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November 20, 2012

Signature on File

TO: David Jones, Principal  
**Western High School**

FROM: Richard Rosa, Project Manager  
Facilities Design and Construction

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
_____	
_____	

On November 14, 2012, I conducted an assessment at **Western 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: Directors, School Performance & Accountability  
Shelley Meloni, Executive Director, Facilities Design and Construction  
Mark Dorsett, Manager, Zone 1, Physical Plant Operations Division  
Roy Norton, Manager, Custodial/Grounds, Physical Plant Operations Division  
Aston Henry, Supervisor, Risk Management  
Sonja Coley, Senior Project Manager, Facilities Design and Construction  
Broward Teachers Union  
Federation of Public Employees

RR/tc  
Enc.



# IAQ Assessment

Western High

Evaluation Date November 14, 2012

Time of Day 12:00

Outdoor Conditions Temperature 88.1

Relative Humidity 52.9

Ambient CO2 416

Fish	Temperature	Range	Relative Humidity	Range	CO <sup>2</sup>	Range	# Occupants	
<span style="border: 1px solid black; padding: 2px;">403B</span>	<span style="border: 1px solid black; padding: 2px;">74.4</span>	<span style="border: 1px solid black; padding: 2px;">72 - 78</span>	<span style="border: 1px solid black; padding: 2px;">62.7</span>	<span style="border: 1px solid black; padding: 2px;">30% - 60%</span>	<span style="border: 1px solid black; padding: 2px;">966</span>	<span style="border: 1px solid black; padding: 2px;">MAX 700 &gt; Ambient</span>	<span style="border: 1px solid black; padding: 2px;"></span>	
Noticeable Odor		<span style="border: 1px solid black; padding: 2px;">No</span>	Visible water damage / staining?		Visible microbial growth?		Amount of material affected	
Ceiling	<span style="border: 1px solid black; padding: 2px;">2' x 4'</span>		<span style="border: 1px solid black; padding: 2px;">Yes</span>		<span style="border: 1px solid black; padding: 2px;">Yes</span>		<span style="border: 1px solid black; padding: 2px;">&lt; 1 sq ft</span>	
Walls	<span style="border: 1px solid black; padding: 2px;">Drywall/Ceramic tile</span>		<span style="border: 1px solid black; padding: 2px;">Yes</span>		<span style="border: 1px solid black; padding: 2px;">Yes</span>		<span style="border: 1px solid black; padding: 2px;">10 sq ft</span>	
Floor	<span style="border: 1px solid black; padding: 2px;">Quarry Tile</span>		<span style="border: 1px solid black; padding: 2px;">No</span>		<span style="border: 1px solid black; padding: 2px;">No</span>		<span style="border: 1px solid black; padding: 2px;"></span>	
Ceiling Clean		<span style="border: 1px solid black; padding: 2px;">No</span>	HVAC Supply Grills Clean		<span style="border: 1px solid black; padding: 2px;">No</span>	HVAC Return Grills Clean		<span style="border: 1px solid black; padding: 2px;">N/a</span>
Walls Clean		<span style="border: 1px solid black; padding: 2px;">No</span>	Inside of Supply Duct Clean		<span style="border: 1px solid black; padding: 2px;">N/A</span>	Inside of Return Duct Clean		<span style="border: 1px solid black; padding: 2px;">N/A</span>
Flooring Clean		<span style="border: 1px solid black; padding: 2px;">Yes</span>	Ceiling at Supply Grills Clean		<span style="border: 1px solid black; padding: 2px;">No</span>			
Room Surfaces Clean		<span style="border: 1px solid black; padding: 2px;">Yes</span>						
Trash Removed		<span style="border: 1px solid black; padding: 2px;">Yes</span>	Exhaust Fans Working		<span style="border: 1px solid black; padding: 2px;">N/A</span>	Unapproved Chemicals / Cleaners in Room		<span style="border: 1px solid black; padding: 2px;">No</span>
Signs of Pests		<span style="border: 1px solid black; padding: 2px;">No</span>	Drain Traps Wet		<span style="border: 1px solid black; padding: 2px;">Yes</span>	Air Fresheners in Room		<span style="border: 1px solid black; padding: 2px;">No</span>
Room Cluttered		<span style="border: 1px solid black; padding: 2px;">Yes</span>	Food if Stored in Room is in Sealed Containers		<span style="border: 1px solid black; padding: 2px;">N/A</span>			
Mechanical Equipment Location			<span style="border: 1px solid black; padding: 2px;">Not readily accessible</span>			Mechanical Room Clean		<span style="border: 1px solid black; padding: 2px;">N/A</span>
Filters Installed Properly		<span style="border: 1px solid black; padding: 2px;">N/A</span>	Filters Clean		<span style="border: 1px solid black; padding: 2px;">N/A</span>	Inside of HVAC Unit Clean		<span style="border: 1px solid black; padding: 2px;">N/A</span>
Condensate Pan Clean		<span style="border: 1px solid black; padding: 2px;">N/A</span>	Cooling Coil Clean		<span style="border: 1px solid black; padding: 2px;">N/A</span>			
Fresh Air Intake Location			<span style="border: 1px solid black; padding: 2px;">Not accessible</span> ▼			Fresh Air Intake Free of Obstruction		<span style="border: 1px solid black; padding: 2px;">N/A</span>
Pollutant Sources Near Air Intake			<span style="border: 1px solid black; padding: 2px;">Not readily accessible</span> ▼					

