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August 10, 2005

TO: Mrs. Angela Iudica, Principal
Silver Shores Elementary School

FROM: Robert J. Krickovich, Coordinator, LEA
Facilities and Construction Management, Environmental Division

SUBJECT: Indoor Air Quality (IAQ) Assessment
FISH 150, 151, 152, 155, 228, 229 and 231

On July 22, 2005 the IAQ Assessment Team conducted an assessment of FISH 150, 151, 152, 155, 228, 229 and 231 at **Silver Shores Elementary School**. The evaluation consisted of a walkthrough of the identified areas to assess the current condition of the location with regard to indoor air quality. This assessment included observations of the carpet, floor tile, ceiling tile, interior walls, false ceiling plenum, and accessible ventilation equipment.

Attached are the findings of this assessment along with recommendations for further assessment, remediation, or corrective actions, if needed.

Generally, the IAQ Assessment did not identify any existing conditions significantly impacting IAQ and thereby presenting immediate health and safety concerns 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.

Should any questions arise, or if the current concerns continue after the attached recommendations have been addressed, please feel free to contact me at 754-321-1638.

cc: Sam Gregg, Area Superintendent
Steven Friedman, Area Director
Jeffrey S. Moquin, Director, Risk Management
Angelino Garcia, Project Manager II, Facilities and Construction Management
Steve Feldman, Broward Teachers Union
Mark Dorsett, Manager 1, Physical Plant Operations Division, Zone 1
Roy Norton, Manager Custodial/Grounds, Physical Plant Operations Division

RK/tc
Enc.

IAQ Assessment

Silver Shores Elementary School

Evaluation Requested July 21, 2005

Time of Day 12:15 pm

Evaluation Date July 22, 2005

Outdoor Conditions Temperature 91.1 Relative Humidity 53 Ambient CO2 450

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
150	68.9	72 - 78	67.6	30% - 60%	415	Max 700 > Ambient	4
Noticeable Odor		Visible water damage / staining?		Visible microbial growth?		Amount of material affected	
No		Yes		No		One tile above door	
Ceiling Type		Yes		No		One tile above door	
2 x 4 Lay In		No		No		None	
Wall Type		No		No		None	
Drywall		No		No		None	
Flooring		No		No		None	
12 x 12 Vinyl		No		No		None	

	Clean	Minor Dust / Debris	Needs Cleaning	Corrective Action Required
Ceiling	Yes	No	No	
Walls	No	Yes	Yes	Clean as appropriate
Flooring	Yes	No	No	
HVAC Supply Grills	No	Yes	Yes	Clean with Wexcide disinfectant
HVAC Return Grills	Yes	No	No	
Ceiling at Supply Grills	No	Yes	Yes	Clean with Wexcide disinfectant
Surfaces in Room	No	Yes	Yes	Clean as appropriate

Observations

Findings:

- Stained ceiling tile above door
- Heavy dust accumulation on walls, desks and cabinets
- Dust and debris on HVAC supply grills
- Dust and debris on ceiling at HVAC supply grills
- Dust and debris on environmental surfaces
- Elevated humidity level and low temperature
- Half a gallon of bleach found

Recommendations:

Site Based Maintenance:

- Replace stained ceiling tile
- Clean/dust all walls, desks and cabinets as appropriate
- Clean HVAC supply grills with Wexcide disinfectant solution
- Clean ceiling at HVAC supply grills as appropriate
- Clean all environmental surfaces as appropriate
- Remove bleach and all non approved chemicals from building
- Continue to monitor this location for any signs of microbial growth as well as dust and debris accumulation and clean as appropriate

Physical Plant Operations Division:

- Evaluate and repair cause of stained ceiling tile as appropriate
- Evaluate and repair HVAC to lower humidity level and raise temperature (South Area PPO notified on 7/22/05)

