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MEMBERS OF:



**FINAL QUARTERLY FUNGAL & IAQ SURVEY
CLOSING REPORT
08/07/12**

WEST MIDDLE SCHOOL
PROJECT LOCATION:
417 MAIN STREET
FAWN GROVE, PA 17321-9515

**PROJECT CONTRACT FOR:
MR. FRANK DEHAUT JR
QUALITY ASSURANCE PLUS**

**Respectfully Submitted
PROAC CORPORATION**

**Reviewed By:
PROAC CORPORATI**

**Walter Saunders, CIEC, ASCS
Industrial Hygienist**

**Dean R. Klopp, CIE, CMR, ASCS
President**



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SUMMARY OF FINDINGS:

On August 7, 2012 , PROAC Corporation performed the Final IAQ and HVAC Inspection at the West Middle School located in Fawn Grove, PA. The survey was completed by:

Dean Klopp, CIE, CMR, ASCS, President, PROAC Corporation
Walt Saunders, CIEC, Industrial Hygienist, PROAC Corporation
Mike Ruth, CVI, CMR, ASCS, Crew Leader, PROAC Corporation

This was the final scheduled survey and the survey was designed to cover all areas of the building not covered in the previous surveys as well as representative areas of all sections of the school. Since our last survey, diffusers had been placed in the Locker areas to provide ventilation to that section of the school. Relative Humidity (RH) readings throughout the school were generally lower than in previous surveys, in the mid 50% range. **There was no indication of present water damage during the survey and there was no visible indication of fungal contamination in any area surveyed.**

The survey included direct reading measurements of Carbon Dioxide, Carbon Monoxide, Temperature, Relative Humidity, and Particle Counts. An "AMPROBE" digital sling psychrometer was used to obtain temperature and relative humidity readings. Carbon Dioxide (CO₂), Carbon Monoxide (CO) and Total Volatile Organic Compounds (TVOC's) were sampled using a "MultiRAE IR", PGM-54 Multi-Gas Monitor. Range of gases begins at "0" and the resolution is 10ppm for CO₂, 1ppm for CO. No significant readings were revealed.

Particle counts were obtained with a Six Channel, Laser Hand Held Particle Counter (HHPC-6). Micron size of particles documented include; .3, .5, 1, 2, and 5 (um). In a properly functioning building, particle counts indoors should be lower indoors as compared to the outdoors. On the day of the testing, particle counts were generally lower as compared to the outdoors except in the hall at the music room where particle counts were slightly higher as compared to the outdoors in the 2.0 ug and 5.0 ug sizes. The particle counter does not identify the type of particle, only the particle size.

Airborne samples were obtained in twenty two indoor locations and four outdoor locations for comparison. Sample locations are as follows:

Outside Front	Main Office
Library	Room # 104
Room # 101	Room # 201
Room # 208	Room # 306
Room # 408	Room # 404
Room # 108	Room # 301
Outside Room # 302	Room # 405
Music Room	Room # 402
LGI	Outside 400 Wing
Locker Area 2	Cafeteria
Gym	Remedial Gym
Boys Team Room	Girls Locker Room
Outside Gymnasium	Outside Maintenance

Samples for airborne total, countable fungal structures were obtained using a Bio-Pump and Allergenco D sampling cassettes. The pump was calibrated at 15 liters/minute and the samples were drawn for 5 minutes.

Typically, the fungal profile of the indoor samples should be similar to and of a lower concentration than the outdoor samples. Generally, the indoor samples revealed a lower total concentration of fungal spores as compared to the outdoors and a similar fungal profile however low concentrations of several fungal types were revealed indoors that were not revealed in the outdoor samples.

Generally, the concentration of these fungal types is not considered to be significant however it should be noted that the concentration of *Cladosporium* in in the Boys Team Room (1600 fungal structures/m³), although substantially higher than each of the other areas sampled, is still below the concentration revealed in the outdoor samples. It should also be noted that the concentration of the Pen/Asp spores in the Boys Team Room (730 fungal structures/m³) and the Girls Locker Room (580 fungal structures/m³), are at a higher concentration as compared the outdoor sample obtained from outside the Gym Wing (210 fungal structures/m³), however the sample obtained from outside the 400 Wing did reveal a similar concentration of 680 fungal structures/m³ of Pen Asp spores. The *Cladosporium* and Pen/Asp spores could be indicative of a humid environment and not an indication of a moisture intrusion with associated fungal contamination. We are recommending that these Locker/Team rooms be cleaned using detergent, clean rinse, a mild bleach solution and clean rinse, several times per year. Thorough drying should occur after cleaning.

MICROBIOLOGICAL AIR SAMPLES

Media Used

Total, Countable Fungi Allegenco D Spore Trap Cassettes

There are currently no standards regarding the amount of fungal or bacterial (microbial) contamination on surfaces or in the air. There are, however, guide lines to assist IAQ professionals with comparing their survey data to study data. References are listed as an attachment.

According to the American Conference of Government Industrial Hygienists (ACGIH) and the Environmental Protection Agency (EPA), the recommended level for microbiological exposure is an equal or lower quantity inside the building than found outside the building. Also, indoor samples should have the same kind, rank and order of organisms that are found outdoors.

Samples are as follows.

Twenty Six Spore Trap Samples for Total Countable Fungal Spores

Outdoor Air Samples - Four samples were obtained outdoor for comparison to the indoor sample. These samples are used as an aid in determining if the source of fungal contamination is indoors. The outdoor samples revealed seasonably high levels of fungal spores with *Cladosporium*, *basidiospores*, *ascospores* and *Cladosporium* spores being the predominant contaminants.

Inside Air Samples – Twenty two samples were obtained indoors. Each of the samples obtained indoors revealed a lower total concentration of fungal spores and a similar rank and order as compared to the outdoors however, the concentrations of *Cladosporium* and Pen/Asp like spores, although lower than the outdoor samples, is high as compared to the other areas sampled throughout the school. Maintenance personnel indicated that the Gymnasium Wing has been closed up for much of the summer, possibly contributing to a humid environment, allowing for fungal growth in these areas.

