

# RISK MANAGEMENT...

managing risk with responsibility

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November 7, 2008

**Signature on File**

TO: Mr. Lincoln Pasteur, Principal  
**Collins Elementary School**

FROM: Edward See, Project Manager  
Risk Management Department

SUBJECT: Indoor Air Quality (IAQ) Assessment  
**FISH 201, 311A, 503, 506, 606 and 710**

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

On October 21, 2008 I conducted an assessment of FISH 201, 311A, 503, 506, 606 and 710 at **Collins 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 754-321-3200.

cc: Dr. Joel Herbst, Area Superintendent  
Valerie Wanza, Area Director  
Jeffrey S. Moquin, Director, Risk Management  
Bob Sharps, Project Manager, Facilities and Construction Management  
Jamie Daniels, 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

Collins Elementary School

Location Number 0331  
 Evaluation Requested October 7, 2008  
 Evaluation Date October 21, 2008

Time of Day

Outdoor Conditions      Temperature 83.5      Relative Humidity 61.7      Ambient CO2 405

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
201	71	72 - 78	51.7	30% - 60%	846	Max 700 > Ambient	10
Noticeable Odor		Visible water damage / staining?		Visible microbial growth?		Amount of material affected	
Ceiling Type		Yes		No		2 ceiling tiles	
Wall Type		No		No		None	
Flooring		No		No		None	

	Clean	Minor Dust / Debris	Needs Cleaning	Corrective Action Required
Ceiling	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	Remove and replace ceiling tiles
Walls	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> No	
Flooring	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> No	
HVAC Supply Grills	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> No	
HVAC Return Grills	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> No	
Ceiling at Supply Grills	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> No	
Surfaces in Room	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> No	

**Observations**

**Findings:**  
 - 2 stained ceiling tiles  
 - Building is under warranty (summer of 2008)

**Recommendations:**

**Site Based Maintenance:**  
 - Remove and replace stained ceiling tiles  
 - Continue to monitor this location for any signs of microbial growth as well as dust and debris accumulation and clean as appropriate

**Facilities and Construction Management:**  
 - Building is under warranty. Project manager to contact contractor to evaluate cause of stained ceiling tiles and repair.

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Outdoor Conditions      Temperature 83.5      Relative Humidity 61.7      Ambient CO2 405

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
<span style="border: 1px solid black; padding: 2px;">311A</span>	<span style="border: 1px solid black; padding: 2px;">74.5</span>	<span style="border: 1px solid black; padding: 2px;">72 - 78</span>	<span style="border: 1px solid black; padding: 2px;">60.6</span>	<span style="border: 1px solid black; padding: 2px;">30% - 60%</span>	<span style="border: 1px solid black; padding: 2px;">552</span>	<span style="border: 1px solid black; padding: 2px;">Max 700 &gt; Ambient</span>	<span style="border: 1px solid black; padding: 2px;">2</span>
Noticeable Odor		Visible water damage / staining?		Visible microbial growth?		Amount of material affected	
<span style="border: 1px solid black; padding: 2px;">No</span>		<span style="border: 1px solid black; padding: 2px;">Yes</span>		<span style="border: 1px solid black; padding: 2px;">Yes</span>		<span style="border: 1px solid black; padding: 2px;">Areas adjacent to supply</span>	
Ceiling Type		<span style="border: 1px solid black; padding: 2px;">Yes</span>		<span style="border: 1px solid black; padding: 2px;">Yes</span>		<span style="border: 1px solid black; padding: 2px;">Areas adjacent to supply</span>	
Wall Type		<span style="border: 1px solid black; padding: 2px;">No</span>		<span style="border: 1px solid black; padding: 2px;">No</span>		<span style="border: 1px solid black; padding: 2px;">None</span>	
Flooring		<span style="border: 1px solid black; padding: 2px;">No</span>		<span style="border: 1px solid black; padding: 2px;">No</span>		<span style="border: 1px solid black; padding: 2px;">None</span>	