IAQ Assessment

Silver Shores Elementary School

Evaluation Requested

Time of Day

Evaluation Date

Outdoor Conditions Temperature Relative Humidity Ambient CO2

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
<input type="text" value="151"/>	<input type="text" value="67.1"/>	<input type="text" value="72 - 78"/>	<input type="text" value="67.6"/>	<input type="text" value="30% - 60%"/>	<input type="text" value="404"/>	<input type="text" value="Max 700 > Ambient"/>	<input type="text" value="4"/>
Noticeable Odor		Visible water damage / staining?		Visible microbial growth?		Amount of material affected	
<input type="text" value="No"/>		<input type="text" value="No"/>		<input type="text" value="No"/>		<input type="text" value="None"/>	
Ceiling Type	<input type="text" value="2 x 4 Lay In"/>		<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text" value="None"/>		
Wall Type	<input type="text" value="Drywall"/>		<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text" value="None"/>		
Flooring	<input type="text" value="12 x 12 Vinyl"/>		<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text" value="None"/>		

	Clean	Minor Dust / Debris	Needs Cleaning	Corrective Action Required
Ceiling	<input type="text" value="Yes"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text"/>
Walls	<input type="text" value="Yes"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text"/>
Flooring	<input type="text" value="Yes"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text"/>
HVAC Supply Grills	<input type="text" value="No"/>	<input type="text" value="Yes"/>	<input type="text" value="Yes"/>	<input type="text" value="Clean with Wexcide disinfectant"/>
HVAC Return Grills	<input type="text" value="Yes"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text"/>
Ceiling at Supply Grills	<input type="text" value="No"/>	<input type="text" value="Yes"/>	<input type="text" value="Yes"/>	<input type="text" value="Clean with Wexcide disinfectant"/>
Surfaces in Room	<input type="text" value="Yes"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text"/>

Observations

Findings:

- Dust and debris on HVAC supply grills
- Dust and debris on ceiling at HVAC supply grills
- Elevated humidity level and low temperature

Recommendations:

Site Based Maintenance:

- Clean HVAC supply grills with Wexcide disinfectant solution
- Clean ceiling at HVAC supply grills as appropriate
- Continue to monitor this location for any signs of microbial growth as well as dust and debris accumulation and clean as appropriate

Physical Plant Operations Division:

- Evaluate and repair HVAC to lower humidity level and raise temperature (South Area PPO notified on 7/22/05)

IAQ Assessment

Silver Shores Elementary School

Evaluation Requested

Time of Day

Evaluation Date

Outdoor Conditions Temperature Relative Humidity Ambient CO2

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
<input type="text" value="152"/>	<input type="text" value="66.4"/>	<input type="text" value="72 - 78"/>	<input type="text" value="69.3"/>	<input type="text" value="30% - 60%"/>	<input type="text" value="408"/>	<input type="text" value="Max 700 > Ambient"/>	<input type="text" value="4"/>
Noticeable Odor		Visible water damage / staining?		Visible microbial growth?		Amount of material affected	
<input type="text" value="No"/>		<input type="text" value="No"/>		<input type="text" value="No"/>		<input type="text" value="None"/>	
Ceiling Type	<input type="text" value="2 x 4 Lay In"/>		<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text" value="None"/>		
Wall Type	<input type="text" value="Drywall"/>		<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text" value="None"/>		
Flooring	<input type="text" value="12 x 12 Vinyl"/>		<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text" value="None"/>		

	Clean	Minor Dust / Debris	Needs Cleaning	Corrective Action Required
Ceiling	<input type="text" value="Yes"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text"/>
Walls	<input type="text" value="Yes"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text"/>
Flooring	<input type="text" value="Yes"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text"/>
HVAC Supply Grills	<input type="text" value="No"/>	<input type="text" value="Yes"/>	<input type="text" value="Yes"/>	<input type="text" value="Clean with Wexcide disinfectant"/>
HVAC Return Grills	<input type="text" value="Yes"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text"/>
Ceiling at Supply Grills	<input type="text" value="No"/>	<input type="text" value="Yes"/>	<input type="text" value="Yes"/>	<input type="text" value="Clean with Wexcide disinfectant"/>
Surfaces in Room	<input type="text" value="Yes"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text"/>

Observations

Findings:

- Dust and debris on HVAC supply grills
- Dust and debris on ceiling at HVAC supply grills
- Elevated humidity level and low temperature

Recommendations:

Site Based Maintenance:

