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August 3, 2005

TO: Mr. Lincoln Pasteur, Principal
Collins Elementary School

FROM: Kenneth I. Partee, Project Manager, Occupational Health and Environmental
Control
Risk Management Department

SUBJECT: Indoor Air Quality (IAQ) Assessment
FISH 108, 503, 504, 505, 603, 604, 605, 606

On July 19, 2005 the IAQ Assessment Team conducted an assessment of FISH 108, 503, 504, 505, 603, 604, 605 and 606 at **Collins 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 754-321-3200.

cc: Sam Gregg, Area Superintendent
Pat Dixon, Area Director
Jeffrey S. Moquin, Director, Risk Management
Frank Girardi, Project Manager II, 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
Robert Krickovich, Coordinator, LEA, Facilities and Construction Management

KP/tc
Enc.

IAQ Assessment

Collins 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="108"/>	<input type="text"/>	<input type="text" value="72 - 78"/>	<input type="text"/>	<input type="text" value="30% - 60%"/>	<input type="text"/>	<input type="text" value="Max 700 > Ambient"/>	<input type="text"/>
Noticeable Odor	<input type="text" value="Yes"/>		Visible water damage / staining?	Visible microbial growth?	Amount of material affected		
Ceiling Type	<input type="text"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>		
Wall Type	<input type="text"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>		
Flooring	<input type="text" value="Carpet"/>		<input type="text" value="Yes"/>	<input type="text" value="No"/>	<input type="text" value="Entire Carpet"/>		

	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="No"/>	<input type="text" value="Yes"/>	<input type="text" value="Yes"/>	<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="Yes"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text"/>
Surfaces in Room	<input type="text" value="Yes"/>	<input type="text" value="No"/>	<input type="text" value="Yes"/>	<input type="text"/>

Observations

Findings:
 - Carpet is stained - Custodial staff advised that the stains keep coming back. Principal would like to have carpet replaced with tile to enable better cleaning and eliminate indoor air quality concerns.

Recommendations:

Site Based Maintenance:
 - 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 carpet throughout administrative area

IAQ Assessment

Collins Elementary School

Evaluation Requested July 14, 2005

Time of Day 12:47 pm

Evaluation Date July 19, 2005

Outdoor Conditions Temperature 96.2 Relative Humidity 56 Ambient CO2 509

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
503	71.8	72 - 78	67.3	30% - 60%	1305	Max 700 > Ambient	0
Noticeable Odor	Yes		Visible water damage / staining?	Visible microbial growth?	Amount of material affected		
Ceiling Type	Tectum		No	No	None		
Wall Type	Tackboard		Yes	No	Various		
Flooring	Tile		No	No	None		

	Clean	Minor Dust / Debris	Needs Cleaning	Corrective Action Required
Ceiling	No	Yes	Yes	Clean as appropriate
Walls	No	Yes	Yes	Replace tackboard 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				N/A
Surfaces in Room	No	Yes	Yes	Clean as appropriate

Observations

Findings:	<ul style="list-style-type: none"> - Visible microbial growth on tackboard wall in various areas - Water damaged tackboard wall behind stove - Visible microbial growth on refrigerator seal - Stove hood is not functioning - Pests identified during assessment (ants) - Dust and debris on HVAC supply and return grills and on ceiling and ceiling at HVAC supply grills - Dust and debris on flooring and environmental surfaces - Elevated humidity level - Only one A/C unit was on at the beginning of the assessment and the second one was turned on - Wall under rear window in need of paint
Recommendations:	
Site Based Maintenance:	<ul style="list-style-type: none"> - Clean refrigerator seal with Wexcide disinfectant solution (if cannot be cleaned initiate a work order to have door replaced) - Clean HVAC supply and return grills with Wexcide disinfectant solution - Clean ceiling and ceiling at HVAC supply grills as appropriate - Clean and sanitize flooring and all environmental surfaces as appropriate - Paint wall under rear window - 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"> - Evaluate for leaks and remove and repair/replace all tackboard walls where water damaged (various & behind stove) - Repair/replace stove hood - Initiate work order for pest control service for ants - Evaluate and repair HVAC system to lower humidity level

IAQ Assessment

Collins 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="504"/>	<input type="text" value="73.3"/>	<input type="text" value="72 - 78"/>	<input type="text" value="64.7"/>	<input type="text" value="30% - 60%"/>	<input type="text" value="600"/>	<input type="text" value="Max 700 > Ambient"/>	<input type="text" value="4"/>
Noticeable Odor	<input type="text" value="Yes"/>		Visible water damage / staining?		Visible microbial growth?		Amount of material affected
Ceiling Type	<input type="text" value="Tectum"/>		<input type="text" value="No"/>		<input type="text" value="No"/>		<input type="text" value="None"/>
Wall Type	<input type="text" value="Tackboard"/>		<input type="text" value="Yes"/>		<input type="text" value="Yes"/>		<input type="text" value="2' x 3' Sections"/>
Flooring	<input type="text" value="Tile"/>		<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="No"/>	<input type="text" value="Yes"/>	<input type="text" value="Yes"/>	<input type="text" value="Replace tackboard as appropriate"/>
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="No"/>	<input type="text" value="Yes"/>	<input type="text" value="Yes"/>	<input type="text" value="Clean with Wexcide disinfectant"/>
Ceiling at Supply Grills	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text" value="N/A"/>
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:

- Visible microbial growth on tackboard wall in various areas
- Water damaged tackboard wall behind stove
- Visible microbial growth on refrigerator seal
- Exhaust vent at ceiling for the stove is not functioning properly
- A/C unit set at 55% and there is continuous moisture on coils which could contribute to elevated humidity
- Cabinets were locked
- Dust and debris on HVAC supply and return grills
- Dust and debris on ceiling at HVAC supply grills
- Dust and debris on environmental surfaces
- Elevated humidity level

Recommendations:

Site Based Maintenance:

- Clean refrigerator seal with Wexcide disinfectant solution
- Set A/C unit to proper temperature
- Advise occupant to keep cabinets unlocked so that they can be cleaned
- Clean HVAC supply and return grills with Wexcide disinfectant solution
- Clean ceiling at HVAC supply grills
- Clean all environmental surfaces and encourage occupant to remove clutter
- 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 for leaks and remove and repair/replace all tackboard walls where water damaged - various areas and behind stove
- Evaluate and repair/replace exhaust vent at ceiling for stove
- Evaluate and repair HVAC system to lower humidity level

IAQ Assessment

Collins Elementary School

Evaluation Requested July 14, 2005

Time of Day 11:40 am

Evaluation Date July 19, 2005

Outdoor Conditions Temperature 96.2 Relative Humidity 56 Ambient CO2 509

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
505	76.1	72 - 78	68.9	30% - 60%	537	Max 700 > Ambient	2
Noticeable Odor	No		Visible water damage / staining?	Visible microbial growth?	Amount of material affected		
Ceiling Type	Tectum		No	No	None		
Wall Type	Tackboard		No	No	None		
Flooring	Tile		No	No	None		

	Clean	Minor Dust / Debris	Needs Cleaning	Corrective Action Required
Ceiling	No	Yes	Yes	Clean as appropriate and remove tape pieces
Walls	Yes	No	No	
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				N/A
Surfaces in Room	No	Yes	Yes	Clean as appropriate

Observations

Findings:

- Both A/C units were off at the beginning of the assessment - turned both units on
- Clutter on rear counter and live and dead insects identified at time of assessment
- Crayon and tacks inside HVAC grill
- Dust and debris on HVAC supply and return grills and on ceiling and ceiling at HVAC supply grills
- Dust and debris on environmental surfaces
- Exhaust fan in restroom is not functioning (505A)
- Food in room not in air tight containers

Recommendations:

Site Based Maintenance:

- Leave A/C units on
- Remove items from rear counter and clean up insect carcasses
- Remove crayons and tacks from inside HVAC grill
- Clean HVAC supply and return grills with Wexcide disinfectant solution
- Clean ceiling and ceiling at HVAC supply grills as appropriate
- Clean all environmental surfaces as appropriate
- Advise occupant to keep food in air tight storage containers
- 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 exhaust fan in restroom (505A)
- Initiate work order for pest control service

IAQ Assessment

Collins Elementary School

Evaluation Requested July 14, 2005

Time of Day 12:20 pm

Evaluation Date July 19, 2005

Outdoor Conditions Temperature 96.2 Relative Humidity 56 Ambient CO2 509

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
603	72.1	72 - 78	67.1	30% - 60%	541	Max 700 > Ambient	0
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	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> No	
Walls	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	Clean as appropriate
Flooring	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> No	
HVAC Supply Grills	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	Clean with Wexcide disinfectant
HVAC Return Grills	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	Clean with Wexcide disinfectant
Ceiling at Supply Grills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	N/A
Surfaces in Room	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	Clean as appropriate

Observations

Findings:

- Per custodian, room has recently been repaired - no signs of microbial growth and no odor
- Dust and debris on HVAC supply and return grills
- Dust and debris on walls and environmental surfaces
- Elevated humidity level
- Boiler plate needs to be replaced and cover cleaned

Recommendations:

Site Based Maintenance:

- Clean HVAC supply and return grills with Wexcide disinfectant solution
- Clean ceiling at HVAC supply grills as appropriate
- Clean all walls and 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 system to lower humidity level
- Replace boiler plate and clean cover

IAQ Assessment

Collins Elementary School

Evaluation Requested July 14, 2005

Time of Day 12:05 pm

Evaluation Date July 19, 2005

Outdoor Conditions Temperature 96.2 Relative Humidity 56 Ambient CO2 509

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
604	74.4	72 - 78	55.8	30% - 60%	845	Max 700 > Ambient	6
Noticeable Odor	Yes		Visible water damage / staining?	Visible microbial growth?	Amount of material affected		
Ceiling Type	Tectum		No	No	None		
Wall Type	Tackboard		Yes	Yes	Various		
Flooring	Tile		No	No	None		