MICROBIOLOGICAL SURFACE SAMPLES

Sterile swab samples were obtained from AH 1 (Music Room), AH 2 (100 Wing), AH 3, (Library), AH 4 (200-300 Wing), AH5 (LGI), AH 6 (300 –400 Wing Hall) AH 8 (Gym Area), AH 10 (Gym Area), Room 405 AH, RM 408 AH, Room 104 AH and Room 104 AH. The sample obtained from AH 2 revealed a very low concentration of *Alternaria alternata*. There was no fungal contamination revealed in the each of the remaining samples.

GAS SAMPLING AND PARTICLE COUNTS

The weather on the day of the testing was clear and warm with ambient air temperatures between 75 and 84 degrees F. Relative humidity (RH) readings outside was recorded between 54% and 63%. The carbon dioxide (CO₂) readings outside ranged between 200 and 310 per million (ppm). Carbon Monoxide (CO) and Volatile Organic Compound (VOC's) were not detected outdoors.

Temperatures in the school ranged between 73 and 80 degrees F while the RH reading indoors were low, ranging between 43% and 61%. The American Society of Heating Refrigerating and Air Conditioning Engineers (ASHRAE) have suggested that for optimum comfort, indoor temperatures should range from 68.5-76 degrees F at 30% RH during the heating season. The guidelines also suggest 30% RH as the minimum indoor humidity level and 60% as the maximum indoor humidity level (ASHRAE Standard 55-1992). RH levels above 66% can cause microbial growth, especially during the Summer. **NOTE:** Occupants who experience symptoms due to low humidity during the heating season should hydrate and drink plenty of water. Moisturizers are available for "dry" eyes.

ASHRAE has also suggested that for optimum comfort, **Carbon Dioxide** levels should not exceed 700 ppm above ambient air. Outdoor CO₂ levels ranged between 200 ppm and 310 ppm. CO₂ levels in the school ranged between 310 and 420 ppm.

Carbon Monoxide readings registered 0.0 ppm in each area tested.

Total Volatile Organic Compound readings registered 0.0 ppm in each area tested. Detection limit begins at 0.1 ppm. If chemical sensitivity is an issue than more specific tests may be performed.

Particle Counts were recorded in five sizes of microscopic particulate. Data collected is used only as an indicator of dusty environments or for relative comparison. Higher counts may be an indicator of high occupancy, low efficiency filtration, lack of hygiene, use of paper products or processes, etc. Typically, particle counts should be lower inside that building than outside. Particle counts in the school were generally lower as compared to the outdoors. No standards are available for “counts” of particulate of any size, outside of a “Clean Room” environment. Time Weighted Averages may be performed by collecting “dust” and particulate onto a pre-weighed cassette, drawn by a vacuum pump over a known period of time (NIOSH method). This method is usually performed in a manufacturing or dusty environment. This method is not recommended.

RECOMMENDATIONS

- 1) Consider a Proactive HVAC Maintenance program to clean and treat all air handlers, periodically, including cleaning coils with enzymatic Aeris cleaner, treating coils with Aeris Coil treatment (anti-microbial anti-foulant guaranteed for 1 yr), HEPA contact vacuuming and treating
- ☒ surfaces with Fast Attack (EPA registered, HVAC sanitizer)Drain pans should be treated with non-dissolving product, like Pan Guard. Resurface rusting pans with Pancrete. Replace any worn insulation with closed cell material, like IMCOA.