**Observations**

The assessed space is a kitchen mop room. The HFSP states the HVAC system feeding the kitchen area is new. I recommend that the PPO HVAC department evaluate the system for normal operation due to elevated humidity. The vent in the room may be an exhaust fan or the return, if an exhaust fan, check controls for proper operation. In the area of the mop sink, the grout is missing in many areas and the water intrusion to the adjoining room is coming from this location. Evaluate wall from both sides and repair as necessary. Schedule with the kitchen manager for opening of adjoining room due to the contents in room 403C storage room.

**Corrective Actions to be Completed by Site Based Staff**

Wipe ceiling stain w/wexcide and monitor	▼
Wipe down wall stain and monitor	▼
Clean HVAC supply grills with Wexcide	▼
	▼
	▼
	▼
	▼
	▼
	▼

**Corrective Actions to be Completed by PPO**

Repair HVAC to reduce humidity level	▼
Evaluate and repair cause of water damage	▼
to wall material	▼
Remove and replace wall material as necessary	▼
	▼
See observations for additional info	▼
	▼
	▼

# IAQ Assessment

Western High

Evaluation Date November 14, 2012

Time of Day 12:30

Outdoor Conditions    Temperature 88.1

Relative Humidity 52.9

Ambient CO2 416

Fish	Temperature	Range	Relative Humidity	Range	CO <sup>2</sup>	Range	# Occupants
<span style="border: 1px solid black; padding: 2px;">403C</span>	<span style="border: 1px solid black; padding: 2px;">73</span>	<span style="border: 1px solid black; padding: 2px;">72 - 78</span>	<span style="border: 1px solid black; padding: 2px;">64.8</span>	<span style="border: 1px solid black; padding: 2px;">30% - 60%</span>	<span style="border: 1px solid black; padding: 2px;">1038</span>	<span style="border: 1px solid black; padding: 2px;">MAX 700 &gt; Ambient</span>	<span style="border: 1px solid black; padding: 2px;"></span>
Noticeable Odor		<span style="border: 1px solid black; padding: 2px;">No</span>	Visible water damage / staining?		Visible microbial growth?		Amount of material affected
Ceiling	<span style="border: 1px solid black; padding: 2px;">2' x 4'</span>		<span style="border: 1px solid black; padding: 2px;">No</span>		<span style="border: 1px solid black; padding: 2px;">No</span>		<span style="border: 1px solid black; padding: 2px;"></span>
Walls	<span style="border: 1px solid black; padding: 2px;">Drywall</span>		<span style="border: 1px solid black; padding: 2px;">Yes</span>		<span style="border: 1px solid black; padding: 2px;">No</span>		<span style="border: 1px solid black; padding: 2px;">minor stains above drop ceiling</span>
Floor	<span style="border: 1px solid black; padding: 2px;">12" x 12" Vinyl</span>		<span style="border: 1px solid black; padding: 2px;">No</span>		<span style="border: 1px solid black; padding: 2px;">No</span>		<span style="border: 1px solid black; padding: 2px;"></span>

