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August 10, 2005

TO: Ms. Susan Walton, Principal
Plantation Elementary School

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

SUBJECT: Indoor Air Quality (IAQ) Assessment
FISH 131, 133, 153, 155, 157, 159, 161 and 203

On August 2, 2005 the IAQ Assessment Team conducted an assessment of FISH 131, 133, 153, 155, 157, 159, 161 and 203 at **Plantation 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: Dr. Verda Farrow, Area Superintendent
Dr. Roberta Insel, Area Director
Jeffrey S. Moquin, Director, Risk Management
Jack Cooper, Senior Project Manager, Facilities and Construction Management
Jerrod Neal, 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

Plantation Elementary School

Evaluation Requested August 1, 2005

Time of Day 1:10 pm

Evaluation Date August 2, 2005

Outdoor Conditions Temperature 84.3 Relative Humidity 78.4 Ambient CO2 522

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
131	72.5	72 - 78	57.2	30% - 60%	467	Max 700 > Ambient	1
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	No	Yes	Yes	Clean as appropriate
Walls	No	Yes	Yes	Clean as appropriate
Flooring	No	Yes	Yes	Clean and sanitize
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 as appropriate
Surfaces in Room	No	Yes	Yes	Clean as appropriate

Observations

Findings:

- Heavy dust and debris on walls near ceiling and in corners, on environmental surfaces throughout the room and on ceiling. Ceiling tiles are bowed.
- Heavy dust and debris on floor
- Heavy dust and debris on HVAC supply and return grills
- Heavy dust and debris on ceiling at HVAC supply grills
- Microbial growth on some of the plastic chairs
- Vinyl bean bag chairs found in room

Recommendations:

Site Based Maintenance:

- Thoroughly clean ceiling, walls and environmental surfaces
- Thoroughly clean and sanitize floor
- Clean HVAC supply and return grills with Wexcide disinfectant solution
- Clean ceiling at HVAC supply grills as appropriate
- Clean plastic chairs with Wexcide disinfectant solution
- Remove vinyl bean bags 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:

- Assist site based custodial staff with cleaning

Note - Work has all been completed via work order EQ00448

IAQ Assessment

Plantation Elementary School

Evaluation Requested August 1, 2005

Time of Day 1:10 pm

Evaluation Date August 2, 2005

Outdoor Conditions Temperature 84.3 Relative Humidity 78.4 Ambient CO2 522

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
133	70.3	72 - 78	61.9	30% - 60%	441	Max 700 > Ambient	1
Noticeable Odor		Visible water damage / staining?		Visible microbial growth?		Amount of material affected	
No		Yes		Yes		One tile above windows	
Ceiling Type	2 x 4 Lay In		Yes	Yes	One tile above windows		
Wall Type	Drywall		No	No	None		
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	No	Yes	Yes	Clean and sanitize
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 as appropriate
Surfaces in Room	No	Yes	Yes	Clean as appropriate

Observations

Findings:

- One stained ceiling tile above windows
- Heavy dust and debris on walls near ceiling and in corners, on environmental surfaces throughout the room and on ceiling. Ceiling tiles are bowed.
- Heavy dust and debris on floor
- Heavy dust and debris on HVAC supply and return grills
- Heavy dust and debris on ceiling at HVAC supply grills
- Microbial growth on some of the plastic chairs
- Vinyl bean bag chairs found in room
- Elevated humidity level

Recommendations:

Site Based Maintenance:

- Replace stained ceiling tile
- Thoroughly clean ceiling, walls and environmental surfaces
- Thoroughly clean and sanitize floor
- Clean HVAC supply and return grills with Wexcide disinfectant solution
- Clean ceiling at HVAC supply grills as appropriate
- Clean plastic chairs with Wexcide disinfectant solution
- Remove vinyl bean bags 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:

- Assist site based custodial staff with cleaning
- Evaluate and repair HVAC system to lower humidity level

Note - Work has all been completed via work order EQ00448

IAQ Assessment

Plantation Elementary School

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Outdoor Conditions Temperature 84.3 Relative Humidity 78.4 Ambient CO2 522

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
153	71	72 - 78	65.4	30% - 60%	497	Max 700 > Ambient	3
Noticeable Odor		Visible water damage / staining?		Visible microbial growth?		Amount of material affected	
Ceiling Type		No		No		None	
Wall Type		No		No		None	
Flooring		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	No	Yes	Yes	Clean and sanitize
HVAC Supply Grills	Yes	No	No	
HVAC Return Grills	No	Yes	Yes	Clean with Wexcide disinfectant
Ceiling at Supply Grills	No	Yes	Yes	Clean as appropriate
Surfaces in Room	No	Yes	Yes	Clean as appropriate

Observations

Findings:

- Heavy dust and debris on walls near ceiling and in corners, on environmental surfaces throughout the room and on ceiling. Ceiling tiles are bowed.
- Heavy dust and debris on floor
- Heavy dust and debris on HVAC return grills
- Heavy dust and debris on ceiling at HVAC supply grills
- Microbial growth on some of the plastic chairs
- Vinyl bean bag chairs found in room
- Elevated humidity level

Recommendations:

Site Based Maintenance:

- Thoroughly clean ceiling, walls and environmental surfaces
- Thoroughly clean and sanitize floor
- Clean HVAC return grills with Wexcide disinfectant solution
- Clean ceiling at HVAC supply grills as appropriate
- Clean plastic chairs with Wexcide disinfectant solution
- Remove vinyl bean bags 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:

- Assist site based custodial staff with cleaning
- Evaluate and repair HVAC system to lower humidity level

Note - Work has all been completed via work order EQ00448

IAQ Assessment

Plantation Elementary School

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Time of Day 1:10 pm

Evaluation Date August 2, 2005

Outdoor Conditions Temperature 84.3 Relative Humidity 78.4 Ambient CO2 522

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
155	70.8	72 - 78	67	30% - 60%	482	Max 700 > Ambient	4
Noticeable Odor		Visible water damage / staining?		Visible microbial growth?		Amount of material affected	
Ceiling Type		Visible water damage / staining?		Visible microbial growth?		Amount of material affected	
Wall Type		Visible water damage / staining?		Visible microbial growth?		Amount of material affected	
Flooring		Visible water damage / staining?		Visible microbial growth?		Amount of material affected	

	Clean	Minor Dust / Debris	Needs Cleaning	Corrective Action Required
Ceiling	No	Yes	Yes	Clean as appropriate
Walls	No	Yes	Yes	Clean as appropriate
Flooring	No	Yes	Yes	Clean and sanitize
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 as appropriate
Surfaces in Room	No	Yes	Yes	Clean as appropriate

Observations

Findings:

- Heavy dust and debris on walls near ceiling and in corners, on environmental surfaces throughout the room and on ceiling. Ceiling tiles are bowed.
- Heavy dust and debris on floor
- Heavy dust and debris on HVAC return grills
- Heavy dust and debris on ceiling at HVAC supply grills
- Microbial growth on some of the plastic chairs
- Vinyl bean bag chairs found in room
- Elevated humidity level

Recommendations:

Site Based Maintenance:

- Thoroughly clean ceiling, walls and environmental surfaces
- Thoroughly clean and sanitize floor
- Clean HVAC return grills with Wexcide disinfectant solution
- Clean ceiling at HVAC supply grills as appropriate
- Clean plastic chairs with Wexcide disinfectant solution
- Remove vinyl bean bags 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:

- Assist site based custodial staff with cleaning
- Evaluate and repair HVAC system to lower humidity level

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Outdoor Conditions Temperature 84.3 Relative Humidity 78.4 Ambient CO2 522

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
157	70.7	72 - 78	67.2	30% - 60%	494	Max 700 > Ambient	1
Noticeable Odor		Visible water damage / staining?		Visible microbial growth?		Amount of material affected	
Ceiling Type		No		No		None	
Wall Type		Yes		No		Spots on West wall	
Flooring		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	No	Yes	Yes	Clean and sanitize
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 as appropriate
Surfaces in Room	No	Yes	Yes	Clean as appropriate

Observations

Findings:

- Heavy dust and debris on walls near ceiling and in corners, on environmental surfaces throughout the room and on ceiling. Black spots on West wall. Ceiling tiles are bowed.
- Heavy dust and debris on floor
- Heavy dust and debris on HVAC return grills
- Heavy dust and debris on ceiling at HVAC supply grills
- Microbial growth on some of the plastic chairs
- Vinyl bean bag chairs found in room
- Elevated humidity level

Recommendations:

Site Based Maintenance:

- Thoroughly clean ceiling, walls and environmental surfaces
- Thoroughly clean and sanitize floor
- Clean HVAC return grills with Wexcide disinfectant solution
- Clean ceiling at HVAC supply grills as appropriate
- Clean plastic chairs with Wexcide disinfectant solution
- Remove vinyl bean bags 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:

- Assist site based custodial staff with cleaning
- Evaluate and repair HVAC system to lower humidity level

Note - Work has all been completed via work order EQ00448

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Outdoor Conditions Temperature 84.3 Relative Humidity 78.4 Ambient CO2 522

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
159	71.2	72 - 78	67.5	30% - 60%	468	Max 700 > Ambient	2
Noticeable Odor		Visible water damage / staining?		Visible microbial growth?		Amount of material affected	
No		Yes		No		Near windows	
Ceiling Type	2 x 4 Lay In		Yes	No		Near windows	
Wall Type	Drywall		Yes	No		Near windows	
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	No	Yes	Yes	Clean and sanitize
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 as appropriate
Surfaces in Room	No	Yes	Yes	Clean as appropriate