**FINAL IAQ
& HVAC INSPECTION**

WEST MIDDLE SCHOOL



AHU # 1-RETURN AIR-PLENUM



AHU # 1-HEATING COIL-UPSTREAM

**FINAL IAQ
& HVAC INSPECTION**

WEST MIDDLE SCHOOL



AHU # 1-COOLING COIL



AHU # 1-DRAIN PAN

FINAL IAQ
& HVAC INSPECTION

WEST MIDDLE SCHOOL



**FINAL IAQ
& HVAC INSPECTION**

WEST MIDDLE SCHOOL



AHU # 8-RETURN AIR-PLENUM



AHU # 8-COIL-UPSTREAM

**FINAL IAQ
& HVAC INSPECTION**

WEST MIDDLE SCHOOL



AHU # 8-BLOWER



AHU # 8-COIL-DOWN STREAM

**FINAL IAQ
& HVAC INSPECTION**

WEST MIDDLE SCHOOL



AHU # 10-BLOWER



AHU # 10-INSULATION

**FINAL IAQ
& HVAC INSPECTION**

WEST MIDDLE SCHOOL



AHU # 10-COOLING COIL



AHU # 10-HEATING COIL

**FINAL IAQ
& HVAC INSPECTION**

WEST MIDDLE SCHOOL



AHU # 10-FILTER



AHU # 10-RETURN AIR-PLENUM

**FINAL IAQ
& HVAC INSPECTION**

WEST MIDDLE SCHOOL



ROOM # 104-AHU-RETURN AIR



ROOM # 104-AHU - COOLING COIL

**FINAL IAQ
& HVAC INSPECTION**

WEST MIDDLE SCHOOL



ROOM # 104-AHU-HEATING COIL



ROOM # 104-AHU - BLOWER

FINAL IAQ
& HVAC INSPECTION

WEST MIDDLE SCHOOL



**FINAL IAQ
& HVAC INSPECTION**

WEST MIDDLE SCHOOL



ROOM # 101-AHU-FILTER



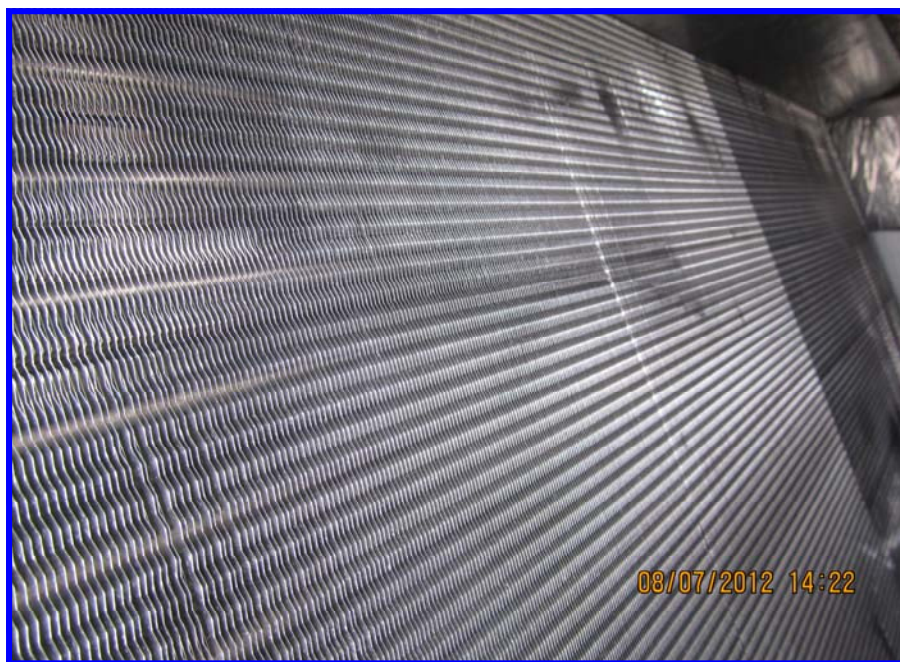
ROOM # 101-AHU - RETURN AIR-PLENUM

FINAL IAQ
& HVAC INSPECTION

WEST MIDDLE SCHOOL



ROOM # 101-AHU-COOLING COIL



ROOM # 101-AHU - HEATING COIL

**FINAL IAQ
& HVAC INSPECTION**

WEST MIDDLE SCHOOL



ROOM # 101-AHU-BLOWER

**FINAL IAQ
& HVAC INSPECTION**

WEST MIDDLE SCHOOL



ROOM # 400-AHU-COOLING COIL



ROOM # 400-AHU - BLOWER

**FINAL IAQ
& HVAC INSPECTION**

WEST MIDDLE SCHOOL



ROOM # 400-AHU-INSULATION

**FINAL IAQ
& HVAC INSPECTION**

WEST MIDDLE SCHOOL



ROOM # 405-AHU-COOLING COIL



ROOM # 405-AHU - BLOWER

**FINAL IAQ
& HVAC INSPECTION**

WEST MIDDLE SCHOOL



ROOM # 405-AHU-INSULATION

**FINAL IAQ
& HVAC INSPECTION**

WEST MIDDLE SCHOOL



AHU # 6-COOLING COIL-UPSTREAM



AHU # 6-HEATING COIL-DOWNSTREAM

**FINAL IAQ
& HVAC INSPECTION**

WEST MIDDLE SCHOOL



AHU # 6-BLOWER FINS



AHU # 6-BLOWER COMPARTMENT-FLOOR

**FINAL IAQ
& HVAC INSPECTION**

WEST MIDDLE SCHOOL



AHU # 6-FILTERS



AHU # 6-DRAIN PAN

**FINAL IAQ
& HVAC INSPECTION**

WEST MIDDLE SCHOOL



AHU # 6-RETURN AIR DUCT UP FROM UNIT

**FINAL IAQ
& HVAC INSPECTION**

WEST MIDDLE SCHOOL



AHU # 5-RETURN AIR -MIXING PLENUM



AHU # 5-HEATING COIL-UPSTREAM

**FINAL IAQ
& HVAC INSPECTION**

WEST MIDDLE SCHOOL



AHU # 5-FILTERS



AHU # 5-BLOWER COMPARTMENT

**FINAL IAQ
& HVAC INSPECTION**

WEST MIDDLE SCHOOL



AHU # 5-DRAIN PAN

**FINAL IAQ
& HVAC INSPECTION**

WEST MIDDLE SCHOOL



AHU # 4-RETURN AIR-PLENUM



AHU # 4-FILTER

**FINAL IAQ
& HVAC INSPECTION**

WEST MIDDLE SCHOOL



AHU # 4-BLOWER COMPARTMENT



AHU # 4-COIL-UPSTREAM

**FINAL IAQ
& HVAC INSPECTION**

WEST MIDDLE SCHOOL



AHU # 4-DAMPER-DOWNSTREAM

**FINAL IAQ
& HVAC INSPECTION**

WEST MIDDLE SCHOOL



AHU # 3-RETURN AIR-PLENUM



AHU # 3-FILTERS

**FINAL IAQ
& HVAC INSPECTION**

WEST MIDDLE SCHOOL



AHU # 3-COILS-UPSTREAM



AHU # 3-BLOWER COMPARTMENT

**FINAL IAQ
& HVAC INSPECTION**

WEST MIDDLE SCHOOL



AHU # 3-DRAIN PAN/COIL-DOWNSTREAM

**FINAL IAQ
& HVAC INSPECTION**

WEST MIDDLE SCHOOL



AHU # 2-RETURN AIR-PLENUM



AHU # 2-FILTER

**FINAL IAQ
& HVAC INSPECTION**

WEST MIDDLE SCHOOL



AHU # 2-BLOWER COMPARTMENT



AHU # 2-COOLING COIL-UPSTREAM

**FINAL IAQ
& HVAC INSPECTION**

WEST MIDDLE SCHOOL



AHU # 2-DRAIN PAN-COOLING COIL-DOWNSTREAM



AHU # 2-HEATING COIL-DOWNSTREAM

Prestige EnviroMicrobiology, Inc

www.prestige-em.com

Analytical Test Report

Client: Proac Corporation, 8401 South Lancaster Ave, Bethel, PA 19507

Client Project: West Middle School Final QA

Sample date: 8-7-2012

Submittal date: 8-8-2012

Samples submitted by: Walt Saunders

Data analysis completed: August 14, 2012

Prestige report number: 120809-01

Microscopic Method (P001): Analysis of Allergenco Samples for Total Fungal Structures by Optical Microscopy