	Clean	Minor Dust / Debris	Needs Cleaning	Corrective Action Required
Ceiling	No	Yes	Yes	Evaluate for leak and repair 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				N/A
Surfaces in Room	No	Yes	Yes	Clean as appropriate

Observations

Findings:

- Water damage and visible microbial growth on tackboard wall around door
- Brown stain on ceiling by door
- Visible microbial growth on boiler plates
- Visible microbial growth on refrigerator seal
- Dust and debris on HVAC supply and return grills
- Dust and debris on floor
- Dust and debris on walls and environmental surfaces
- One of the two AHU's is not functioning
- Wall under window sill deteriorating

Recommendations:

Site Based Maintenance:

- Clean refrigerator seal with Wexcide disinfectant solution
- Clean HVAC supply and return grills with Wexcide disinfectant solution
- Clean and sanitize floor as appropriate
- Clean ceiling at HVAC supply grills as appropriate
- Clean all walls and 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 for leak and repair/replace tackboard wall around door as appropriate
- Evaluate for leak and repair/replace ceiling by door as appropriate
- Replace boiler plate and clean cover
- Evaluate AHU and repair as appropriate
- Evaluate for leak and repair/replace tackboard wall under window sill

IAQ Assessment

Collins Elementary School

Evaluation Requested July 14, 2005

Time of Day 12:37 pm

Evaluation Date July 19, 2005

Outdoor Conditions Temperature 96.2 Relative Humidity 56 Ambient CO2 509

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
605	72	72 - 78	63	30% - 60%	1430	Max 700 > Ambient	0
Noticeable Odor	Yes		Visible water damage / staining?	Visible microbial growth?	Amount of material affected		
Ceiling Type	Tectum		No	No	None		
Wall Type	Tackboard		Yes	Yes	3' x 3' section		
Flooring	Tile		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	No	Yes	Yes	Clean with Wexcide disinfectant
Ceiling at Supply Grills				N/A
Surfaces in Room	No	Yes	Yes	Clean as appropriate

Observations

Findings:

- Water damage and visible microbial growth on tackboard wall behind cabinet to the right of door
- Clutter in room behind teachers desk
- Dust and debris on HVAC supply and return grills
- Dust and debris on walls and environmental surfaces
- One of the two AHU's is not functioning - high pitched whining noise
- CO2 and humidity level are slightly elevated

Recommendations:

Site Based Maintenance:

- Advise occupant to remove unnecessary items from room
- Clean HVAC supply and return grills with Wexcide disinfectant solution
- Clean ceiling at HVAC supply grills as appropriate
- Clean all walls and 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 for leak and repair/replace tackboard wall behind cabinets to the right of door as appropriate
- Evaluate AHU and repair as appropriate
- Evaluate HVAC and repair as appropriate to lower CO2 and humidity level

IAQ Assessment

Collins 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="606"/>	<input type="text"/>	<input type="text" value="72 - 78"/>	<input type="text"/>	<input type="text" value="30% - 60%"/>	<input type="text"/>	<input type="text" value="Max 700 > Ambient"/>	<input type="text"/>
Noticeable Odor	<input type="text" value="No"/>		Visible water damage / staining?	Visible microbial growth?	Amount of material affected		
Ceiling Type	<input type="text" value="Tectum"/>		<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text" value="None"/>		
Wall Type	<input type="text" value="Tackboard"/>		<input type="text" value="Yes"/>	<input type="text" value="Yes"/>	<input type="text" value="Various"/>		
Flooring	<input type="text" value="Tile"/>		<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="No"/>	<input type="text" value="Yes"/>	<input type="text" value="Yes"/>	<input type="text" value="Evaluate for leak and repair as appropriate"/>
Walls	<input type="text" value="No"/>	<input type="text" value="Yes"/>	<input type="text" value="Yes"/>	<input type="text" value="Clean as appropriate"/>
Flooring	<input type="text" value="No"/>	<input type="text" value="Yes"/>	<input type="text" value="Yes"/>	<input type="text" value="Clean and sanitize"/>
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="No"/>	<input type="text" value="Yes"/>	<input type="text" value="Yes"/>	<input type="text" value="Clean with Wexcide disinfectant"/>
Ceiling at Supply Grills	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text" value="N/A"/>
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: (Previously evaluated on 3/21/05)

- Dust and debris on HVAC supply and return grills
- Dust and debris on floor
- Dust and debris on walls and environmental surfaces
- Advised visible microbial growth on walls

Recommendations:

Site Based Maintenance:

- Verify all items on assessment from March 2005 have been addressed
- Clean HVAC supply and return grills with Wexcide disinfectant solution
- Clean and sanitize floor as appropriate
- Clean ceiling at HVAC supply grills as appropriate
- Clean all walls and 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:

- Verify all items on assessment from March 2005 have been addressed
- Evaluate for leaks and repair/replace tackboard wall as appropriate