

**THE SCHOOL BOARD OF BROWARD COUNTY, FLORIDA**

**ENVIRONMENTAL HEALTH & SAFETY DEPARTMENT**

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October 28, 2016

Signature on File

TO: Sandra Shipman, Principal  
**Pembroke Lakes Elementary**

FROM: Robert Krickovich, Coordinator, LEA  
Environmental Health & Safety 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
<hr/>	
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On October 24, 2016, I conducted an assessment at **Pembroke Lakes Elementary 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 754-321-4200.

RK:smn  
Enc.

cc: Shelley Meloni, Director, Pre-Construction  
Mark Dorsett, Manager, Zone 1, Physical Plant Operations Division  
Broward Teachers Union  
Federation of Public Employees  
Gerald Devio, Supervisor II Custodial  
Benjamin Osborne, Supervisor II Custodial  
Rich Volpi, Supervisor II Custodial  
Mark Murray, Supervisor II Custodial  
Sam Bays, Director, Maintenance Operations  
Kurt Wirz, Area Manager Trades

# IAQ Assessment

Pembroke Lakes Elementary

Evaluation Date October 24, 2016

Time of Day 11:00 AM

Outdoor Conditions Temperature 85.1

Relative Humidity 49.1

Ambient CO2 437

Fish	Temperature	Range	Relative Humidity	Range	CO <sup>2</sup>	Range	# Occupants
173	67.6	72 - 78	62.1	30% - 60%	880	MAX 700 > Ambient	2
Noticeable Odor		Visible water damage / staining?		Visible microbial growth?		Amount of material affected	
Ceiling		Walls		Floor			
2' X 4' Lay in		Tack Board		Carpet		1 tile 6 sq inches	
Yes		Yes		No		8 Sq feet	
		No		No			

Ceiling Clean	Yes	HVAC Supply Grills Clean	No	HVAC Return Grills Clean	Yes
Walls Clean	Yes	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	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 170	Mechanical Room Clean	Yes
Filters Installed Properly	No	Filters Clean	No
Condensate Pan Clean	Yes	Cooling Coil Clean	No
		Inside of HVAC Unit Clean	No

Fresh Air Intake Location	Roof top	Fresh Air Intake Free of Obstruction	Yes
Pollutant Sources Near Air Intake	None		

**Observations**

**Musty Odor in Room - 1 stained ceiling tile over teachers desk - Water damaged wall right side of exterior door - HVAC supply grills dirty - Ceilings at supply grills dirty - HVAC filters dirty - Filter spacers not installed (on top of unit)**

**Water damaged plaster ceiling with spotty microbial growth in corridor outside of mechanical room 170.**

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

Clean Supply Grills with Wexcide	▼
Clean ceilings around HVAC supply grills	▼
Remove and replace A/C Filters	▼
Install A/C filters properly	▼
	▼
	▼
	▼
	▼

**Corrective Actions to be Completed by PPO**

Evaluate and repair HVAC system as needed	▼
Set Temperature to 72 - 78 degrees	▼
Repair HVAC to Reduce Humidity Levels	▼
Evaluate and repair cause of stained ceiling tile	▼
Evaluate and repair cause of water damaged wall material at exterior door and water damaged ceiling material in corridor	▼
Replace water damaged material	▼

# IAQ Assessment

Pembroke Lakes Elementary

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Outdoor Conditions    Temperature 85.1    Relative Humidity 49.1    Ambient CO2 437

Fish	Temperature	Range	Relative Humidity	Range	CO <sup>2</sup>	Range	# Occupants	
<span style="border: 1px solid black; padding: 2px;">174</span>	<span style="border: 1px solid black; padding: 2px;">70.0</span>	<span style="border: 1px solid black; padding: 2px;">72 - 78</span>	<span style="border: 1px solid black; padding: 2px;">62.0</span>	<span style="border: 1px solid black; padding: 2px;">30% - 60%</span>	<span style="border: 1px solid black; padding: 2px;">851</span>	<span style="border: 1px solid black; padding: 2px;">MAX 700 &gt; Ambient</span>	<span style="border: 1px solid black; padding: 2px;">7</span>	
Noticeable Odor		<input type="checkbox"/> Yes	Visible water damage / staining?		Visible microbial growth?		Amount of material affected	
Ceiling	<span style="border: 1px solid black; padding: 2px;">2' X 4' Lay in</span>		<input type="checkbox"/> No		<input type="checkbox"/> No		<input style="width: 100%;" type="text"/>	
Walls	<span style="border: 1px solid black; padding: 2px;">Plaster</span>		<input type="checkbox"/> No		<input type="checkbox"/> No		<input style="width: 100%;" type="text"/>	
Floor	<span style="border: 1px solid black; padding: 2px;">12" x 12" Vinyl</span>		<input type="checkbox"/> No		<input type="checkbox"/> No		<input style="width: 100%;" type="text"/>	
Ceiling Clean		<input type="checkbox"/> Yes	HVAC Supply Grills Clean		<input type="checkbox"/> No	HVAC Return Grills Clean		<input type="checkbox"/> Yes
Walls Clean		<input type="checkbox"/> Yes	Inside of Supply Duct Clean		<input type="checkbox"/> Yes	Inside of Return Duct Clean		<input type="checkbox"/> Yes
Flooring Clean		<input type="checkbox"/> Yes	Ceiling at Supply Grills Clean		<input type="checkbox"/> No			
Room Surfaces Clean		<input type="checkbox"/> Yes						
Trash Removed		<input type="checkbox"/> Yes	Exhaust Fans Working		<input type="checkbox"/> N/A	Unapproved Chemicals / Cleaners in Room		<input type="checkbox"/> No
Signs of Pests		<input type="checkbox"/> No	Drain Traps Wet		<input type="checkbox"/> N/A	Air Fresheners in Room		<input type="checkbox"/> Yes
Room Cluttered		<input type="checkbox"/> No	Food if Stored in Room is in Sealed Containers		<input type="checkbox"/> N/A			
Mechanical Equipment Location			<span style="border: 1px solid black; padding: 2px;">FISH 170</span>			Mechanical Room Clean		<input type="checkbox"/> Yes
Filters Installed Properly		<input type="checkbox"/> No	Filters Clean		<input type="checkbox"/> No	Inside of HVAC Unit Clean		<input type="checkbox"/> No
Condensate Pan Clean		<input type="checkbox"/> Yes	Cooling Coil Clean		<input type="checkbox"/> No			
Fresh Air Intake Location			<span style="border: 1px solid black; padding: 2px;">Roof top</span> ▼			Fresh Air Intake Free of Obstruction		<input type="checkbox"/> Yes
Pollutant Sources Near Air Intake			<span style="border: 1px solid black; padding: 2px;">None</span> ▼					

