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Risk Management Department

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August 6, 2014

Signature on File

TO: Deborah Owens, Principal
Stranahan High School

FROM: Richard Rosa, Project Manager
Risk Management Department

SUBJECT: Indoor Air Quality (IAQ) Assessment

<u>For Custodial Supervisor Use Only</u>	
<input type="checkbox"/>	Custodial Issues Addressed
<input type="checkbox"/>	Custodial Issues Not Addressed
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On July 30 2014, I conducted an assessment at **Stranahan High School**. Attached are findings and recommendations for further assessment, remediation, or corrective actions needed.

The IAQ assessment did identify one or more existing conditions impacting IAQ and has generated appropriate work orders to correct deficiencies in systems and maintenance that could contribute to decreased indoor air quality. At the time of the assessment, these concerns were not an immediate health or safety concern to building occupants. However, due to individual sensitivities and predisposing health factors, it is possible that some building occupants may elicit a health response to agents and / or conditions identified during the evaluation. Therefore, to further improve IAQ, prevent development of future IAQ-related problems, and to reduce the potential for IAQ-related complaints by building occupants, the IAQ Assessment Team recommends appropriate follow up of each item identified and listed in the attached evaluation.

Please ensure that your Head Facilities Serviceperson receives a copy of this correspondence so that the recommendations requiring their attention can be addressed. In an attempt to separate IAQ issues from general maintenance items, the attached assessment may contain direction for site based staff to generate a work order through COMPASS. Within two weeks a representative from the Custodial/Grounds Department will conduct a follow-up visit to ensure that all site based custodial issues have been appropriately addressed.

Should any questions arise, or if the current concerns continue after the attached recommendations have been addressed, please feel free to contact us at 754-321-1907.

cc: Shelley Meloni, Executive Director, Facilities & Construction
Mark Dorsett, Manager, Zone 1, Physical Plant Operations Division
Roy Norton, Manager, Custodial/Grounds, Physical Plant Operations Division
Aston Henry, Director, Risk Management
Sonja Coley, Senior Project Manager, Facilities & Construction
Broward Teachers Union
Federation of Public Employees

RR/tc
Enc.

IAQ Assessment

Stranahan High

Evaluation Date July 30, 2014

Time of Day 9:00

Outdoor Conditions Temperature 86.0 Relative Humidity 81.8 Ambient CO2 452

Fish	Temperature	Range	Relative Humidity	Range	CO ²	Range	# Occupants	
003	70.8	72 - 78	63.0	30% - 60%	435	MAX 700 > Ambient		
Noticeable Odor		No	Visible water damage / staining?		Visible microbial growth?		Amount of material affected	
Ceiling	2' X 2' Lay in		Yes		No		various locations	
Walls	Plaster		Yes		No		< 2 sq ft	
Floor	12" x 12" Vinyl		No		No			
Ceiling Clean		No	HVAC Supply Grills Clean		Yes	HVAC Return Grills Clean		Yes
Walls Clean		No	Inside of Supply Duct Clean		Yes	Inside of Return Duct Clean		Yes
Flooring Clean		Yes	Ceiling at Supply Grills Clean		No			
Room Surfaces Clean		Yes						
Trash Removed		N/A	Exhaust Fans Working		No	Unapproved Chemicals / Cleaners in Room		No
Signs of Pests		No	Drain Traps Wet		N/A	Air Fresheners in Room		No
Room Cluttered		No	Food if Stored in Room is in Sealed Containers		N/A			
Mechanical Equipment Location			Not Accessible			Mechanical Room Clean		N/A
Filters Installed Properly		N/A	Filters Clean		N/A	Inside of HVAC Unit Clean		N/A
Condensate Pan Clean		N/A	Cooling Coil Clean		N/A			
Fresh Air Intake Location			Roof top ▼			Fresh Air Intake Free of Obstruction		Yes
Pollutant Sources Near Air Intake			Standing water ▼					

Observations

003 is the Auditorium lobby. Interior wall damage due to water intrusion at the baseboard level of Southeast window. Auditorium HVAC was secure at the time of assessment, pumping hot humid air into lobby through concession windows. Turned on HVAC unit. The roof has standing water, evaluate the roof for leaks. There are three restrooms adjacent to this lobby and all exhaust fans run continually. The exhaust fans should be tied into the HVAC system or switch individually to be turned off every evening. Microbial Growth in trophy case, remove all contents and wipe case and contents with Wexcide.