Prestige # Client sample ID Location	Air vol. (m ³)	% read	Presumptive fungal ID	Counts of fungal structures	Fungal structures/m ³	Percentage	Background rating
120809-01-001 #1 Outside #1	0.075	25.5	<i>Alternaria</i>	1	52	1%	1
			ascospores	51	2,700	38%	
			basidiospores	34	1,800	26%	
			<i>Cercospora</i>	1	52	1%	
			<i>Cladosporium</i>	42	2,200	32%	
			<i>Ganoderma</i>	2	100	2%	
			myxomycetes	1	52	1%	
			unknowns	1	52	1%	
			Total	7,000			
120809-01-002 #2 Rm 104	0.075	25.5	basidiospores	1	52	25%	2
			myxomycetes	2	100	50%	
			<i>Pithomyces</i>	1	52	25%	
			Total	200			
120809-01-003 #3 Rm 101	0.075	25.5	<i>Alternaria</i>	1	52	50%	1
			<i>Cladosporium</i>	1	52	50%	
			Total	100			
120809-01-004 #4 Rm 201	0.075	25.5	<i>Cladosporium</i>	1	52	33%	1
			<i>Epicoccum</i>	1	52	33%	
			<i>Pithomyces</i>	1	52	33%	
			Total	160			
120809-01-005 #5 Rm 208	0.075	25.5	<i>Alternaria</i>	1	52	50%	1
			ascospores	1	52	50%	
			Total	100			
120809-01-006 #6 Rm 306	0.075	12.75	ascospores	1	52	50%	1
			<i>Cladosporium</i>	1	52	50%	
			Total	100			
120809-01-007 #7 Rm 408	0.075	25.5	ascospores	1	52	25%	1
			basidiospores	1	52	25%	
			<i>Cladosporium</i>	1	52	25%	
			myxomycetes	1	52	25%	
			Total	210			
120809-01-008 #8 Rm 404	0.075	25.5	ascospores	1	52	25%	1
			<i>Cladosporium</i>	1	52	25%	
			<i>Epicoccum</i>	1	52	25%	
			<i>Pithomyces</i>	1	52	25%	
			Total	210			

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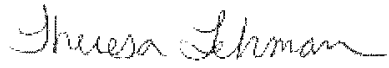
Prestige EnviroMicrobiology, Inc

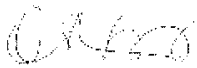
www.prestige-em.com


120809-01-018 #18 Gym	0.075	25.5	ascospores basidiospores <i>Cladosporium</i> <i>Epicoccum</i> <i>Ganoderma</i>	1 1 1 1 1	52 52 52 52 52	20% 20% 20% 20% 20%	
					Total 260		1
120809-01-019 #19 Remedial gym	0.075	25.5	basidiospores	1	52	100%	1
					Total 52		
120809-01-020 #20 Boys team Rm	0.075	25.5	ascospores basidiospores <i>Cladosporium</i> <i>Epicoccum</i> <i>Ganoderma</i> hyphal fragments Pen/Asp-like	5 1 30 1 2 1 14	260 52 1,600 52 100 52 730	9% 2% 56% 2% 4% 2% 26%	
					Total 2,800		1
120809-01-021 #21 Girls locker Rm	0.075	25.5	<i>Alternaria</i> ascospores basidiospores <i>Cladosporium</i> <i>Curvularia</i> <i>Fusarium</i> <i>Ganoderma</i> Pen/Asp-like	1 4 4 14 1 1 1 11	52 210 210 730 52 52 52 580	3% 11% 11% 38% 3% 3% 3% 30%	
					Total 1,900		1
120809-01-022 #22 LGI	0.075	25.5	ascospores basidiospores <i>Cladosporium</i> Pen/Asp-like	4 1 3 1	210 52 160 52	44% 11% 33% 11%	
					Total 470		1
120809-01-023 #23 Cafeteria	0.075	25.5	<i>Cladosporium</i> Pen/Asp-like	1 1	52 52	50% 50%	
					Total 100		1
120809-01-024 #24 Library	0.075	25.5	<i>Alternaria</i> ascospores <i>Cladosporium</i> hyphal fragments <i>Pithomyces</i>	1 1 1 1 1	52 52 52 52 52	20% 20% 20% 20% 20%	
					Total 260		1
120809-01-025 #25 Music Rm	0.075	25.5	<i>Cladosporium</i>	1	52	100%	1
					Total 52		

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120809-01-026 #26 Outside gym	0.075	25.5	<i>Alternaria</i>	3	160	2%	
			ascospores	42	2,200	28%	
			basidiospores	8	420	5%	
			<i>Cercospora</i>	1	52	1%	
			<i>Cladosporium</i>	77	4,000	51%	
			<i>Curvularia</i>	1	52	1%	
			<i>Epicoccum</i>	1	52	1%	
			<i>Ganoderma</i>	5	260	3%	
			hyphal fragments	3	160	2%	
			myxomycetes	1	52	1%	
			<i>Pithomyces</i>	3	160	2%	
			Pen/Asp-like	4	210	3%	
			<i>Pyricularia</i>	1	52	1%	
					Total 7,800		1

Report approved: 
Theresa Lehman, MPH, Lab Director

Quality control check: 
Chin S Yang, Ph.D.

Report review: 

1. The samples in this report were received in good, acceptable conditions. Results relate only to the items tested.
2. Percentage is for each group of fungal structures in total population.
3. Concentrations and percentages are rounded to the nearest two significant digits. Total percentage may not add up to 100% due to rounding.
4. Background rating 1-5 (1 being the lowest and 5 the highest) indicates density of sample deposit. The higher the sample deposit is, the more likely some fungal structures are obscured.
5. The detection limit of this analysis is one fungal structure. The quantitation limits vary from analysis to analysis and by air volume. Contact us to determine your quantitation limits.

