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May 30, 2007

Signature on File

TO: Dr. Janet McMillon, Principal
Markham Elementary School

FROM: Robert Krickovich, Coordinator, LEA
Facilities and Construction Management

SUBJECT: Indoor Air Quality (IAQ) Assessment
FISH 131, 132, 133 and 134

For Custodial Supervisor Use Only	
<input type="checkbox"/>	Custodial Issues Addressed
<input type="checkbox"/>	Custodial Issues Not Addressed

On March 29, 2007 I conducted an assessment of FISH 131, 132, 133 and 134 at **Markham Elementary School**. This evaluation included observations of the flooring system, ceiling tiles, false ceiling plenum, environmental surfaces, interior and exterior walls, and the accessible ventilation equipment. Additionally, environmental parameter measurements were taken to include temperature, relative humidity, and carbon dioxide. The detailed findings, along with the recommended corrective action can be found on the attached IAQ Assessment Worksheets.

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. Within two weeks a representative from the Custodial/Grounds Department will conduct a follow-up visit to ensure that all 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 me at 754-321-1638.

cc: Dr. Joanne Harrison, Area Superintendent
Jackie Haywood, Area Director
Jeffrey S. Moquin, Director, Risk Management
Dennis DiLeonardo, Project Manager, Facilities and Construction Management
Jamie Daniels, Broward Teachers Union
Roy Jarrett, National Federation of Public and Private Employees
Mark Dorsett, Manager 1, Physical Plant Operations Division, Zone 1
Roy Norton, Manager Custodial/Grounds, Physical Plant Operations Division

RK/tc
Enc.

IAQ Assessment

Markham Elementary School

Location Number 1671

Evaluation Requested

Time of Day 1:30 pm

Evaluation Date March 29, 2007

Outdoor Conditions Temperature 78.5 Relative Humidity 56.1 Ambient CO2 526

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
131	72.3	72 - 78	54.9	30% - 60%	1170	Max 700 > Ambient	1
Noticeable Odor		Visible water damage / staining?		Visible microbial growth?		Amount of material affected	
No		Yes		No		3 Ceiling Tiles	
Ceiling Type	2 x 4 Lay In		Yes	No		3 Ceiling Tiles	
Wall Type	Plaster		No	No		None	
Flooring	12 x 12 Vinyl		No	No		None	

	Clean	Minor Dust / Debris	Needs Cleaning	Corrective Action Required
Ceiling	No	Yes	Yes	Replace stained ceiling tiles
Walls	Yes	No	No	
Flooring	No	Yes	Yes	Clean and sanitize
HVAC Supply Grills	Yes	No	No	
HVAC Return Grills	Yes	No	No	
Ceiling at Supply Grills	No	Yes	Yes	Clean as appropriate
Surfaces in Room	No	Yes	Yes	Clean as appropriate

Observations

Findings:

- Dust and debris on floor in corners or room
- Dust build up on ceiling tiles at HVAC supply grills
- Minor dust build up on elevated surfaces
- 2 stained ceiling tiles at light fixture in front of clock and 1 stained ceiling tile above clock

-Recommendations:

Site Based Maintenance:

- Thoroughly clean and sanitize floor and concentrate on corners
- Clean ceiling at HVAC supply grills
- Clean elevated surfaces as appropriate
- Remove and replace stained ceiling tiles. If stain returns, contact Physical Plant Operations to initiate a work order to repair cause of leak
- Continue to monitor this location for any signs of microbial growth as well as dust and debris accumulation and clean as appropriate

IAQ Assessment

Location Number

Markham 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="132"/>	<input type="text" value="73.7"/>	<input type="text" value="72 - 78"/>	<input type="text" value="45.8"/>	<input type="text" value="30% - 60%"/>	<input type="text" value="1204"/>	<input type="text" value="Max 700 > Ambient"/>	<input type="text" value="2"/>
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="Plaster"/>		<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="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="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 as appropriate"/>
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 floor in corners or room
- Dust build up on ceiling tiles at HVAC supply grills
- Minor dust build up on elevated surfaces

-Recommendations:

Site Based Maintenance:

- Thoroughly clean and sanitize floor and concentrate on corners
- Clean ceiling at HVAC supply grills
- Clean elevated 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

IAQ Assessment

Markham Elementary School

Location Number 1671

Evaluation Requested

Time of Day 2:00 pm

Evaluation Date March 29, 2007

Outdoor Conditions Temperature 78.5 Relative Humidity 56.1 Ambient CO2 526

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
133	73.4	72 - 78	52	30% - 60%	1220	Max 700 > Ambient	2
Noticeable Odor		Visible water damage / staining?		Visible microbial growth?		Amount of material affected	
No		Yes		Yes		3 Ceiling Tiles	
Ceiling Type	2 x 4 Lay In		Yes	Yes	3 Ceiling Tiles		
Wall Type	Plaster		No	No	None		
Flooring	12 x 12 Vinyl		No	No	None		

	Clean	Minor Dust / Debris	Needs Cleaning	Corrective Action Required
Ceiling	No	Yes	Yes	Replace stained ceiling tiles
Walls	Yes	No	No	
Flooring	No	Yes	Yes	Clean and sanitize
HVAC Supply Grills	Yes	No	No	
HVAC Return Grills	Yes	No	No	
Ceiling at Supply Grills	No	Yes	Yes	Clean as appropriate
Surfaces in Room	No	Yes	Yes	Clean as appropriate

Observations

Findings:

- Dust and debris on floor in corners or room
- Dust build up on ceiling tiles at HVAC supply grills
- Minor dust build up on elevated surfaces
- 1 stained ceiling tile above clock and 1 stained ceiling tile in center of room three feet off of clock wall
- 1 ceiling tile with visible microbial growth - corner of room left of the sink

-Recommendations:

Site Based Maintenance:

- Thoroughly clean and sanitize floor and concentrate on corners
- Clean ceiling at HVAC supply grills
- Clean elevated surfaces as appropriate
- Remove and replace stained ceiling tiles (2) - above clock and in center of room. If stain returns, contact Physical Plant Operations to initiate a work order to repair cause of leak
- 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:

- Evaluate cause of ceiling tile with visible microbial growth - corner of room left of the sink - and repair as appropriate and replace ceiling tile.

IAQ Assessment

Location Number 1671

Markham Elementary School

Evaluation Requested

Time of Day 2:30 pm

Evaluation Date March 29, 2007

Outdoor Conditions Temperature 78.5 Relative Humidity 56.1 Ambient CO2 526

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
134	73	72 - 78	49.6	30% - 60%	1225	Max 700 > Ambient	3
Noticeable Odor		Visible water damage / staining?		Visible microbial growth?		Amount of material affected	
No		Yes		Yes		4 Ceiling Tiles	
Ceiling Type	2 x 4 Lay In		Yes	Yes	4 Ceiling Tiles		
Wall Type	Plaster		No	No	None		
Flooring	12 x 12 Vinyl		No	No	None		

	Clean	Minor Dust / Debris	Needs Cleaning	Corrective Action Required
Ceiling	No	Yes	Yes	Replace stained ceiling tiles
Walls	Yes	No	No	
Flooring	No	Yes	Yes	Clean and sanitize
HVAC Supply Grills	Yes	No	No	
HVAC Return Grills	Yes	No	No	
Ceiling at Supply Grills	No	Yes	Yes	Clean as appropriate
Surfaces in Room	No	Yes	Yes	Clean as appropriate

Observations

Findings:

- Teacher advised that there were 17 occupants in the room 25 minutes prior to the assessment
- Dust and debris on floor in corners or room
- Dust build up on ceiling tiles at HVAC supply grills
- Minor dust build up on elevated surfaces
- 4 stained ceiling tiles in various locations throughout the room

-Recommendations:

Site Based Maintenance:

- Thoroughly clean and sanitize floor and concentrate on corners
- Clean ceiling at HVAC supply grills
- Clean elevated surfaces as appropriate
- Remove and replace stained ceiling tiles (2) - above clock and in center of room. If stain returns, contact Physical Plant Operations to initiate a work order to repair cause of leak
- 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:

- Evaluate cause of ceiling tile with visible microbial growth - corner of room left of the sink - and repair as appropriate and replace ceiling tile.