Ceiling Clean	<span style="border: 1px solid black; padding: 2px;">Yes</span>	HVAC Supply Grills Clean	<span style="border: 1px solid black; padding: 2px;">No</span>	HVAC Return Grills Clean	<span style="border: 1px solid black; padding: 2px;">No</span>
Walls Clean	<span style="border: 1px solid black; padding: 2px;">No</span>	Inside of Supply Duct Clean	<span style="border: 1px solid black; padding: 2px;">Yes</span>	Inside of Return Duct Clean	<span style="border: 1px solid black; padding: 2px;">Yes</span>
Flooring Clean	<span style="border: 1px solid black; padding: 2px;">Yes</span>	Ceiling at Supply Grills Clean	<span style="border: 1px solid black; padding: 2px;">Yes</span>		
Room Surfaces Clean	<span style="border: 1px solid black; padding: 2px;">No</span>				

Trash Removed	<span style="border: 1px solid black; padding: 2px;">Yes</span>	Exhaust Fans Working	<span style="border: 1px solid black; padding: 2px;">N/A</span>	Unapproved Chemicals / Cleaners in Room	<span style="border: 1px solid black; padding: 2px;">No</span>
Signs of Pests	<span style="border: 1px solid black; padding: 2px;">Yes</span>	Drain Traps Wet	<span style="border: 1px solid black; padding: 2px;">N/A</span>	Air Fresheners in Room	<span style="border: 1px solid black; padding: 2px;">No</span>
Room Cluttered	<span style="border: 1px solid black; padding: 2px;">Yes</span>	Food if Stored in Room is in Sealed Containers	<span style="border: 1px solid black; padding: 2px;">N/A</span>		

Mechanical Equipment Location	<span style="border: 1px solid black; padding: 2px;">Not readily accessible</span>		Mechanical Room Clean	<span style="border: 1px solid black; padding: 2px;">N/A</span>	
Filters Installed Properly	<span style="border: 1px solid black; padding: 2px;">N/A</span>	Filters Clean	<span style="border: 1px solid black; padding: 2px;">N/A</span>	Inside of HVAC Unit Clean	<span style="border: 1px solid black; padding: 2px;">N/A</span>
Condensate Pan Clean	<span style="border: 1px solid black; padding: 2px;">N/A</span>	Cooling Coil Clean	<span style="border: 1px solid black; padding: 2px;">N/A</span>		

Fresh Air Intake Location	<span style="border: 1px solid black; padding: 2px;">Not accessible</span> ▼	Fresh Air Intake Free of Obstruction	<span style="border: 1px solid black; padding: 2px;">N/A</span>
Pollutant Sources Near Air Intake	<span style="border: 1px solid black; padding: 2px;">Not readily accessible</span> ▼		

**Observations**

The assessed space is the kitchen manager's room. The HFSP states the HVAC system feeding the kitchen area is new. I recommend that the PPO HVAC department evaluate the system for normal operation due to elevated humidity. PPO has an ongoing process in the eradication of rats in the kitchen manager's office and her storerooms. Evaluate the wall staining on the North wall appears to be coming from above the drop ceiling.