Prestige EnviroMicrobiology, Inc. Tel: 856-767-8300
 242 Terrace Boulevard., Suite B-1, Voorhees, New Jersey 08043

Fax: 856-767-8305

Prestige Proj.#: 120809-01

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Chain-of-Custody and Analysis Request Form

West Mook School
Front Gate

Client name: Proac Corp Tel: _____ Client proj.#: _____
 Address: _____ Fax: _____ P.O.#: _____

E-mail: _____ Date sampled: 8/7/12

Sample ID	Location or source	Sample type	Air vol (L) Area (inch ²)	Water: potable or non-potable	Analysis requests code or description	Turnaround time	Notes of special instructions
<u>001</u>	<u>outside #1</u>	<u>Spore Trap</u>	<u>75 L</u>		<u>Pool</u>		
<u>2</u>	<u>Rm 104</u>						
<u>3</u>	<u>Rm 101</u>						
<u>4</u>	<u>Rm 201</u>						
<u>5</u>	<u>Rm 202</u>						
<u>6</u>	<u>Rm 306</u>						
<u>7</u>	<u>Rm 408</u>						
<u>8</u>	<u>Rm 404</u>						
<u>9</u>	<u>OUTSIDE #00409</u>						
<u>10</u>	<u>Rm 102</u>						
<u>11</u>	<u>Rm 301</u>						

Contact name: Walt Saunders Submitted by: (sign & print) Walt Saunders Date submitted: 8/2/12

Received by: (sign & print) John Yang Date & time received: 8/2/12 9:20 AM Delivered by: Fedex, UPS, USPO, in person

(For lab use only) Processed by: _____ Sample type: _____ Date: _____

Prestige EnviroMicrobiology, Inc. Tel: 856-767-8300
 242 Terrace Boulevard., Suite B-1, Voorhees, New Jersey 08043

Fax: 856-767-8305

Prestige Proj #: 1-0507-01
 Page 2 of 4

Chain-of-Custody and Analysis Request Form

Client name: Prose Corp Tel: _____ Client proj #: West Middle School
 Address: _____ Fax: _____ P.O.#: _____
 E-mail: _____ Date sampled: _____

Sample ID	Location or source	Sample type	Air vol (L)/ Area (inch ²)	Water: potable or non-potable	Analysis requests code or description	Turnaround time	Notes or special instructions
12	Rm 302	SPARE BR	75 L		Pool		
13	Rm 405						
14	Rm 402						
15	hockey Area 2						
16	MAIN OFFICE						
17	OUTSIDE FRONT						
18	Gym						
19	Remedial Gym						
20	Boys Team Rm						
21	Girls Locker Rm						
22	LCE						

Contact name: _____ Submitted by: (sign & print) _____ Date submitted: _____

Received by: (sign & print) Julie Jang Date & time received: 8/16/97 Delivered by: UPS USPO, in person

(For lab use only) Processed by: _____ Sample type: _____ Date: _____

Prestige Proj.#: 120509-01

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Fax: 856-767-8305

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242 Terrace Boulevard., Suite B-1, Voorhees, New Jersey 08043

Chain-of-Custody and Analysis Request Form

West Middle School

Client name: Prose Corp Client proj.#: _____
Address: _____ P.O.#: _____
Tel: _____ Date sampled: _____
Fax: _____ E-mail: _____

Sample ID	Location of source	Sample type	Air vol (L) / Area (inch ²)	Water: potable or non-potable	Analysis requests code or description	Turnaround time	Notes or special instructions
23	Chaleton	Spore trap	75%		Pool		
24	Library						
25	Music Rm						
26	Outside Gym						
27	AH #1 Music	Swab	2" Sq		Pool		
28	AH #2 ROOMING		2" Sq				
29	AH 3 LIBRARY		4" Sq				
30	AH 4 200 Bot Wm		4" Sq				
31	AH 5 LG		1" Sq				
32	AH 6 300-400 BILL		4" Sq				
33	AH 8		2"				

Contact name: _____ Submitted by: (sign & print) _____ Date submitted: _____

Received by: (sign & print) John Yang Date & time received: 8/26/97 9:20 Delivered by: UPS USPO, in person

(For lab use only) Processed by: _____ Sample type: _____ Date: _____

Prestige Proj #: 20807-01
10/1/04

Prestige EnviroMicrobiology, Inc. Tel: 856-767-8300 Fax: 856-767-8305
 242 Terrace Boulevard, Suite B-1, Voorhies, New Jersey 08043

Chain-of-Custody and Analysis Request Form

West Middle School

Client name: Pace Corp Tel: _____ Client proj.#: _____
 Address: _____ Fax: _____ P.O.#: _____
 E-mail: _____ Date sampled: _____

Sample ID	Location or source	Sample type	Air vol (LY Area (inch ²))	Water: potable or non-potable	Analysis requests code or description	Turnaround time	Notes or special instructions
34	Rm 10	SWAB	1"		Floor		
35	Rm 405 AH		1"				
36	Rm 408 AH		2"				
37	Rm 104 AH		1"				
38	Rm 101 AH		2"				

Contact name: _____ Submitted by: (sign & print) _____ Date submitted: _____

Received by: (sign & print) Julia Yang Date & time received: 8/16/04 9:20 Delivered by: Fedex, UPS, USPO, in person

(For lab use only) Processed by: _____ Sample type: _____ Date: _____

Prestige EnviroMicrobiology, Inc

*AIEHA Environmental Microbiology PAT Program participant
Laboratory ID Number 192810
Website: www.prestige-em.com*

Analytical Test Report

Client: Proac Corp. 8401 South Lancaster Ave, Bethel, PA 19507

Client Project: West Middle School

Sample date: 8-7-2012

Submittal date: 8-8-2012

Date samples received: 8-9-2012

Date of inoculation: 8-9-2012 (Swabs)

