, Myxomycetes	1	13	13	7					1	13	13	17				
Stachybotrys																
Torula																
Ulocladium																
Zygomycetes																

Comments:

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 analytical sensitivity/limit of detection is the Count/m^3 divided by the raw count, expressed in Count/m^3.

*The detection limit/limit of detection (DL) per cubic meter (m3) has been rounded to two significant figures to reflect analytical precision.

††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.

‡ 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 Fungal Spores has been rounded to two significant figures to reflect analytical precision.

EMLab P&K
1501 West Knudsen Drive, Phoenix, AZ 85027
(800) 651-4802 Fax (623) 780-7695 www.emlab.com

Client: EA Group
C/O: Mr. Tim Bowen
Re: OH41465; Kenston

Date of Sampling: 12-07-2017
Date of Receipt: 12-11-2017
Date of Report: 12-12-2017

SPORE TRAP REPORT: NON-VIABLE METHODOLOGY

Location:	32: 115				33: 113				34: 112				35: 107			
Comments (see below)	None				None				None				None			
Lab ID-Version‡:	8648588-1				8648589-1				8648590-1				8648591-1			
Analysis Date:	12/11/2017				12/11/2017				12/11/2017				12/11/2017			
Sample volume (liters)	75				75				75				75			
Background debris (1-4+)††	2+				1+				1+				< 1+			
	raw ct.	Count/m3	DL/m3*	%	raw ct.	Count/m3	DL/m3*	%	raw ct.	Count/m3	DL/m3*	%	raw ct.	Count/m3	DL/m3*	%
Hyphal fragments																
Pollen																
§ TOTAL FUNGAL SPORES	5	67	n/a	100	2	27	n/a	100	2	27	n/a	100	1	13	n/a	100
Ascospores																
Basidiospores	3	40	13	60	2	27	13	100	1	13	13	50	1	13	13	100
Chaetomium																
Cladosporium	2	27	13	40					1	13	13	50				
Curvularia																
Penicillium/Aspergillus types																
Pithomyces																
Rusts																
Smuts, Periconia, Myxomycetes																
Stachybotrys																
Torula																
Ulocladium																
Zygomycetes																

Comments:

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 analytical sensitivity/limit of detection is the Count/m^3 divided by the raw count, expressed in Count/m^3.

*The detection limit/limit of detection (DL) per cubic meter (m3) has been rounded to two significant figures to reflect analytical precision.

††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.

‡ 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 Fungal Spores has been rounded to two significant figures to reflect analytical precision.

EMLab P&K
1501 West Knudsen Drive, Phoenix, AZ 85027
(800) 651-4802 Fax (623) 780-7695 www.emlab.com

Client: EA Group
C/O: Mr. Tim Bowen
Re: OH41465; Kenston

Date of Sampling: 12-07-2017
Date of Receipt: 12-11-2017
Date of Report: 12-12-2017

SPORE TRAP REPORT: NON-VIABLE METHODOLOGY

Location:	36: 116				37: 105				38: 217				39: 218			
Comments (see below)	None				None				None				None			
Lab ID-Version‡:	8648592-1				8648593-1				8648594-1				8648595-1			
Analysis Date:	12/11/2017				12/11/2017				12/11/2017				12/11/2017			
Sample volume (liters)	75				75				75				75			
Background debris (1-4+)††	2+				1+				2+				3+			
	raw ct.	Count/m3	DL/m3*	%	raw ct.	Count/m3	DL/m3*	%	raw ct.	Count/m3	DL/m3*	%	raw ct.	Count/m3	DL/m3*	%
Hyphal fragments	1	13	13	n/a					2	27	13	n/a	6	80	13	n/a
Pollen	1	13	13	n/a					1	13	13	n/a				
§ TOTAL FUNGAL SPORES	4	53	n/a	100	3	40	n/a	100	48	640	n/a	100	17	230	n/a	100
Ascospores									4	53	13	8	1	13	13	6
Basidiospores	3	40	13	75	1	13	13	33	19	250	13	40	8	110	13	47
Chaetomium																
Cladosporium									3	40	13	6				
Curvularia													1	13	13	6
Penicillium/Aspergillus types	1	13	13	25	2	27	13	67	14	190	13	29	1	13	13	6
Pithomyces									7	93	13	15	4	53	13	24
Rusts									1	13	13	2	2	27	13	12
Smuts, Periconia, Myxomycetes																
Stachybotrys																
Torula																
Ulocladium																
Zygomycetes																

Comments:

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 analytical sensitivity/limit of detection is the Count/m^3 divided by the raw count, expressed in Count/m^3.