Corrective Actions to be Completed by Site Based Staff

Replace stained ceiling tiles after repairs	▼
Clean dust from ceiling tiles or replace	▼
Wipe contents and trophy case with wexcide	▼
Wipe condensation wall stains with wexcide	▼
	▼
	▼
	▼
	▼

Corrective Actions to be Completed by PPO

Set temperature to 72 - 78 degrees	▼
Repair HVAC to reduce humidity level	▼
Evaluate and repair cause of water damage	▼
Remove and replace wall material as necessary	▼
Evaluate and repair exhaust fan	▼
	▼
See observations for additional information	▼
	▼

IAQ Assessment

Stranahan High

Evaluation Date July 30, 2014

Time of Day 11:45

Outdoor Conditions Temperature 86.0

Relative Humidity 81.8

Ambient CO2 452

Fish	Temperature	Range	Relative Humidity	Range	CO ²	Range	# Occupants	
111	75.5	72 - 78	49.9	30% - 60%	571	MAX 700 > Ambient		
Noticeable Odor		No	Visible water damage / staining?		Visible microbial growth?		Amount of material affected	
Ceiling	2' X 4' Lay in		No		No			
Walls	Concrete block		Yes		No		< 2 sq ft	
Floor	Carpet / VCT		Yes		No		replace carpet	
Ceiling Clean		No	HVAC Supply Grills Clean		Yes	HVAC Return Grills Clean		No
Walls Clean		No	Inside of Supply Duct Clean		Yes	Inside of Return Duct Clean		N/A
Flooring Clean		No	Ceiling at Supply Grills Clean		No			
Room Surfaces Clean		Yes						
Trash Removed		Yes	Exhaust Fans Working		N/A	Unapproved Chemicals / Cleaners in Room		No
Signs of Pests		No	Drain Traps Wet		N/A	Air Fresheners in Room		No
Room Cluttered		No	Food if Stored in Room is in Sealed Containers		N/A			
Mechanical Equipment Location			FISH 113			Mechanical Room Clean		No
Filters Installed Properly		Yes	Filters Clean		Yes	Inside of HVAC Unit Clean		Yes
Condensate Pan Clean		Yes	Cooling Coil Clean		No			
Fresh Air Intake Location			Thru exterior wall ▼			Fresh Air Intake Free of Obstruction		Yes
Pollutant Sources Near Air Intake			Grass and landscape ▼					

Observations

The microbial growth on the wall surfaces is due to the fresh air damper in the mechanical room (113) being wide open. Evaluate installing insulation on supply ductwork in FISH 113. The HVAC system will be bypassed from EMS and left on 24/7 until concern has been repaired. Approximately 150 sq ft of carpet is recommended to be replaced with VCT.

Corrective Actions to be Completed by Site Based Staff

Wipe wall surfaces with wexcide	▼
Scrape walls and paint	▼
Vacuum/wipe return grill	▼
	▼
	▼
	▼
	▼
	▼
	▼

Corrective Actions to be Completed by PPO

Connect the fresh air damper to HVAC system	▼
Evaluate the need for insulation in AHU room 113	▼
Clean the supply drop	▼
Evaluate the cleaning of the HVAC coil	▼
Ceiling tile cuts needed around supply vent	▼
Evaluate carpet for removal and replacement with vinyl tile	▼
See observations for additional information	▼

IAQ Assessment

Stranahan High

Evaluation Date July 30, 2014

Time of Day 12:15

Outdoor Conditions Temperature 86.0

Relative Humidity 81.8

Ambient CO2 452

Fish	Temperature	Range	Relative Humidity	Range	CO ²	Range	# Occupants
113	74.6	72 - 78	55.6	30% - 60%	456	MAX 700 > Ambient	
Noticeable Odor		No	Visible water damage / staining?		Visible microbial growth?		Amount of material affected
Ceiling	Drywall		No		No		
Walls	Concrete block		Yes		Yes		< 100 sq ft
Floor	concrete		No		No		
Ceiling Clean		Yes	HVAC Supply Grills Clean		N/a	HVAC Return Grills Clean	
Walls Clean		No	Inside of Supply Duct Clean		N/A	Inside of Return Duct Clean	
Flooring Clean		Yes	Ceiling at Supply Grills Clean		N/a		
Room Surfaces Clean		No					
Trash Removed		N/A	Exhaust Fans Working		N/A	Unapproved Chemicals / Cleaners in Room	
Signs of Pests		No	Drain Traps Wet		N/A	Air Fresheners in Room	
Room Cluttered		No	Food if Stored in Room is in Sealed Containers		N/A		
Mechanical Equipment Location			FISH 113			Mechanical Room Clean	
Filters Installed Properly		Yes	Filters Clean		Yes	Inside of HVAC Unit Clean	
Condensate Pan Clean		Yes	Cooling Coil Clean		No		
Fresh Air Intake Location			Thru exterior wall			Fresh Air Intake Free of Obstruction	
Pollutant Sources Near Air Intake			Grass and landscape			Yes	