**Corrective Actions to be Completed by Site Based Staff**

Thoroughly clean horizontal surfaces	▼
Wipe down wall stains and monitor	▼
Clean HVAC supply grills with Wexcide	▼
Vacuum return grill	▼
	▼
	▼
	▼
	▼

**Corrective Actions to be Completed by PPO**

Repair HVAC to reduce humidity level	▼
Evaluate and repair cause of staining on wall	▼
	▼
	▼
See observations for additional info	▼
	▼
	▼
	▼

# IAQ Assessment

Western High

Evaluation Date November 14, 2012

Time of Day 12:30

Outdoor Conditions    Temperature 88.1

Relative Humidity 52.9

Ambient CO2 416

Fish	Temperature	Range	Relative Humidity	Range	CO <sup>2</sup>	Range	# Occupants
<span style="border: 1px solid black; padding: 2px;">408C</span>	<span style="border: 1px solid black; padding: 2px;">70.7</span>	<span style="border: 1px solid black; padding: 2px;">72 - 78</span>	<span style="border: 1px solid black; padding: 2px;">70.1</span>	<span style="border: 1px solid black; padding: 2px;">30% - 60%</span>	<span style="border: 1px solid black; padding: 2px;">991</span>	<span style="border: 1px solid black; padding: 2px;">MAX 700 &gt; Ambient</span>	<span style="border: 1px solid black; padding: 2px;"></span>
Noticeable Odor		<span style="border: 1px solid black; padding: 2px;">No</span>	Visible water damage / staining?		Visible microbial growth?		Amount of material affected
Ceiling	<span style="border: 1px solid black; padding: 2px;">2' x 4'</span>		<span style="border: 1px solid black; padding: 2px;">No</span>		<span style="border: 1px solid black; padding: 2px;">No</span>		<span style="border: 1px solid black; padding: 2px;"></span>
Walls	<span style="border: 1px solid black; padding: 2px;">Drywall</span>		<span style="border: 1px solid black; padding: 2px;">No</span>		<span style="border: 1px solid black; padding: 2px;">No</span>		<span style="border: 1px solid black; padding: 2px;"></span>
Floor	<span style="border: 1px solid black; padding: 2px;">Quarry Tile</span>		<span style="border: 1px solid black; padding: 2px;">No</span>		<span style="border: 1px solid black; padding: 2px;">No</span>		<span style="border: 1px solid black; padding: 2px;"></span>
Ceiling Clean	<span style="border: 1px solid black; padding: 2px;">No</span>		HVAC Supply Grills Clean	<span style="border: 1px solid black; padding: 2px;">N/a</span>		HVAC Return Grills Clean	<span style="border: 1px solid black; padding: 2px;">N/a</span>
Walls Clean	<span style="border: 1px solid black; padding: 2px;">No</span>		Inside of Supply Duct Clean	<span style="border: 1px solid black; padding: 2px;">N/A</span>		Inside of Return Duct Clean	<span style="border: 1px solid black; padding: 2px;">N/A</span>
Flooring Clean	<span style="border: 1px solid black; padding: 2px;">Yes</span>		Ceiling at Supply Grills Clean	<span style="border: 1px solid black; padding: 2px;">N/a</span>			
Room Surfaces Clean	<span style="border: 1px solid black; padding: 2px;">Yes</span>						
Trash Removed	<span style="border: 1px solid black; padding: 2px;">Yes</span>		Exhaust Fans Working	<span style="border: 1px solid black; padding: 2px;">Yes</span>		Unapproved Chemicals / Cleaners in Room	<span style="border: 1px solid black; padding: 2px;">No</span>
Signs of Pests	<span style="border: 1px solid black; padding: 2px;">No</span>		Drain Traps Wet	<span style="border: 1px solid black; padding: 2px;">N/A</span>		Air Fresheners in Room	<span style="border: 1px solid black; padding: 2px;">No</span>
Room Cluttered	<span style="border: 1px solid black; padding: 2px;">No</span>		Food if Stored in Room is in Sealed Containers	<span style="border: 1px solid black; padding: 2px;">N/A</span>			
Mechanical Equipment Location	<span style="border: 1px solid black; padding: 2px;">Not readily accessible</span>					Mechanical Room Clean	<span style="border: 1px solid black; padding: 2px;">N/A</span>
Filters Installed Properly	<span style="border: 1px solid black; padding: 2px;">N/A</span>		Filters Clean	<span style="border: 1px solid black; padding: 2px;">N/A</span>		Inside of HVAC Unit Clean	<span style="border: 1px solid black; padding: 2px;">N/A</span>
Condensate Pan Clean	<span style="border: 1px solid black; padding: 2px;">N/A</span>		Cooling Coil Clean	<span style="border: 1px solid black; padding: 2px;">N/A</span>			
Fresh Air Intake Location	<span style="border: 1px solid black; padding: 2px;">Not accessible</span> ▼					Fresh Air Intake Free of Obstruction	<span style="border: 1px solid black; padding: 2px;">N/A</span>
Pollutant Sources Near Air Intake	<span style="border: 1px solid black; padding: 2px;">Not readily accessible</span> ▼						