*The detection limit/limit of detection (DL) per cubic meter (m3) has been rounded to two significant figures to reflect analytical precision.

††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.

‡ 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 Fungal Spores has been rounded to two significant figures to reflect analytical precision.

EMLab P&K
1501 West Knudsen Drive, Phoenix, AZ 85027
(800) 651-4802 Fax (623) 780-7695 www.emlab.com

Client: EA Group
C/O: Mr. Tim Bowen
Re: OH41465; Kenston

Date of Sampling: 12-07-2017
Date of Receipt: 12-11-2017
Date of Report: 12-12-2017

SPORE TRAP REPORT: NON-VIABLE METHODOLOGY

Location:	40: 215				41: 219				42: 220				43: 221			
Comments (see below)	None				None				None				None			
Lab ID-Version‡:	8648596-1				8648597-1				8648598-1				8648599-1			
Analysis Date:	12/11/2017				12/11/2017				12/11/2017				12/11/2017			
Sample volume (liters)	75				75				75				75			
Background debris (1-4+)††	2+				3+				3+				3+			
	raw ct.	Count/m3	DL/m3*	%	raw ct.	Count/m3	DL/m3*	%	raw ct.	Count/m3	DL/m3*	%	raw ct.	Count/m3	DL/m3*	%
Hyphal fragments	1	13	13	n/a												
Pollen																
§ TOTAL FUNGAL SPORES	10	130	n/a	100	6	80	n/a	100	91	1,200	n/a	100	5	67	n/a	100
Ascospores	1	13	13	10												
Basidiospores	2	27	13	20	4	53	13	67	9	120	13	10				
Chaetomium																
Cladosporium	2	27	13	20					2	27	13	2	2	27	13	40
Curvularia																
Penicillium/Aspergillus types	1	13	13	10	1	13	13	17	78	1,000	13	86				
Pithomyces	1	13	13	10					2	27	13	2				
Rusts	1	13	13	10	1	13	13	17								
Smuts, Periconia, Myxomycetes													3	40	13	60
Stachybotrys	2	27	13	20												
Torula																
Ulocladium																
Zygomycetes																

Comments:

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 analytical sensitivity/limit of detection is the Count/m^3 divided by the raw count, expressed in Count/m^3.

*The detection limit/limit of detection (DL) per cubic meter (m3) has been rounded to two significant figures to reflect analytical precision.

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Re: OH41465; Kenston

Date of Sampling: 12-07-2017
Date of Receipt: 12-11-2017
Date of Report: 12-12-2017

SPORE TRAP REPORT: NON-VIABLE METHODOLOGY

Location:	44: 222				45: 223				46: 231				47: 230			
Comments (see below)	None				None				None				None			
Lab ID-Version‡:	8648600-1				8648601-1				8648602-1				8648603-1			
Analysis Date:	12/11/2017				12/11/2017				12/11/2017				12/11/2017			
Sample volume (liters)	75				75				75				75			
Background debris (1-4+)††	1+				2+				2+				2+			
	raw ct.	Count/m3	DL/m3*	%	raw ct.	Count/m3	DL/m3*	%	raw ct.	Count/m3	DL/m3*	%	raw ct.	Count/m3	DL/m3*	%
Hyphal fragments													1	13	13	n/a
Pollen																
§ TOTAL FUNGAL SPORES	1	13	n/a	100	3	40	n/a	100	11	150	n/a	100	5	67	n/a	100
Ascospores																
Basidiospores	1	13	13	100	1	13	13	33	1	13	13	9				
Chaetomium																
Cladosporium					1	13	13	33	9	120	13	82	4	53	13	80
Curvularia																
Penicillium/Aspergillus types					1	13	13	33					1	13	13	20
Pithomyces									1	13	13	9				
Rusts																
Smuts, Periconia, Myxomycetes																
Stachybotrys																
Torula																
Ulocladium																
Zygomycetes																

Comments:

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 analytical sensitivity/limit of detection is the Count/m^3 divided by the raw count, expressed in Count/m^3.

