

RISK MANAGEMENT...

managing risk with responsibility

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Risk Management Department

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October 2, 2009

Signature on File

TO: Dr. Theodore Toomer, Principal
Markham Elementary School

FROM: Edward See, Project Manager
Risk Management Department

SUBJECT: Indoor Air Quality (IAQ) Assessment
**FISH 123, 301, 302, 303, 304, 401, 402,
403, 404, 501, 502, 503 and 504**

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

On September 25, 2009, I conducted an assessment of FISH 123, 301, 302, 303, 304, 401, 402, 403, 404, 501, 502, 503 and 504 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. 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 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 754-321-1900.

cc: Sharon Airaghi, Area Superintendent
Jackie Haywood, Area Director
Jeffrey S. Moquin, Executive Director, Support Operations
Aston Henry, Supervisor, Risk Management
Gerry Devio, Project Manager, Facilities and Construction Management
Lynn Cavall, Broward Teachers Union
Roy Jarrett, Federation of Public Employees
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

ES/tc
Enc.

IAQ Assessment

Location Number 1671

Markham Elementary School

Evaluation Requested September 18, 2009

Time of Day 9:45 am

Evaluation Date September 25, 2009

Outdoor Conditions Temperature 89.7 Relative Humidity 59.1 Ambient CO2 391

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
123	72.1	72 - 78	56.7	30% - 60%	649	Max 700 > Ambient	3
Noticeable Odor		Visible water damage / staining?		Visible microbial growth?		Amount of material affected	
No		Yes		No		1 ceiling tile 123B	
Ceiling Type	2 x 4 Lay In		Yes	No		None	
Wall Type	Drywall/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	Remove and replace ceiling tile
Walls	Yes	No	No	
Flooring	Yes	No	No	
HVAC Supply Grills	Yes	No	No	
HVAC Return Grills	Yes	No	No	
Ceiling at Supply Grills	Yes	No	No	
Surfaces in Room	Yes	No	No	

Observations

Findings:

- 1 stained ceiling tile in FISH 123B

Recommendations:

Site Based Maintenance:

- Remove and replace stained ceiling tile in FISH 123B. If stain returns contact COMPASS to generate a work order to evaluate for cause.

- Continue to monitor this location for any signs of microbial growth as well as dust and debris accumulation and clean as appropriate

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Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
301	70.3	72 - 78	52	30% - 60%	1328	Max 700 > Ambient	21
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	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	Yes	No	No	
Surfaces in Room	Yes	No	No	

Observations

Findings:

- Temperature was low at the time of the assessment
- CO2 was slightly elevated at the time of the assessment
- Dust build up on AHU unit duct work in FISH 301B

Recommendations:

Site Based Maintenance:

- Adjust thermostat to increase temperature. If temperature cannot be adjusted locally contact EMS
- Continue to monitor this location for any signs of microbial growth as well as dust and debris accumulation and clean as appropriate

Physical Plant Operation:

- Evaluate HVAC system for proper operation and repair as appropriate to lower CO2 level
- Evaluate duct work and AHU in FISH 301B and clean as appropriate

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Outdoor Conditions Temperature 89.7 Relative Humidity 59.1 Ambient CO2 391

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
302	68.5	72 - 78	55.2	30% - 60%	582	Max 700 > Ambient	2
Noticeable Odor		Visible water damage / staining?		Visible microbial growth?		Amount of material affected	
Yes		No		No		None	
Ceiling Type	2 x 4 Lay In		No	No	None		
Wall Type	Drywall/Plaster		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	Yes	No	No	
Surfaces in Room	Yes	No	No	

Observations

Findings:

- Temperature was low at the time of the assessment
- Minor odor in room from malfunctioning A/C motor. Room unoccupied.

Recommendations:

Site Based Maintenance:

- Adjust thermostat to increase temperature. If temperature cannot be adjusted locally contact EMS
- Continue to monitor this location for any signs of microbial growth as well as dust and debris accumulation and clean as appropriate

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Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
303	73.1	72 - 78	54.4	30% - 60%	896	Max 700 > Ambient	20
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	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	Yes	No	No	
Surfaces in Room	Yes	No	No	

Observations

Findings:

- 2 ceiling tiles not seated properly
- Pest droppings along South wall and floor

Recommendations:

Site Based Maintenance:

- Install ceiling tiles properly
- Contact COMPASS to generate a work order for Pest Control
- Continue to monitor this location for any signs of microbial growth as well as dust and debris accumulation and clean as appropriate

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Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
304	72.9	72 - 78	63.7	30% - 60%	719	Max 700 > Ambient	4
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	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	Yes	No	No	
Surfaces in Room	Yes	No	No	

Observations

Findings:

- Humidity level was slightly elevated at the time of the assessment
- 1 ceiling tile not seated properly

Recommendations:

Site Based Maintenance:

- Install ceiling tile properly
- Continue to monitor this location for any signs of microbial growth as well as dust and debris accumulation and clean as appropriate

Physical Plant Operation:

- Evaluate HVAC system for proper operation and repair as appropriate to lower humidity level

IAQ Assessment

Location Number 1671

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Outdoor Conditions Temperature 89.7 Relative Humidity 59.1 Ambient CO2 391

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
401	75.9	72 - 78	66.5	30% - 60%	953	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	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	Yes	No	No	
Surfaces in Room	Yes	No	No	

Observations

Findings:

- Humidity level was slightly elevated at the time of the assessment

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 Operation:

- Evaluate HVAC system for proper operation and repair as appropriate to lower humidity level