**Observations**

The assessed space is the women's restroom. The HFSP states the HVAC system feeding the kitchen area is new. I recommend that the PPO HVAC department evaluate the system for normal operation due to elevated humidity and low temperature. There is microbial growth around the exhaust fan and on the wall adjacent to the exhaust fan. The walls need a good wipe down. Evaluate the exhaust fan for proper HVAC control operation.

**Corrective Actions to be Completed by Site Based Staff**

Wipe ceiling stain w/wexcide and monitor	▼
Wipe down stains and dust from walls and monitor	▼
Clean restroom exhaust fan grill w/wexcide	▼
	▼
	▼
	▼
	▼
	▼

**Corrective Actions to be Completed by PPO**

Repair HVAC to reduce humidity level	▼
Set temperature to 72 - 78 degrees	▼
Evaluate for normal function of exhaust fan	▼
	▼
	▼
	▼
	▼

# IAQ Assessment

Western High

Evaluation Date November 14, 2012

Time of Day 12:30

Outdoor Conditions Temperature 88.1

Relative Humidity 52.9

Ambient CO2 416

Fish	Temperature	Range	Relative Humidity	Range	CO <sup>2</sup>	Range	# Occupants
<span style="border: 1px solid black; padding: 2px;">Storage</span>	<span style="border: 1px solid black; padding: 2px;">71.7</span>	<span style="border: 1px solid black; padding: 2px;">72 - 78</span>	<span style="border: 1px solid black; padding: 2px;">69.6</span>	<span style="border: 1px solid black; padding: 2px;">30% - 60%</span>	<span style="border: 1px solid black; padding: 2px;">1029</span>	<span style="border: 1px solid black; padding: 2px;">MAX 700 &gt; Ambient</span>	<span style="border: 1px solid black; padding: 2px;"></span>
Noticeable Odor		<span style="border: 1px solid black; padding: 2px;">No</span>	Visible water damage / staining?		Visible microbial growth?		Amount of material affected
Ceiling	<span style="border: 1px solid black; padding: 2px;">2' x 4'</span>		<span style="border: 1px solid black; padding: 2px;">No</span>		<span style="border: 1px solid black; padding: 2px;">No</span>	<span style="border: 1px solid black; padding: 2px;"></span>	
Walls	<span style="border: 1px solid black; padding: 2px;">Drywall</span>		<span style="border: 1px solid black; padding: 2px;">Yes</span>		<span style="border: 1px solid black; padding: 2px;">No</span>	<span style="border: 1px solid black; padding: 2px;">&lt; 3 sq ft</span>	
Floor	<span style="border: 1px solid black; padding: 2px;">12" x 12" Vinyl</span>		<span style="border: 1px solid black; padding: 2px;">No</span>		<span style="border: 1px solid black; padding: 2px;">No</span>	<span style="border: 1px solid black; padding: 2px;"></span>	
Ceiling Clean		<span style="border: 1px solid black; padding: 2px;">Yes</span>	HVAC Supply Grills Clean		<span style="border: 1px solid black; padding: 2px;">No</span>	HVAC Return Grills Clean <span style="border: 1px solid black; padding: 2px;">No</span>	
Walls Clean		<span style="border: 1px solid black; padding: 2px;">No</span>	Inside of Supply Duct Clean		<span style="border: 1px solid black; padding: 2px;">N/A</span>	Inside of Return Duct Clean <span style="border: 1px solid black; padding: 2px;">Yes</span>	