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Client: EA Group
C/O: Mr. Tim Bowen
Re: OH41465; Kenston

Date of Sampling: 12-07-2017
Date of Receipt: 12-11-2017
Date of Report: 12-12-2017

SPORE TRAP REPORT: NON-VIABLE METHODOLOGY

Location:	48: Art Stop				49: Boys Lav				50: 203				51: 204			
Comments (see below)	None				None				None				None			
Lab ID-Version‡:	8648604-1				8648605-1				8648606-1				8648607-1			
Analysis Date:	12/11/2017				12/11/2017				12/11/2017				12/11/2017			
Sample volume (liters)	75				75				75				75			
Background debris (1-4+)††	2+				3+				1+				2+			
	raw ct.	Count/m3	DL/m3*	%	raw ct.	Count/m3	DL/m3*	%	raw ct.	Count/m3	DL/m3*	%	raw ct.	Count/m3	DL/m3*	%
Hyphal fragments	1	13	13	n/a												
Pollen																
§ TOTAL FUNGAL SPORES	8	110	n/a	100	4	53	n/a	100	2	27	n/a	100	8	110	n/a	100
Ascospores					1	13	13	25								
Basidiospores	2	27	13	25	1	13	13	25	1	13	13	50	4	53	13	50
Chaetomium																
Cladosporium	2	27	13	25					1	13	13	50	4	53	13	50
Curvularia																
Penicillium/Aspergillus types	4	53	13	50												
Pithomyces																
Rusts					1	13	13	25								
Smuts, Periconia, Myxomycetes					1	13	13	25								
Stachybotrys																
Torula																
Ulocladium																
Zygomycetes																

Comments:

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 analytical sensitivity/limit of detection is the Count/m^3 divided by the raw count, expressed in Count/m^3.

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††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.

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Date of Sampling: 12-07-2017
Date of Receipt: 12-11-2017
Date of Report: 12-12-2017

SPORE TRAP REPORT: NON-VIABLE METHODOLOGY

Location:	52: 205				53: 206				54: 207				55: 208			
Comments (see below)	None				None				None				None			
Lab ID-Version‡:	8648608-1				8648609-1				8648610-1				8648611-1			
Analysis Date:	12/11/2017				12/11/2017				12/11/2017				12/12/2017			
Sample volume (liters)	75				75				75				75			
Background debris (1-4+)††	1+				2+				2+				1+			
	raw ct.	Count/m3	DL/m3*	%	raw ct.	Count/m3	DL/m3*	%	raw ct.	Count/m3	DL/m3*	%	raw ct.	Count/m3	DL/m3*	%
Hyphal fragments					1	13	13	n/a	2	27	13	n/a				
Pollen																
§ TOTAL FUNGAL SPORES	3	40	n/a	100	9	120	n/a	100	6	80	n/a	100	2	27	n/a	100
Ascospores																
Basidiospores	2	27	13	67	2	27	13	22	1	13	13	17				
Chaetomium																
Cladosporium	1	13	13	33	5	67	13	56	4	53	13	67				
Curvularia																
Penicillium/Aspergillus types					2	27	13	22	1	13	13	17	1	13	13	50
Pithomyces													1	13	13	50
Rusts																
Smuts, Periconia, Myxomycetes																
Stachybotrys																
Torula																
Ulocladium																
Zygomycetes																

Comments:

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 analytical sensitivity/limit of detection is the Count/m^3 divided by the raw count, expressed in Count/m^3.

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Client: EA Group
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Date of Sampling: 12-07-2017
Date of Receipt: 12-11-2017
Date of Report: 12-12-2017