- Clean HVAC supply grills with Wexcide disinfectant solution
- Clean ceiling at HVAC supply grills as appropriate
- Continue to monitor this location for any signs of microbial growth as well as dust and debris accumulation and clean as appropriate

Physical Plant Operations Division:

- Evaluate and repair HVAC to lower humidity level and raise temperature (South Area PPO notified on 7/22/05)

IAQ Assessment

Silver Shores Elementary School

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Evaluation Date

Outdoor Conditions Temperature Relative Humidity Ambient CO2

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
<input type="text" value="155"/>	<input type="text" value="70.6"/>	<input type="text" value="72 - 78"/>	<input type="text" value="64.2"/>	<input type="text" value="30% - 60%"/>	<input type="text" value="403"/>	<input type="text" value="Max 700 > Ambient"/>	<input type="text" value="4"/>
Noticeable Odor		Visible water damage / staining?		Visible microbial growth?		Amount of material affected	
<input type="text" value="No"/>		<input type="text" value="No"/>		<input type="text" value="No"/>		<input type="text" value="None"/>	
Ceiling Type	<input type="text" value="2 x 4 Lay In"/>		<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text" value="None"/>		
Wall Type	<input type="text" value="Drywall"/>		<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text" value="None"/>		
Flooring	<input type="text" value="12 x 12 Vinyl"/>		<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text" value="None"/>		

	Clean	Minor Dust / Debris	Needs Cleaning	Corrective Action Required
Ceiling	<input type="text" value="Yes"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text"/>
Walls	<input type="text" value="Yes"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text"/>
Flooring	<input type="text" value="Yes"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text"/>
HVAC Supply Grills	<input type="text" value="Yes"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text"/>
HVAC Return Grills	<input type="text" value="Yes"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text"/>
Ceiling at Supply Grills	<input type="text" value="No"/>	<input type="text" value="Yes"/>	<input type="text" value="Yes"/>	<input type="text" value="Clean with Wexcide disinfectant"/>
Surfaces in Room	<input type="text" value="No"/>	<input type="text" value="Yes"/>	<input type="text" value="Yes"/>	<input type="text" value="Clean as appropriate"/>

Observations

Findings:

- Dust and debris on ceiling at HVAC supply grills
- Dust and debris on environmental surfaces
- Elevated humidity level and low temperature

Recommendations:

Site Based Maintenance:

- Clean ceiling at HVAC supply grills as appropriate
- Clean all environmental surfaces as appropriate
- Continue to monitor this location for any signs of microbial growth as well as dust and debris accumulation and clean as appropriate

Physical Plant Operations Division:

- Evaluate and repair HVAC to lower humidity level and raise temperature (South Area PPO notified on 7/22/05)

IAQ Assessment

Silver Shores Elementary School

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Time of Day 12:15 pm

Evaluation Date July 22, 2005

Outdoor Conditions Temperature 91.1 Relative Humidity 53 Ambient CO2 450

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
228	72.2	72 - 78	79	30% - 60%	402	Max 700 > Ambient	4
Noticeable Odor		Visible water damage / staining?		Visible microbial growth?		Amount of material affected	
No		No		No		None	
Ceiling Type	2 x 4 Lay In		No	No	None		
Wall Type	Drywall		No	No	None		
Flooring	12 x 12 Vinyl		No	No	None		

	Clean	Minor Dust / Debris	Needs Cleaning	Corrective Action Required
Ceiling	Yes	No	No	
Walls	Yes	No	No	
Flooring	Yes	No	No	
HVAC Supply Grills	Yes	No	No	
HVAC Return Grills	Yes	No	No	
Ceiling at Supply Grills	No	Yes	Yes	Clean with Wexcide disinfectant
Surfaces in Room	No	Yes	Yes	Clean as appropriate

Observations

Findings:

- Visible microbial growth on desks, doors and cabinets
- Dust and debris on ceiling at HVAC supply grills
- Dust and debris on environmental surfaces
- Elevated humidity level

Recommendations:

Site Based Maintenance:

- Wipe all desks, doors and cabinets with Wexcide disinfectant solution
- Clean ceiling at HVAC supply grills as appropriate
- Clean all environmental surfaces as appropriate
- Continue to monitor this location for any signs of microbial growth as well as dust and debris accumulation and clean as appropriate

Physical Plant Operations Division:

- Evaluate and repair HVAC to lower humidity level (South Area PPO notified on 7/22/05)

IAQ Assessment

Silver Shores Elementary School

Evaluation Requested July 21, 2005

Time of Day 12:15 pm

Evaluation Date July 22, 2005

Outdoor Conditions Temperature 91.1 Relative Humidity 53 Ambient CO2 450

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
229	72.6	72 - 78	84	30% - 60%	388	Max 700 > Ambient	4
Noticeable Odor		Visible water damage / staining?		Visible microbial growth?		Amount of material affected	
No		No		No		None	
Ceiling Type	2 x 4 Lay In		No	No	None		
Wall Type	Drywall		Yes	Yes	Various		
Flooring	12 x 12 Vinyl		No	No	None		

	Clean	Minor Dust / Debris	Needs Cleaning	Corrective Action Required
Ceiling	No	Yes	Yes	Clean as appropriate
Walls	No	Yes	Yes	Clean as appropriate
Flooring	Yes	No	No	
HVAC Supply Grills	No	Yes	Yes	Clean with Wexcide disinfectant
HVAC Return Grills	No	Yes	Yes	Clean with Wexcide disinfectant
Ceiling at Supply Grills	No	Yes	Yes	Clean with Wexcide disinfectant
Surfaces in Room	No	Yes	Yes	Clean as appropriate

Observations

Findings:

- Visible microbial growth on walls, desks, doors and cabinets
- Dust and debris on ceiling
- Dust and debris on HVAC supply and return grills
- Dust and debris on environmental surfaces
- Elevated humidity level

Recommendations:

Site Based Maintenance:

- Wipe all walls, desks, doors and cabinets with Wexcide disinfectant solution
- Clean ceiling as appropriate
- Clean HVAC supply and return grills with Wexcide disinfectant solution
- Clean all environmental surfaces as appropriate
- Continue to monitor this location for any signs of microbial growth as well as dust and debris accumulation and clean as appropriate

Physical Plant Operations Division:

- Evaluate and repair HVAC to lower humidity level (South Area PPO notified on 7/22/05)

IAQ Assessment

Silver Shores Elementary School

Evaluation Requested July 21, 2005

Time of Day 12:15 pm

Evaluation Date July 22, 2005

Outdoor Conditions Temperature 91.1 Relative Humidity 53 Ambient CO2 450

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
231	72.1	72 - 78	80.4	30% - 60%	406	Max 700 > Ambient	4
Noticeable Odor		Visible water damage / staining?		Visible microbial growth?		Amount of material affected	
No		No		No		None	
Ceiling Type	2 x 4 Lay In		No	No	None		
Wall Type	Drywall		No	No	None		
Flooring	12 x 12 Vinyl		No	No	None		

	Clean	Minor Dust / Debris	Needs Cleaning	Corrective Action Required
Ceiling	Yes	No	No	
Walls	No	Yes	Yes	Clean as appropriate
Flooring	Yes	No	No	
HVAC Supply Grills	Yes	No	No	
HVAC Return Grills	Yes	No	No	
Ceiling at Supply Grills	No	Yes	Yes	Clean with Wexcide disinfectant
Surfaces in Room	No	Yes	Yes	Clean as appropriate

Observations

Findings:

- Visible microbial growth on walls, desks, doors and cabinets
- Dust and debris on ceiling at HVAC supply grills
- Dust and debris on environmental surfaces
- Elevated humidity level
- Glade plug in found in room

Recommendations:

Site Based Maintenance:

- Wipe all walls, desks, doors and cabinets with Wexcide disinfectant solution
- Clean ceiling at HVAC supply grills as appropriate
- Clean all environmental surfaces as appropriate
- Remove air freshener from room
- Continue to monitor this location for any signs of microbial growth as well as dust and debris accumulation and clean as appropriate

Physical Plant Operations Division:

- Evaluate and repair HVAC to lower humidity level (South Area PPO notified on 7/22/05)