Flooring Clean		<span style="border: 1px solid black; padding: 2px;">Yes</span>	Ceiling at Supply Grills Clean		<span style="border: 1px solid black; padding: 2px;">Yes</span>		
Room Surfaces Clean		<span style="border: 1px solid black; padding: 2px;">No</span>					
Trash Removed		<span style="border: 1px solid black; padding: 2px;">Yes</span>	Exhaust Fans Working		<span style="border: 1px solid black; padding: 2px;">N/A</span>	Unapproved Chemicals / Cleaners in Room <span style="border: 1px solid black; padding: 2px;">No</span>	
Signs of Pests		<span style="border: 1px solid black; padding: 2px;">Yes</span>	Drain Traps Wet		<span style="border: 1px solid black; padding: 2px;">N/A</span>	Air Fresheners in Room <span style="border: 1px solid black; padding: 2px;">No</span>	
Room Cluttered		<span style="border: 1px solid black; padding: 2px;">Yes</span>	Food if Stored in Room is in Sealed Containers		<span style="border: 1px solid black; padding: 2px;">N/A</span>		
Mechanical Equipment Location			<span style="border: 1px solid black; padding: 2px;">Not readily accessible</span>			Mechanical Room Clean <span style="border: 1px solid black; padding: 2px;">N/A</span>	
Filters Installed Properly		<span style="border: 1px solid black; padding: 2px;">N/A</span>	Filters Clean		<span style="border: 1px solid black; padding: 2px;">N/A</span>	Inside of HVAC Unit Clean <span style="border: 1px solid black; padding: 2px;">N/A</span>	
Condensate Pan Clean		<span style="border: 1px solid black; padding: 2px;">N/A</span>	Cooling Coil Clean		<span style="border: 1px solid black; padding: 2px;">N/A</span>		
Fresh Air Intake Location			<span style="border: 1px solid black; padding: 2px;">Not accessible</span> ▼			Fresh Air Intake Free of Obstruction <span style="border: 1px solid black; padding: 2px;">N/A</span>	
Pollutant Sources Near Air Intake			<span style="border: 1px solid black; padding: 2px;">Not readily accessible</span> ▼				

**Observations**

The assessed space is a storage room located in the kitchen manager's office (403C). The HFSP states the HVAC system feeding the kitchen area is new. I recommend that the PPO HVAC department evaluate the system for normal operation due to elevated humidity. PPO has an ongoing process in the eradication of rats in the kitchen manager's office and her storerooms. Evaluate wall from both sides and repair as necessary. The wall staining is located at floor level under built in desk top. Schedule with the kitchen manager for opening of this room due to the contents.

**Corrective Actions to be Completed by Site Based Staff**

Thoroughly clean horizontal surfaces	▼
Clean HVAC supply and return grills with Wexcide	▼
	▼
	▼
	▼
	▼
	▼
	▼
	▼

**Corrective Actions to be Completed by PPO**

Repair HVAC to reduce humidity level	▼
Evaluate and repair cause of water damage	▼
to wall material	▼
Remove and replace wall material as necessary	▼
	▼
See observations for additional info	▼
	▼
	▼