SPORE TRAP REPORT: NON-VIABLE METHODOLOGY

Location:	56: Top Of Stairs 207 & 209				57: Library				58: Field Blank			
Comments (see below)	None				None				None			
Lab ID-Version‡:	8648612-1				8648613-1				8648614-1			
Analysis Date:	12/12/2017				12/12/2017				12/12/2017			
Sample volume (liters)	75				75				0			
Background debris (1-4+)††	1+				3+				< 1+			
	raw ct.	Count/m3	DL/m3*	%	raw ct.	Count/m3	DL/m3*	%	raw ct.	Count/m3	DL/m3*	%
Hyphal fragments					1	13	13	n/a				
Pollen					1	13	13	n/a				
§ TOTAL FUNGAL SPORES	6	80	n/a	100	1	13	n/a	100		N/A	n/a	100
Ascospores	2	27	13	33								
Basidiospores												
Chaetomium												
Cladosporium	4	53	13	67								
Curvularia												
Penicillium/Aspergillus types												
Pithomyces												
Rusts												
Smuts, Periconia, Myxomycetes					1	13	13	100				
Stachybotrys												
Torula												
Ulocladium												
Zygomycetes												

Comments:

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 analytical sensitivity/limit of detection is the Count/m^3 divided by the raw count, expressed in Count/m^3.

*The detection limit/limit of detection (DL) per cubic meter (m3) has been rounded to two significant figures to reflect analytical precision.

††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.

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Client: EA Group
C/O: Mr. Tim Bowen
Re: OH41465; Kenston

Date of Sampling: 12-07-2017
Date of Receipt: 12-11-2017
Date of Report: 12-12-2017

MoldRANGE™: Extended Outdoor Comparison

Outdoor Location: 28, Exterior, Roof

Fungi Identified	Outdoor data	Typical Outdoor Data for: December in Ohio† (n‡=1013)						Typical Outdoor Data for: The entire year in Ohio† (n‡=14336)					
	spores/m3	very low	low	med	high	very high	freq %	very low	low	med	high	very high	freq %
Generally able to grow indoors*													
Alternaria	-	7	7	13	30	46	18	13	13	47	130	230	54
Bipolaris/Drechslera group	-	7	7	13	13	35	2	7	7	13	27	46	10
Chaetomium	-	7	7	13	20	27	3	7	7	13	27	50	4
Cladosporium	27	27	53	110	370	640	79	53	130	800	3,000	5,500	88
Curvularia	-	-	-	-	-	-	2	7	10	13	40	80	14
Nigrospora	-	7	7	13	22	43	7	7	10	13	44	76	20
Penicillium/Aspergillus types	80	27	53	110	270	480	58	27	53	130	400	750	60
Pithomyces	-	6	7	13	37	66	3	7	13	27	80	160	29
Stachybotrys	-	-	-	-	-	-	1	7	8	13	33	76	1
Torula	-	7	7	13	19	35	2	7	10	13	40	67	10
Seldom found growing indoors**													
Ascospores	-	27	44	89	270	490	63	53	110	520	1,900	3,600	84
Basidiospores	80	52	93	400	2,000	4,400	88	80	210	1,600	7,300	15,000	93
Rusts	-	7	7	13	38	59	5	7	13	27	67	130	25
Smuts, Periconia, Myxomycetes	13	7	10	13	53	80	46	13	13	40	130	260	63
§ TOTAL SPORES/m3	200												

†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 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, EMLab P&K may not have received and tested a representative number of samples for every region or time period. 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.

CHAIN OF CUSTODY
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Phoenix, AZ: 1501 West Knudsen drive, Phoenix, AZ 85027 * (800) 651-4802
San Bruno, CA: 1150 Bayhill Drive, #100, San Bruno, CA 94066 * (866) 888-6653

001846263

Weather	Fog	Rain	Snow	Wi
None	☑	☑	☐	☐
Light	☐	☐	☑	☐
Moderate	☐	☐	☐	☑
Heavy	☐	☐	☐	☐

CONTACT INFORMATION

Company:	EAGroup, Inc.
Contact:	Tim Bowen
Phone:	440 951-3514
Address:	7118 Indust., Park Blvd., Mentor, OH 44060
Special Instructions:	Please email results to: brenbarger@eagroupohio.com

PROJECT INFORMATION

Project ID:	OH41465
Project Description:	Kensten
Project Zip Code:	
Sampling Date & Time:	12/7/17
PO Number:	

TURN AROUND TIME CODES (TAT)

- STD – Standard (DEFAULT)
- ND – Next Business Day
- SD – Same Business Day Rush
- WH – Weekend / Holiday