Observations

F-113 is the mechanical room. The microbial growth on the wall surfaces is due to the fresh air damper in the mechanical room (113) being wide open. Evaluate installing insulation on supply ductwork in FISH 113. The HVAC system will be bypassed from EMS and left on 24/7 until concern has been repaired. Replace stained insulation on chilled water valves. Repair cause of staining. Evaluate the fresh air damper for normal operation and repair as appropriate, remains open 24/7.

Corrective Actions to be Completed by Site Based Staff

Generate a work order for pest control	▼
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Corrective Actions to be Completed by PPO

Remove and replace water damaged insulation	▼
(TSI) with visible microbial growth	▼
Evaluate the cleaning of the HVAC coil	▼
Evaluate and repair fresh damper in the	▼
mechanical room	▼
Clean and paint walls with anti microbial paint	▼
	▼
See observations for additional information	▼

IAQ Assessment

Stranahan High

Evaluation Date July 30, 2014

Time of Day 11:15

Outdoor Conditions Temperature 86.0

Relative Humidity 81.8

Ambient CO2 452

Fish	Temperature	Range	Relative Humidity	Range	CO ²	Range	# Occupants
138	78.6	72 - 78	76.3	30% - 60%	561	MAX 700 > Ambient	
Noticeable Odor		No	Visible water damage / staining?		Visible microbial growth?		Amount of material affected
Ceiling	Plaster		Yes		No		< 2 sq ft
Walls	Ceramic Tile		No		No		
Floor	Ceramic Tile		No		No		
Ceiling Clean	No	HVAC Supply Grills Clean		N/a	HVAC Return Grills Clean		N/a
Walls Clean	Yes	Inside of Supply Duct Clean		N/A	Inside of Return Duct Clean		N/A
Flooring Clean	Yes	Ceiling at Supply Grills Clean		N/a			
Room Surfaces Clean	Yes						
Trash Removed	Yes	Exhaust Fans Working		No	Unapproved Chemicals / Cleaners in Room		
Signs of Pests	No	Drain Traps Wet		Yes	Air Fresheners in Room		
Room Cluttered	No	Food if Stored in Room is in Sealed Containers		N/A			
Mechanical Equipment Location	Not applicable					Mechanical Room Clean	N/A
Filters Installed Properly	N/A	Filters Clean		N/A	Inside of HVAC Unit Clean		
Condensate Pan Clean	N/A	Cooling Coil Clean		N/A			
Fresh Air Intake Location	not applicable ▼					Fresh Air Intake Free of Obstruction	N/A
Pollutant Sources Near Air Intake	Not Applicable ▼						

Observations

This a second floor restroom. evaluate and repair the roof for leaks. Repair plaster ceilings due to water intrusion, possible roof leaks. This restroom exhaust fan runs continually. The exhaust fans should be tied into the HVAC system or switch individually to be turned off every evening. Windows do not close properly.

Corrective Actions to be Completed by Site Based Staff

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Corrective Actions to be Completed by PPO

Evaluate and repair cause of stained ceiling	▼
Repair/replace ceiling material as necessary	▼
Evaluate and repair exhaust fan	▼
Evaluate and repair windows for improper closure	▼
	▼
	▼
See observations for additional information	▼
	▼