**Observations**

**Musty Odor in room - HVAC supply grills dirty - Ceilings at supply grills dirty - Spotty microbial growth on surfaces of cabinets inside and out and on shelves.**

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- Corrective Actions to be Completed by Site Based Staff**
- |   |   |
|---|---|
| Clean Supply Grills with Wexcide  | ▼ |
| Clean ceilings around HVAC supply grills  | ▼ |
| Remove contents of cabinets, clean or discard contents - Clean cabinets inside and out with wexcide | ▼ |
| Remove air fresheners   | ▼ |
|   | ▼ |
|   | ▼ |
|   | ▼ |

- Corrective Actions to be Completed by PPO**
- |   |   |
|---|---|
| Clean HVAC return grills and drops              | ▼ |
| Set Temperature to 72 - 78 degrees              | ▼ |
| Repair HVAC to Reduce Humidity Levels           | ▼ |
| Clean and paint corridor ceiling outside of 170 | ▼ |
|   | ▼ |
|   | ▼ |
|   | ▼ |

# IAQ Assessment

Pembroke Lakes Elementary

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Outdoor Conditions    Temperature 85.1    Relative Humidity 49.1    Ambient CO2 437

Fish	Temperature	Range	Relative Humidity	Range	CO <sup>2</sup>	Range	# Occupants	
<span style="border: 1px solid black; padding: 2px;">175</span>	<span style="border: 1px solid black; padding: 2px;">67.9</span>	<span style="border: 1px solid black; padding: 2px;">72 - 78</span>	<span style="border: 1px solid black; padding: 2px;">61.1</span>	<span style="border: 1px solid black; padding: 2px;">30% - 60%</span>	<span style="border: 1px solid black; padding: 2px;">857</span>	<span style="border: 1px solid black; padding: 2px;">MAX 700 &gt; Ambient</span>	<span style="border: 1px solid black; padding: 2px;">2</span>	
Noticeable Odor		<span style="border: 1px solid black; padding: 2px;">Yes</span>	Visible water damage / staining?		Visible microbial growth?		Amount of material affected	
Ceiling	<span style="border: 1px solid black; padding: 2px;">2' X 4' Lay in</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;">4 stained - 2 microbial</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;">Yes</span>		<span style="border: 1px solid black; padding: 2px;">spotty microbial growth</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;">Yes</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;">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;">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;">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;">FISH 170</span>			Mechanical Room Clean		<span style="border: 1px solid black; padding: 2px;">Yes</span>
Filters Installed Properly		<span style="border: 1px solid black; padding: 2px;">No</span>	Filters Clean		<span style="border: 1px solid black; padding: 2px;">No</span>	Inside of HVAC Unit Clean		<span style="border: 1px solid black; padding: 2px;">No</span>
Condensate Pan Clean		<span style="border: 1px solid black; padding: 2px;">Yes</span>	Cooling Coil Clean		<span style="border: 1px solid black; padding: 2px;">No</span>			
Fresh Air Intake Location			<span style="border: 1px solid black; padding: 2px;">Roof top</span> ▼			Fresh Air Intake Free of Obstruction		<span style="border: 1px solid black; padding: 2px;">Yes</span>
Pollutant Sources Near Air Intake			<span style="border: 1px solid black; padding: 2px;">None</span> ▼					

**Observations**

**Musty odor in room - 4 stained ceiling tiles 2 with microbial growth (school to call in work orders as soon as water intrusion is noticed) - HVAC supply grills dirty - Spotty microbial growth and dust on walls - dust on room surfaces.**

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- Corrective Actions to be Completed by Site Based Staff**
- |   |   |
|---|---|
| Remove and replace stained ceiling tile | ▼ |
| Thoroughly clean ALL surfaces           | ▼ |
| Clean dust from wall surfaces           | ▼ |
| Clean Supply Grills with Wexcide        | ▼ |
|   | ▼ |
|   | ▼ |
|   | ▼ |
|   | ▼ |

- Corrective Actions to be Completed by PPO**
- |   |   |
|---|---|
| Clean entire HVAC system - unit and drops | ▼ |
| Set Temperature to 72 - 78 degrees        | ▼ |
| Evaluate and repair HVAC system as needed | ▼ |
| Repair HVAC to Reduce Humidity Levels     | ▼ |
|   | ▼ |
|   | ▼ |
|   | ▼ |
|   | ▼ |