Sample ID	Description	Sample Type	TAT	Total Volume (Area)	Notes	Fungi – Spore Trap Analysis
28	Exterior, Roof	ST	ND	75 L	0958	☒
29	125	↓	↓	↓	1008	↓
30	124	↓	↓	↓	1014	↓
31	121	↓	↓	↓	1043	↓
32	115	↓	↓	↓	1050	↓
33	113	↓	↓	↓	1056	↓
34	112	↓	↓	↓	1102	↓
35	107	↓	↓	↓	1301	↓
36	116	↓	↓	↓	1309	↓
37	105	↓	↓	↓	1313	↓
38	217	↓	↓	↓	1333	☒

Other services (all unchecked): Spore Trap Analysis – Other particles; Direct Microscopic Exam (Qualitative); Quantitative Spore Count Direct Exam; 1-Media Surface Fungi (Genus ID + Asp. spp.); 2-Media Surface Fungi (Genus ID + Asp. spp.); 3-Media Surface Fungi (Genus ID + Asp. spp.); Culturable Air Fungi (Genus ID + Asp. spp.); Gram Stain & Counts (Culturable Air & Surface Bacteria); *Legionella* culture; Total Coliform, *E. coli* (Presence/Absence); Membrane Filtration (specify organism); MPN Bacteria (specify organism); QuantiTray – Sewage Screen; Asbestos Analysis – PCM Airborne Fiber Count (NIOSH 7400); Asbestos Analysis – PLM (EPA method 600/R-93-116); PCR (specify test); Specify Service

SAMPLE TYPE CODES

BC – BioCassette™	ST – Spore Trap: Zefon, Allergenco, Burkard ...	T – Tape	D – Dust
A1S – Andersen		SW – Swab	SO – Soil
SAS – Surface Air Sampler	P – Potable Water	B – Bulk	
CP – Contact Plate	NP – Non-Potable Water	O – Other:	

Relinquished By	Date & Time	Received By	Date & Time
M. Kovell [signature]	12/8/17 0855	[signature]	12/8 0855
[signature]	12/8 1700	[signature]	12-11-17 FEDX

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San Bruno, CA: 1150 Bayhill Drive, #100, San Bruno, CA 94066 * (866) 888-6653

Weather	Fog	Rain	Snow	Wind
None	☑	☑	☐	☐
Light	☐	☐	☑	☐
Moderate	☐	☐	☐	☑
Heavy	☐	☐	☐	☐

001846263

CONTACT INFORMATION

Company:	EAGroup, Inc.	Address:	7118 Indust., Park Blvd., Mentor, OH 44060
Contact:	Tim Bowen	Special Instructions:	Please email results to: brenbarger@eagroupohio.com
Phone:	440 951-3514		

PROJECT INFORMATION

Project ID:	OH41465		
Project Description:	Kenston		
Project Zip Code:		Sampling Date & Time:	12/7/17
PO Number:			

TURNAROUND TIME CODES (TAT)

- STD – Standard (DEFAULT)
- ND – Next Business Day
- SD – Same Business Day Rush
- WH – Weekend / Holiday

[illegible]

ANALYSIS SERVICES

Sample ID	Description	Sample Type (Code)	Air	Total Volume/Area	Notes	Fungi – Spore Trap Analysis
39	218	ST	ND	75 L	1340	☒
40	215	↓	↓	↓	1347	↓
41	219	↓	↓	↓	1353	↓
42	220	↓	↓	↓	1359	↓
43	221	↓	↓	↓	1407	↓
44	222	↓	↓	↓	1414	↓
45	223	↓	↓	↓	1421	↓
46	231	↓	↓	↓	1451	↓
47	230	↓	↓	↓	1457	↓
48	Art Stor	↓	↓	↓	1503	↓
49	Boys Lav	↓	↓	↓	1510	☒

Other service columns (not checked for any sample):

- Trap: Spore Trap Analysis – Other particles
- Swab / Bulk: Direct Microscopic Exam (Qualitative); Quantitative Spore Count Direct Exam
- Andersen, SAS, Swab, Water, Bulk, Dust, Soil, Contact Plates: 1-Media Surface Fungi (Genus ID + *Asp.* spp.); 2-Media Surface Fungi (Genus ID + *Asp.* spp.); 3-Media Surface Fungi (Genus ID + *Asp.* spp.); Culturable Air Fungi (Genus ID + *Asp.* spp.); Gram Stain & Counts (Culturable Air & Surface Bacteria); *Legionella* culture; Total Coliform, *E. coli* (Presence/Absence); Membrane Filtration (specify organism); MPN Bacteria (specify organism); QuantiTray – Sewage Screen
- Other Requests: Asbestos Analysis – PCM Airborne Fiber Count (NIOSH 7400); Asbestos Analysis – PLM (EPA method 600/R-93-116); PCR (specify test); Specify Service