Samples submitted by: Walt Saunders

Data analysis completed: August 16, 2012

Prestige Report number: 120809-01

Culture Method (P009): Culture Analysis of Swab Samples for Fungi

Prestige # Client sample ID Location	Area (in ²)	Media used	Dilution factor	Fungal Identification	Colony counts	Conc. (CFU/ in ²)	Percentage
120809-01-027 #27 AH #1 music	2	MEA	100x	No fungal growth detected	ND	<50 Total <50	NA
120809-01-028 #28 AH #2 100 wing	2	MEA	100x	<i>Alternaria alternata</i>	6	300 Total 300	100%
120807-06-029 #29 AH 3 Library	4	MEA	100x	No fungal growth detected	ND	<25 Total <25	NA
120809-01-30 #30 AH 4 200-300 wing	4	MEA	100x	No fungal growth detected	ND	<25 Total <25	NA
120809-01-031 #31 AH 5 LGI	1	MEA	100x	No fungal growth detected	ND	<100 Total <100	NA
120809-01-032 #32 AH 6 300-400 hall	4	MEA	100x	No fungal growth detected	ND	<25 Total <25	NA
120809-01-033 #33 AH 8	2	MEA	100x	No fungal growth detected	ND	<50 Total <50	NA
120809-01-034 #34 AH 10	1	MEA	100x	No fungal growth detected	ND	<100 Total <100	NA
120809-01-035 #35 Rm 405 AH	1	MEA	100x	No fungal growth detected	ND	<100 Total <100	NA

242 Terrace Boulevard, Suite B-1, Voorhees, New Jersey 08043 Tel: 856-767-8300 Fax 856-767-8305

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Prestige EnviroMicrobiology, Inc


AIDCA Environmental Microbiology PAT Program participant

Laboratory ID Number 192810

Website: www.prestige-em.com

120809-01-036 #36 Rm 408 AH	2	MEA	100x	No fungal growth detected	ND	<50 Total <50	NA
120809-01-037 #37 Rm 104 AH	1	MEA	100x	No fungal growth detected	ND	<100 Total <100	NA
120809-01-038 #38 Rm 101 AH	2	MEA	100x	No fungal growth detected	ND	<50 Total <50	NA

Report approved: 
Theresa Lehman, MPH, Lab Director

Quality control check: 
Chin S Yang, Ph.D.

Report review: 

1. The samples in this report were received in good, acceptable conditions. Results relate only to the items tested.
2. Percentage is for each group in total population.
3. Concentrations and percentages are rounded to the nearest two significant digits. Total percentage may not add up to 100% due to rounding.
4. MEA=2% malt extract agar. ND = not detected; NA = not applicable.
5. All culture samples are incubated at 25±0.5°C unless otherwise indicated.
6. The detection limit of this analysis is one fungal colony. The quantitation limits vary from analysis to analysis and by air volume. Contact us to determine your quantitation limits.

Prestige EnviroMicrobiology, Inc. Tel: 856-767-8300
 242 Terrace Boulevard., Suite B-1, Voorhees, New Jersey 08043

Fax: 856-767-8305

Prestige Proj. #: 120809-01

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Chain-of-Custody and Analysis Request Form

Client name: Acas Corp Tel: _____
 Address: _____ Fax: _____
 Client proj. #: _____ P.O.#: _____
 Date sampled: 8/7/12 E-mail: _____

West Middle School
FINAL OPA

Sample ID	Location of source	Sample type	Air vol (L)/ Area (inch ²)	Water: potable or non-potable	Analysis requests code or description	Turnaround time	Notes or special instructions
1	outside #1	Space Trap	75 L		1001		
2	Rm 104						
3	Rm 101						
4	Rm 201						
5	Rm 208						
6	Rm 366						
7	Rm 408						
8	Rm 404						
9	OUTSIDE 400/409						
10	Rm 102						
11	Rm 301						

Contact name: Walt Saunders Submitted by: (sign & print) Walt Saunders Date submitted: 8/2/12

Received by: (sign & print) [Signature] Date & time received: 8/2/12 9:20 AM Delivered by: Fedex, (URS, USPO, in person)

(For lab use only) Processed by: _____ Sample type: _____ Date: _____

Prestige EnviroMicrobiology, Inc. Tel: 856-767-8300 Fax: 856-767-8305
 242 Terrace Boulevard., Suite B-1, Voorhees, New Jersey 08043

Prestige Proj.#: 1-0507-01
Page 2 of 4

Chain-of-Custody and Analysis Request Form

Client name: Proac Corp Tel: _____ Fax: _____
 Address: _____ E-mail: _____
 Client proj.#: West Middle School P.O.#: _____
Franklin Ave Date sampled: _____

Sample ID	Location or source	Sample type	Air vol (L)/ Area (inch ²)	Water: potable or non-potable	Analysis requests code or description	Turnaround time	Notes or special instructions
12	Rm 302	SPICE bin	75 L		Pool		
13	Rm 405						
14	Rm 402						
15	locker Area 2						
16	MAIN OFFICE						
17	OUTSIDE FRONT						
18	Gym						
19	Recessed Gym						
20	Boys Team Rm						
21	Girls Locker Rm						
22	ICE						

Contact name: _____ Submitted by: (sign & print) _____ Date submitted: _____

Received by: (sign & print) Jake Jang Date & time received: 8/2 9:30 Delivered by: Fedex, UPS, USPO, in person

(For lab use only) Processed by: _____ Sample type: _____ Date: _____

Prestige Proj. #: 120809-01

Fax: 856-767-8305

Prestige EnviroMicrobiology, Inc. Tel: 856-767-8300
242 Terrace Boulevard., Suite B-1, Voorhees, New Jersey 08043

Chain-of-Custody and Analysis Request Form

Page 3 of 4

West Middle School

Client name: Pace Corp Tel: _____ Client proj. #: _____
Address: _____ Fax: _____ P.O. #: _____

E-mail: _____ Date sampled: _____

Sample ID	Location or source	Sample type	Air vol (by Area (inch ²))	Water: potable or non-potable	Analysis requests code or description	Turnaround time	Notes or special instructions
23	Caeteria	Spice food	752		Pool		
24	Libeney						
25	Music Rm						
26	Outside Gym						
27	AH #1 Music	Swamp	2" Sq		Pool		
28	AH #2 100W17		2" Sq				
29	AH3 LIBRARY		4" Sq				
30	AH4 200-300 W002		4" Sq				
31	AH5 LGI		1" Sq				
32	AH6 300-400 BHL		4" Sq				
33	AH 8		2"				