IAQ Assessment

Stranahan High

Evaluation Date July 30, 2014

Time of Day 9:45

Outdoor Conditions Temperature 86.0

Relative Humidity 81.8

Ambient CO2 452

Fish	Temperature	Range	Relative Humidity	Range	CO ²	Range	# Occupants
160	78.2	72 - 78	56.6	30% - 60%	463	MAX 700 > Ambient	
Noticeable Odor		No	Visible water damage / staining?		Visible microbial growth?		Amount of material affected
Ceiling	Plaster		Yes		No		6 sq ft
Walls	Plaster, Ceramic Tile		Yes		No		20 sq ft
Floor	Ceramic Tile		No		No		
Ceiling Clean		No	HVAC Supply Grills Clean		N/a		HVAC Return Grills Clean N/a
Walls Clean		No	Inside of Supply Duct Clean		N/A		Inside of Return Duct Clean N/A
Flooring Clean		Yes	Ceiling at Supply Grills Clean		N/a		
Room Surfaces Clean		Yes					
Trash Removed		Yes	Exhaust Fans Working		No		Unapproved Chemicals / Cleaners in Room No
Signs of Pests		No	Drain Traps Wet		N/A		Air Fresheners in Room No
Room Cluttered		No	Food if Stored in Room is in Sealed Containers		N/A		
Mechanical Equipment Location		Not applicable				Mechanical Room Clean N/A	
Filters Installed Properly		N/A		Filters Clean		N/A	
Condensate Pan Clean		N/A		Cooling Coil Clean		N/A	
Fresh Air Intake Location		not applicable ▼				Fresh Air Intake Free of Obstruction N/A	
Pollutant Sources Near Air Intake		Not Applicable ▼					

Observations

160 is a girls restroom. The roof has standing water, evaluate the roof for leaks. Repair interior walls and plaster ceilings due to water intrusion, possible roof leaks. This restroom exhaust fan runs continually. The exhaust fans should be tied into the HVAC system or switch individually to be turned off every evening.

Corrective Actions to be Completed by Site Based Staff

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Corrective Actions to be Completed by PPO

Evaluate and repair cause of water damage	▼
Remove and replace wall material and ceiling material as necessary	▼
Evaluate and repair exhaust fan	▼
	▼
	▼
See observations for additional information	▼
	▼

IAQ Assessment

Stranahan High

Evaluation Date July 30, 2014

Time of Day 10:15

Outdoor Conditions Temperature 86.0

Relative Humidity 81.8

Ambient CO2 452

Fish	Temperature	Range	Relative Humidity	Range	CO ²	Range	# Occupants
160A	78.2	72 - 78	56.6	30% - 60%	463	MAX 700 > Ambient	
Noticeable Odor		No	Visible water damage / staining?		Visible microbial growth?		Amount of material affected
Ceiling	Plaster		No		No		
Walls	Plaster, Ceramic Tile		Yes		No		< 10 sq ft
Floor	Ceramic Tile		No		No		
Ceiling Clean	No	HVAC Supply Grills Clean		N/a	HVAC Return Grills Clean		N/a
Walls Clean	No	Inside of Supply Duct Clean		N/A	Inside of Return Duct Clean		N/A
Flooring Clean	Yes	Ceiling at Supply Grills Clean		N/a			
Room Surfaces Clean	Yes						
Trash Removed	Yes	Exhaust Fans Working		No	Unapproved Chemicals / Cleaners in Room		
Signs of Pests	No	Drain Traps Wet		N/A	Air Fresheners in Room		
Room Cluttered	No	Food if Stored in Room is in Sealed Containers		N/A			
Mechanical Equipment Location	Not applicable					Mechanical Room Clean	N/A
Filters Installed Properly	N/A	Filters Clean		N/A	Inside of HVAC Unit Clean		
Condensate Pan Clean	N/A	Cooling Coil Clean		N/A			
Fresh Air Intake Location	not applicable ▼					Fresh Air Intake Free of Obstruction	N/A
Pollutant Sources Near Air Intake	Not Applicable ▼						

Observations

160 is a girls restroom. The roof has standing water, evaluate the roof for leaks. Repair interior walls and plaster ceilings due to water intrusion, possible roof leaks.

Corrective Actions to be Completed by Site Based Staff

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Corrective Actions to be Completed by PPO

Evaluate and repair cause of water damage	▼
Remove and replace wall material and ceiling material as necessary	▼
	▼
	▼
	▼
	▼
	▼
See observations for additional information	▼
	▼