SAMPLE TYPE CODES

BC – BioCassette ™	ST – Spore Trap: Zefon, Allergenco, Burkard ...	T – Tape	D – Dust
A1S – Andersen		SW – Swab	SO – Soil
SAS – Surface Air Sampler	P – Potable Water	B – Bulk	
CP – Contact Plate	NP – Non-Potable Water	O – Other	

Relinquished By	Date & Time	Received By	Date & Time
M. Kovell [signature]	12/8/17 0855		
FedEx [signature]	12-11-17	[signature]	

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EMLab P&K A TestAmerica Company

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Phoenix, AZ: 1501 West Knudsen drive, Phoenix, AZ 85027 * (800) 651-4802
San Bruno, CA: 1150 Bayhill Drive, #100, San Bruno, CA 94066 * (866) 888-6653

Weather	Fog	Rain	Snow	Wind
Level: None	☑	☑	☐	☐
Light	☐	☐	☑	☐
Moderate	☐	☐	☐	☑
Heavy	☐	☐	☐	☐

001846263

CONTACT INFORMATION

Company:	EAGroup, Inc.	Address: 7118 Indust., Park Blvd., Mentor, OH 44060
Contact:	Tim Bowen	Special Instructions: Please email results to: brenbarger@eagroupohio.com
Phone:	440 951-8514	

PROJECT INFORMATION

Project ID:	OH41465		
Project Description:	Kenston		
Project Zip Code:		Sampling Date & Time:	12/7/17
PO Number:			

TURN AROUND TIME CODES (TAT)

- STD – Standard (DEFAULT)
- ND – Next Business Day
- SD – Same Business Day Rush
- WH – Weekend / Holiday

[illegible]

Sample ID	Description	Sample Type (Below)	TAT (Above)	Total Volume/Area (if applicable)	Notes (Flow rate, Temp RH, etc.)	Fungi – Spore Trap Analysis
50	203	ST	ND	75 L	1516	☒
51	204	↓	↓	↓	1522	|
52	205				1529	|
53	206				1535	|
54	207				1541	|
55	208				1548	|
56	Top of Stairs 207/208				1554	|
57	Library				1600	☒
58	Field Blank	↓	↓	—		

SERVICES ([illegible] boxes below)

- Spore Trap: Fungi – Spore Trap Analysis; Spore Trap Analysis – Other particles
- Swab Bulk: Direct Microscopic Exam (Qualitative); Quantitative Spore Count Direct Exam
- Culturable — Andersen, SAS, Swab, Water, Bulk, Dust, Soil, Contact Plates: 1-Media Surface Fungi (Genus ID + *Asp.* spp.); 2-Media Surface Fungi (Genus ID + *Asp.* spp.); 3-Media Surface Fungi (Genus ID + *Asp.* spp.); Culturable Air Fungi (Genus ID + *Asp.* spp.); Gram Stain & Counts (Culturable Air & Surface Bacteria); *Legionella* culture; Total Coliform, *E. coli* (Presence/Absence); Membrane Filtration (specify organism):; MPN Bacteria (specify organism):; QuantiTray – Sewage Screen
- Other Requests: Asbestos Analysis – PCM Airborne Fiber Count (NIOSH 7400); Asbestos Analysis – PLM (EPA method 600/R-93-116); PCR (specify test):; Specify Service

SAMPLE TYPE CODES

BC – BioCassette ™	ST – Spore Trap: Zefon, Allergenco, Burkard ...	T – Tape	D – Dust
A1S – Andersen		SW – Swab	SO – Soil
SAS – Surface Air Sampler	P – Potable Water	B – Bulk	
CP – Contact Plate	NP – Non-Potable Water	O – Other	

RELINQUISHED BY	DATE & TIME	RECEIVED BY	DATE & TIME
M. Kovell [signature]	12/7/17 / 0355		
FedEx	8:55 12-11-17	[signature]	