Contact name: _____ Submitted by: (sign & print) _____ Date submitted: _____

Received by: (sign & print) J. J. J. J. Date & time received: 8/6/97 9:20 Delivered by: Fedex (UPS, MSPO, in person)

(For lab use only) Processed by: _____ Sample type: _____ Date: _____



INDOOR AIR QUALITY SURVEY

Purpose: FINAL IAQ & HVAC INSPECTION

Location: WEST MIDDLE SCHOOL

Date: 08/07/12

Outside Air: % HUMIDITY °F PPM CO²

NO.	TIME	TEMP °F	RELATIVE HUMIDITY	CARBON DIOXIDE	CO	TVOC	OCCUPANCY #PERSONS	COMMENTS
1	8:15	75	63	200	0	0	0-2	OUTSIDE # 1
2	8:37	76	47	320	0	0	2-3	302
3	8:44	76	47	310	0	0	0-1	306
4	8:53	76	47	310	0	0	0-1	301
5	9:02	77	55	310	0	0	0-1	405
6	9:11	75	44	350	0	0	0-1	408
7	9:18	74	54	340	0	0	0-1	402
8	9:24	75	52	320	0	0	0-1	404
9	9:33	79	57	280	0	0	0-1	OUTSIDE 400
10	9:47	78	48	370	0	0	0-1	LOCKER AREA # 2
11	9:55	78	43	350	0	0	0-1	208
12	10:07	78	44	340	0	0	0-1	201
13	10:15	78	43	320	0	0	0-1	108
14	10:22	76	50	350	0	0	1-2	104
15	10:27	73	57	320	0	0	1-2	101
16	10:34	76	43	420	0	0	1-2	MAIN OFFICE
17	10:47	75	61	320	0	0	1-2	CAFÉ
18	10:54	74	54	340	0	0	1-2	LIBRARY
19	11:03	75	56	350	0	0	0-1	LGI

*Denotes areas that reached or exceeded the ASHRAE comfort standards for CO²



INDOOR AIR QUALITY SURVEY

Purpose: FINAL IAQ & HVAC INSPECTION

Location: WEST MIDDLE SCHOOL

Date: 08/07/12

Outside Air: % HUMIDITY °F PPM CO²

NO.	TIME	TEMP °F	RELATIVE HUMIDITY	CARBON DIOXIDE	CO	TVOC	OCCUPANCY #PERSONS	COMMENTS
20	11:10	84	54	290	00	0	0-1	OUTSIDE FRONT
21	11:17	80	42	420	0	0	1-2	MUSIC ROOM
22	11:26	76	44	350	0	0	0-1	GYM
23	11:39	76	59	400	0	0	0-1	REMEDIAL GYM
24	11:47	77	51	320	0	0	0-1	BOYS TEAM RM
25	12:04	78	50	320	0	0	0-1	GIRLS LOCKER RM
26	12:17	84	57	310	0	0	0-1	OUTSIDE GYM
27								
28								
29								
30								
31								
32								
33								
34								
35								
36								
37								
38								

*Denotes areas that reached or exceeded the ASHRAE comfort standards for CO²



PARTICLE COUNTS

PAGE 59

Purpose: IAQ MEASUREMENT & DOCUMENTATION

Location/No: WEST MIDDLE SCHOOL

Date: 08/07/12

NO.	.3	.5	1.0	2.0	5.0	COMMENTS
1	58839	2763	494	259	41	OUTSIDE # 1
2	26546	1121	121	48	4	302
3	27964	1147	103	30	1	306
4	28370	1057	82	30	5	301
5	31861	1307	143	41	1	405
6	40749	1806	305	145	22	408
7	32986	1392	112	42	3	402
8	29491	1176	101	26	2	404
9	39751	1783	370	190	35	OUTSIDE 400
10	41387	1928	405	236	39	LOCKER RM # 2
11	22154	723	110	8	0	208
12	26740	756	52	16	0	201
13	26183	765	55	10	1	108
14	22134	871	123	57	7	104
15	21112	783	67	11	1	101
16	23861	1176	160	87	17	MAIN OFFICE
17	19948	598	37	6	0	CAFÉ
18	35549	1592	139	63	13	LIBRARY
19	32129	1401	167	61	4	LGI

*Denotes areas that reached or exceeded the ASHRAE comfort standards for CO²



PARTICLE COUNTS

PAGE 60

Purpose: IAQ MEASUREMENT & DOCUMENTATION

Location/No: WEST MIDDLE SCHOOL

Date: 08/07/12

NO.	.3	.5	1.0	2.0	5.0	COMMENTS
20	58713	2623	404	193	18	OUTSIDE FRONT
21	41256	1744	105	27	2	MUSIC ROOM
22	28535	1155	132	55	7	GYM
23	22158	838	73	20	1	REMEDIAL GYM
24	48191	1848	220	87	4	BOYS TEAM RM
25	49853	1794	217	77	4	GIRLS LOCKER RM
26	65770	3088	748	407	76	OUTSIDE GYM
27						
28						
29						
30						
31						
32						
33						
34						
35						
36						
37						
38						

*Denotes areas that reached or exceeded the ASHRAE comfort standards for CO²



QUALITY ASSURANCE PLUS

Purpose: AHU INSPECTION.