Observations

<p>Findings:</p> <ul style="list-style-type: none"> - Heavy dust and debris on walls near ceiling and in corners, on environmental surfaces throughout the room and on ceiling. Ceiling tiles are bowed. - Stained ceiling tiles near windows and water damaged wall at window - Heavy dust and debris on floor - Heavy dust and debris on HVAC return grills - Heavy dust and debris on ceiling at HVAC supply grills - Microbial growth on some of the plastic chairs - Vinyl bean bag chairs found in room - Elevated humidity level <p>Recommendations:</p> <p>Site Based Maintenance:</p> <ul style="list-style-type: none"> - Thoroughly clean ceiling, walls and environmental surfaces - Thoroughly clean and sanitize floor - Clean HVAC return grills with Wexcide disinfectant solution - Clean ceiling at HVAC supply grills as appropriate - Clean plastic chairs with Wexcide disinfectant solution - Remove vinyl bean bags from room - Continue to monitor this location for any signs of microbial growth as well as dust and debris accumulation and clean as appropriate <p>Physical Plant Operations Division:</p> <ul style="list-style-type: none"> - Assist site based custodial staff with cleaning - Evaluate cause of water stained ceiling tiles and water damaged wall and repair/replace as appropriate - Evaluate and repair HVAC system to lower humidity level <p>Note - Work has all been completed via work order EQ00448</p>
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IAQ Assessment

Plantation Elementary School

Evaluation Requested August 1, 2005

Time of Day 1:10 pm

Evaluation Date August 2, 2005

Outdoor Conditions Temperature 84.3 Relative Humidity 78.4 Ambient CO2 522

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
161	71.3	72 - 78	68.6	30% - 60%	473	Max 700 > Ambient	3
Noticeable Odor		Visible water damage / staining?		Visible microbial growth?		Amount of material affected	
No		Yes		No		At window in corner	
Ceiling Type	2 x 4 Lay In		Yes	No		At window in corner	
Wall Type	Drywall		No	No		None	
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	No	Yes	Yes	Clean and sanitize
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 as appropriate
Surfaces in Room	No	Yes	Yes	Clean as appropriate

Observations

Findings:	<ul style="list-style-type: none"> - Heavy dust and debris on walls near ceiling and in corners, on environmental surfaces throughout the room and on ceiling. Ceiling tiles are bowed. - Stained ceiling tile in corner by windows - Heavy dust and debris on floor - Heavy dust and debris on HVAC return grills - Heavy dust and debris on ceiling at HVAC supply grills - Microbial growth on some of the plastic chairs - Vinyl bean bag chairs found in room - Elevated humidity level
Recommendations:	
Site Based Maintenance:	<ul style="list-style-type: none"> - Thoroughly clean ceiling, walls and environmental surfaces - Remove books from cabinets over sink. Books are too heavy for the cabinets and can break off of the wall and cause bodily injury or property damage. - Thoroughly clean and sanitize floor - Clean HVAC return grills with Wexcide disinfectant solution - Clean ceiling at HVAC supply grills as appropriate - Clean plastic chairs with Wexcide disinfectant solution - Remove vinyl bean bags 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:	<ul style="list-style-type: none"> - Assist site based custodial staff with cleaning - Evaluate cause of water stained ceiling tiles and repair/replace as appropriate - Evaluate and repair HVAC system to lower humidity level
Note - Work has all been completed via work order EQ00448	

IAQ Assessment

Plantation Elementary School

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Evaluation Date August 2, 2005

Outdoor Conditions Temperature 84.3 Relative Humidity 78.4 Ambient CO2 522

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
203	71.1	72 - 78	52.1	30% - 60%	466	Max 700 > Ambient	2
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	No	Yes	Yes	Clean as appropriate
Walls	No	Yes	Yes	Clean as appropriate
Flooring	No	Yes	Yes	Clean and sanitize
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 as appropriate
Surfaces in Room	No	Yes	Yes	Clean as appropriate

Observations

Findings:

- Heavy dust and debris on walls near ceiling and in corners, on environmental surfaces throughout the room and on ceiling. Ceiling tiles are bowed.
- Cabinets over sink are full of books
- Heavy dust and debris on floor
- Heavy dust and debris on HVAC return grills
- Heavy dust and debris on ceiling at HVAC supply grills
- Microbial growth on some of the plastic chairs
- Vinyl bean bag chairs found in room
- Elevated humidity level

Recommendations:

Site Based Maintenance:

- Thoroughly clean ceiling, walls and environmental surfaces
- Remove books from cabinets over sink. Books are too heavy for the cabinets and can break off of the wall and cause bodily injury or property damage.
- Thoroughly clean and sanitize floor
- Clean HVAC return grills with Wexcide disinfectant solution
- Clean ceiling at HVAC supply grills as appropriate
- Clean plastic chairs with Wexcide disinfectant solution
- Remove vinyl bean bags 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:

- Assist site based custodial staff with cleaning

Note - Work has all been completed via work order EQ00448