IAQ Assessment

Stranahan High

Evaluation Date July 30, 2014

Time of Day 11:00

Outdoor Conditions Temperature 86.0

Relative Humidity 81.8

Ambient CO2 452

Fish	Temperature	Range	Relative Humidity	Range	CO ²	Range	# Occupants
166	74.6	72 - 78	61	30% - 60%	462	MAX 700 > Ambient	
Noticeable Odor		No	Visible water damage / staining?		Visible microbial growth?		Amount of material affected
Ceiling	Plaster		No		No		
Walls	Plaster, Ceramic Tile		Yes		No		24 sq ft
Floor	Ceramic Tile		No		No		
Ceiling Clean	Yes	HVAC Supply Grills Clean		N/a	HVAC Return Grills Clean		N/a
Walls Clean	No	Inside of Supply Duct Clean		N/A	Inside of Return Duct Clean		N/A
Flooring Clean	Yes	Ceiling at Supply Grills Clean		N/a			
Room Surfaces Clean	No						
Trash Removed	Yes	Exhaust Fans Working		No	Unapproved Chemicals / Cleaners in Room		No
Signs of Pests	No	Drain Traps Wet		N/A	Air Fresheners in Room		No
Room Cluttered	No	Food if Stored in Room is in Sealed Containers		N/A			
Mechanical Equipment Location	Not applicable					Mechanical Room Clean	N/A
Filters Installed Properly	N/A	Filters Clean		N/A	Inside of HVAC Unit Clean		N/A
Condensate Pan Clean	N/A	Cooling Coil Clean		N/A			
Fresh Air Intake Location	not applicable ▼					Fresh Air Intake Free of Obstruction	N/A
Pollutant Sources Near Air Intake	Not Applicable ▼						

Observations

166 is a girls restroom. The roof has standing water, evaluate the roof for leaks. Repair interior walls and plaster ceilings due to water intrusion, possible roof leaks. This restroom exhaust fan runs continually. The exhaust fans should be tied into the HVAC system or switch individually to be turned off every evening. Outside both restrooms in the vestibule, between both doors, there is wall damage due to water intrusion.

Corrective Actions to be Completed by Site Based Staff

Wipe walls, door and ceiling with wexcide	▼
Clean exhaust fan grill	▼
Thoroughly clean all surfaces	▼
	▼
	▼
	▼
	▼
	▼
	▼

Corrective Actions to be Completed by PPO

Evaluate and repair cause of water damage	▼
Remove and replace wall material and ceiling material as necessary	▼
Evaluate and repair exhaust fan	▼
	▼
	▼
	▼
See observations for additional information	▼
	▼

IAQ Assessment

Stranahan High

Evaluation Date July 30, 2014

Time of Day 10:45

Outdoor Conditions Temperature 86.0

Relative Humidity 81.8

Ambient CO2 452

Fish	Temperature	Range	Relative Humidity	Range	CO ²	Range	# Occupants	
167	74.6	72 - 78	60.2	30% - 60%	463	MAX 700 > Ambient		
Noticeable Odor		No	Visible water damage / staining?		Visible microbial growth?		Amount of material affected	
Ceiling	Plaster		Yes		No		< 2 sq ft	
Walls	Plaster, Ceramic Tile		Yes		No		2 sq ft	
Floor	Ceramic Tile		No		No			
Ceiling Clean		No	HVAC Supply Grills Clean		N/a	HVAC Return Grills Clean		N/a
Walls Clean		No	Inside of Supply Duct Clean		N/A	Inside of Return Duct Clean		N/A
Flooring Clean		Yes	Ceiling at Supply Grills Clean		N/a			
Room Surfaces Clean		No						
Trash Removed		Yes	Exhaust Fans Working		No	Unapproved Chemicals / Cleaners in Room		No
Signs of Pests		No	Drain Traps Wet		N/A	Air Fresheners in Room		No
Room Cluttered		No	Food if Stored in Room is in Sealed Containers		N/A			
Mechanical Equipment Location			Not applicable			Mechanical Room Clean		N/A
Filters Installed Properly		N/A	Filters Clean		N/A	Inside of HVAC Unit Clean		N/A
Condensate Pan Clean		N/A	Cooling Coil Clean		N/A			
Fresh Air Intake Location			not applicable ▼			Fresh Air Intake Free of Obstruction		N/A
Pollutant Sources Near Air Intake			Not Applicable ▼					

Observations

167 is a boys restroom. The roof has standing water, evaluate the roof for leaks. Repair interior walls and plaster ceilings due to water intrusion, possible roof leaks. This restroom exhaust fan runs continually. The exhaust fans should be tied into the HVAC system or switch individually to be turned off every evening.

Corrective Actions to be Completed by Site Based Staff

Wipe walls, door and ceiling with wexcide	▼
Clean exhaust fan grill	▼
Thoroughly clean all surfaces	▼
	▼
	▼
	▼
	▼
	▼
	▼

Corrective Actions to be Completed by PPO

Evaluate and repair cause of water damage	▼
Remove and replace wall material and ceiling material as necessary	▼
Evaluate and repair exhaust fan	▼
	▼
	▼
See observations for additional information	▼
	▼