LOCATION: WEST MIDDLE SCHOOL

DATE: 08/07/12

PAGE 1

DATE	UNIT	LOCATION	COMMENTS
	AHU # 1	MECH ROOM	AREA SERVED-MUSIC ROOM/INSTRUMENT STORAGE,MFG-CARRIER,SERIAL # 3302F73778,TYPE-VAV; OAI-DUCTED; FILTRATION-PLEATED, MODEL-CLASS 2 40P1R12347, MFG-AEROSTAR,COND-GOOD; COILS-CHILLED & HOT WATER,COND-GOOD;PAN-STAINLESS STEEL,COND-GOOD,TI-YES,TF-YES; AHH-GOOD,INSULATION-DOUBLE WALL; PLENUM-GOOD,COND-CLEAN;RETURN-GOOD;
	AHU # 8	MECH ROOM	AREA SERVED-REMEDIAL GYM, TYPE-CONSTANT; OAI-DUCTED,CONTAMINATION-NO,BIRD SCREEN-YES,UNOBSTRUCTED-NO,COND-GOOD,SIGNS OF BEES-NO; FILTRATION-PLEATED, MODEL-CLASS 2 40P1R12347, MFG-AEROSTAR,COND-FAIR; COILS-HOT WATER,COND-GOOD; AHH-GOOD,INSULATION-GOOD; PLENUM-GOOD,COND-CLEAN; SUPPLY-GOOD;RETURN-GOOD; OAD-GOOD;
	AHU # 10	MECH ROOM	AREA SERVED- GYM, MFG-YORK, MODEL-NHGM05033B,TYPE-CONSTANT; OAI-DUCTED; FILTRATION-PLEATED, MODEL-20X25X2, MFG-AEROSTAR,COND-GOOD;AHH-GOOD; PLENUM-GOOD; SUPPLY-GOOD;RETURN-GOOD; OAD-GOOD;
		ROOFTOP	AREA SERVED-100 WING ROOM 100,MODEL817100172C,MFG-TRANE,TYPE-COMBINATION; OAI-UNIT,CONTAMINATION-NO; FILTRATION-MFG-AEROSTAR,MODEL-20X25X2;
	AHU # 2	MECH ROOM	AREA SERVED-100 WING,MFG-CARRIER,TYPE-CONSTANT,SERIAL # 3302F73753; OAI-DUCTED; FILTRATION-PLEATED,MFG-AEROSTAR,MODEL-CLASS 240P1R12347,COND-DIRTY;COILS-CHILLED & HOT WATER,COND-GOOD;PAN-STAINLESS STEEL,COND-GOOD,TI-YES,TF-YES;AHH-GOOD,INSULATION-DOUBLE WALL;PLENUM-GOOD;SUPPLY-GOOD,RETURN-GOOD;
	AHU # 6	MECH ROOM	AREA SERVED-300 & 400 WING,MFG-CARRIER,SERIAL # 3302F73756,TYPE-CONSTANT;OAI-DUCTED;FILTRATION-PLEATED,MFG-AEROSTAR,MODEL-CLASS 240P1R12347,COND-FAIR,RECOMMEND TAPING SEAMS OF FILTERS & GASKET ON DOOR; COILS-CHILLED & HOT WATER,COND-GOOD;PAN-STAINLESS STEEL,COND-GOOD,TI-YES,TF-YES;AHH-GOOD,INSULATION-DOUBLE WALL ENCLOSED;PLENUM-GOOD;SUPPLY-GOOD;RETURN-GOOD;
	AHU # 5	MECH ROOM	AREA SERVED-L.G.I.,SERIAL # 3302F73795,MFG-CARRIER,TYPE-VAV;OAI-DUCTED;FILTRATION-PLEATED,MFG-AEROSTAR,MODEL-CLASS 240P1R12347,COND-FAIR;COILS-CHILLED & HOT WATER,COND-GOOD;PAN-STAINLESS,COND-GOOD,TI-YES,TF-YES; AHH-GOOD,INSULATION-DOUBLE WALLED;PLENUM-GOOD;RETURN-GOOD;



QUALITY ASSURANCE PLUS

Purpose: AHU INSPECTION LOCATION: WEST MIDDLE SCHOOL

DATE: 08/07/12

PAGE 1

DATE	UNIT	LOCATION	COMMENTS
	AHU # 4	MECH ROOM	<p style="text-align: center;">AREA SERVED-200-300 WING,MFG-CARRIER,SERIAL # 3302F73750,TYPE-CONSTANT; OAI-DUCTED; FILTRATION- PLEATED, MODEL-CLASS 2 40P1R12347, MFG-AEROSTAR,COND-FAIR; COILS-CHILLED & HOT WATER,COND-GOOD;PAN-STAINLESS STEEL,COND-GOOD,TI-YES,TF-YES; AHH-GOOD,INSULATION-DOUBLE WALL; PLENUM-GOOD,COND-CLEAN;RETURN-GOOD;</p>
	AHU # 3	MECH ROOM	<p style="text-align: center;">AREA SERVED-LIBRARY,MFG-CARRIER, TYPE-VAV; OAI-DUCTED; FILTRATION-PLEATED, MODEL-CLASS 2 40P1R12347, MFG-AEROSTAR,COND-FAIR; COILS-CHILLED & HOT WATER,COND-GOOD; PAN-STAINLESS STEEL,COND-GOOD,TI-YES,TF-YES; AHH-GOOD,INSULATION-DOUBLE WALLED; PLENUM-GOOD,COND-CLEAN; RETURN-GOOD;</p>

REFERENCES

Information and excerpts may be taken from:

- ☒ Guidelines for the Assessment of Bioaerosols in the Indoor Environment, American Conference of Governmental Industrial Hygienists, 1989 (ACGIH)
- ☒ U.S. Environmental Protection Agency (EPA)
- ☒ Occupational Safety and Health Administration (OSHA)
- ☒ American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) Standard 62-1989 and 2001, 55-1992
- ☒ Field Guide for the Determination of Biological Contaminants in Environmental Samples, American Industrial Hygiene Association, 1996 (AIHA)
- ☒ Bioaerosol Assessment and Control, American Conference of Governmental Industrial Hygienists, 1999
- ☒ Guidelines on Assessment and Remediation of Fungi in Indoor Environments, New York City Department of Health, 2000 (NYCDOH)
- ☒ Micromenaces, P & K Microbiology Services, Inc., November 1998, Volume 1, Issue 2
- ☒ National Air Duct Cleaners Association - Assessment, Cleaning, & Restoration of HVAC Systems, ACR 2002 (NADCA)

REPORT CONDITIONS

This report is not to be considered a warranty, but an Final IAQ and HVAC Inspection Closing Report on the conditions existing in the areas included in the scope of work at the time of the work only. Conditions only include work performed and reported here. We are not responsible for any errors or omissions due to hidden environmental or mechanical conditions. We are not responsible for any claims more than the amount of the total scope or otherwise noted in contract.