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Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
402	75.4	72 - 78	66.9	30% - 60%	925	Max 700 > Ambient	2
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	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	Yes	No	No	
Surfaces in Room	Yes	No	No	

Observations

Findings:

- Humidity level was slightly elevated at the time of the assessment
- Dust build up and excessive storage, including light bulbs, in FISH 402B

Recommendations:

Site Based Maintenance:

- Thoroughly clean FISH 402B and remove light bulbs (storage)
- Continue to monitor this location for any signs of microbial growth as well as dust and debris accumulation and clean as appropriate

Physical Plant Operation:

- Evaluate HVAC system for proper operation and repair as appropriate to lower humidity level

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Outdoor Conditions Temperature 89.7 Relative Humidity 59.1 Ambient CO2 391

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
403	75.6	72 - 78	59.2	30% - 60%	803	Max 700 > Ambient	3
Noticeable Odor		Visible water damage / staining?		Visible microbial growth?		Amount of material affected	
No		Yes		No		1 ceiling tile	
Ceiling Type	2 x 4 Lay In		Yes	No		1 ceiling tile	
Wall Type	Drywall/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	Remove and replace ceiling tile
Walls	Yes	No	No	
Flooring	Yes	No	No	
HVAC Supply Grills	Yes	No	No	
HVAC Return Grills	Yes	No	No	
Ceiling at Supply Grills	Yes	No	No	
Surfaces in Room	Yes	No	No	

Observations

Findings:

- 1 stained ceiling tile outside of FISH 403A
- 1 ceiling tile not seated properly and 1 broken ceiling tile
- Dust and debris on A/C filter in FISH 403B

Recommendations:

Site Based Maintenance:

- Remove and replace stained ceiling tile out of FISH 403A. If stain returns contact COMPASS to generate a work order to evaluate for cause.
- Install ceiling tile properly and remove and replace broken tile
- Remove and replace A/C filters in FISH 403B
- Continue to monitor this location for any signs of microbial growth as well as dust and debris accumulation and clean as appropriate

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Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
404	74.3	72 - 78	49.8	30% - 60%	830	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	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	Yes	No	No	
Surfaces in Room	Yes	No	No	

Observations

Findings:

- No issue identified at the time of the assessment

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

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Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
501	75.3	72 - 78	64.2	30% - 60%	906	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	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	Yes	No	No	
Surfaces in Room	Yes	No	No	

Observations

Findings:

- Humidity level was slightly elevated at the time of the assessment
- Dust build up on AHU unit duct work in FISH 501B
- Dirt and debris in cabinet under sink

Recommendations:

Site Based Maintenance:

- Thoroughly clean under sink cabinet
- Continue to monitor this location for any signs of microbial growth as well as dust and debris accumulation and clean as appropriate

Physical Plant Operation:

- Evaluate HVAC system for proper operation and repair as appropriate to lower humidity level
- Evaluate duct work and AHU in FISH 501B and clean as appropriate

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Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
502	75.5	72 - 78	68.3	30% - 60%	869	Max 700 > Ambient	2
Noticeable Odor		Visible water damage / staining?		Visible microbial growth?		Amount of material affected	
No		Yes		No		2 ceiling tiles	
Ceiling Type	2 x 4 Lay In		Yes	No		2 ceiling tiles	
Wall Type	Drywall/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	Remove and replace ceiling tiles
Walls	Yes	No	No	
Flooring	Yes	No	No	
HVAC Supply Grills	Yes	No	No	
HVAC Return Grills	Yes	No	No	
Ceiling at Supply Grills	Yes	No	No	
Surfaces in Room	Yes	No	No	

Observations

Findings:

- Humidity level was slightly elevated at the time of the assessment
- 2 stained ceiling tiles
- Pest carcass under sink

Recommendations:

Site Based Maintenance:

- Remove and replace stained ceiling tiles
- Contact COMPASS to generate a work order for Pest Control
- Continue to monitor this location for any signs of microbial growth as well as dust and debris accumulation and clean as appropriate

Physical Plant Operation:

- Evaluate HVAC system for proper operation and repair as appropriate to lower humidity level

IAQ Assessment

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Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
503	75.5	72 - 78	63.6	30% - 60%	895	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	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	Yes	No	No	
Surfaces in Room	Yes	No	No	

Observations

Findings:

- Humidity level was slightly elevated at the time of the assessment

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 Operation:

- Evaluate HVAC system for proper operation and repair as appropriate to lower humidity level

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Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
504	74.9	72 - 78	61.9	30% - 60%	1096	Max 700 > Ambient	3
Noticeable Odor		Visible water damage / staining?		Visible microbial growth?		Amount of material affected	
No		Yes		No		1 ceiling tile	
Ceiling Type	2 x 4 Lay In		Yes	No		1 ceiling tile	
Wall Type	Drywall/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	Remove and replace ceiling tiles
Walls	Yes	No	No	
Flooring	Yes	No	No	
HVAC Supply Grills	Yes	No	No	
HVAC Return Grills	Yes	No	No	
Ceiling at Supply Grills	Yes	No	No	
Surfaces in Room	Yes	No	No	

Observations

Findings:

- Humidity level was slightly elevated at the time of the assessment
- 1 stained ceiling tile

Recommendations:

Site Based Maintenance:

- Remove and replace stained ceiling tile
- Continue to monitor this location for any signs of microbial growth as well as dust and debris accumulation and clean as appropriate

Physical Plant Operation:

- Evaluate HVAC system for proper operation and repair as appropriate to lower humidity level