	Clean	Minor Dust / Debris	Needs Cleaning	Corrective Action Required
Ceiling	<span style="border: 1px solid black; padding: 2px;">Yes</span>	<span style="border: 1px solid black; padding: 2px;">No</span>	<span style="border: 1px solid black; padding: 2px;">No</span>	<span style="border: 1px solid black; display: inline-block; width: 100%; height: 15px;"></span>
Walls	<span style="border: 1px solid black; padding: 2px;">Yes</span>	<span style="border: 1px solid black; padding: 2px;">No</span>	<span style="border: 1px solid black; padding: 2px;">No</span>	<span style="border: 1px solid black; display: inline-block; width: 100%; height: 15px;"></span>
Flooring	<span style="border: 1px solid black; padding: 2px;">Yes</span>	<span style="border: 1px solid black; padding: 2px;">No</span>	<span style="border: 1px solid black; padding: 2px;">No</span>	<span style="border: 1px solid black; display: inline-block; width: 100%; height: 15px;"></span>
HVAC Supply Grills	<span style="border: 1px solid black; padding: 2px;">Yes</span>	<span style="border: 1px solid black; padding: 2px;">No</span>	<span style="border: 1px solid black; padding: 2px;">No</span>	<span style="border: 1px solid black; display: inline-block; width: 100%; height: 15px;"></span>
HVAC Return Grills	<span style="border: 1px solid black; padding: 2px;">Yes</span>	<span style="border: 1px solid black; padding: 2px;">No</span>	<span style="border: 1px solid black; padding: 2px;">No</span>	<span style="border: 1px solid black; display: inline-block; width: 100%; height: 15px;"></span>
Ceiling at Supply Grills	<span style="border: 1px solid black; padding: 2px;">No</span>	<span style="border: 1px solid black; padding: 2px;">Yes</span>	<span style="border: 1px solid black; padding: 2px;">Yes</span>	<span style="border: 1px solid black; padding: 2px; text-align: center;">Repair/replace ceiling material</span>
Surfaces in Room	<span style="border: 1px solid black; padding: 2px;">No</span>	<span style="border: 1px solid black; padding: 2px;">Yes</span>	<span style="border: 1px solid black; padding: 2px;">Yes</span>	<span style="border: 1px solid black; padding: 2px; text-align: center;">Clean with Wexcide disinfectant</span>

## Observations

**Findings:**

- Storage area off of stage. Surplus furniture being stored in room.
- Minor microbial growth on items in the room (clipboards, projector, etc.)
- Staining and visible microbial growth on ceiling at HVAC supply grills
- Humidity level was slightly elevated at the time of the assessment

**Recommendations:**

**Site Based Maintenance:**

- Wipe down nonporous items with Wexcide disinfectant solution. Discard porous items that cannot be cleaned.
- 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 stained ceiling material at HVAC supply grills and repair as appropriate. Repair/replace ceiling material as necessary.
- Evaluate HVAC for proper operation and repair as appropriate to lower humidity level

# IAQ Assessment

Collins Elementary School

Location Number 0331  
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 Evaluation Date October 21, 2008

Time of Day

Outdoor Conditions      Temperature 83.5      Relative Humidity 61.7      Ambient CO2 405

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
503	73.8	72 - 78	68.3	30% - 60%	1354	Max 700 > Ambient	18
Noticeable Odor		Visible water damage / staining?		Visible microbial growth?		Amount of material affected	
Ceiling Type		Yes		No		Various	
Wall Type		Yes		No		Various	
Flooring		No		No		None	

	Clean	Minor Dust / Debris	Needs Cleaning	Corrective Action Required
Ceiling	No	Yes	Yes	Repair/replace as appropriate
Walls	No	Yes	Yes	Repair/replace as appropriate
Flooring	Yes	No	No	
HVAC Supply Grills	Yes	No	No	
HVAC Return Grills	Yes	No	No	
Ceiling at Supply Grills				N/A
Surfaces in Room	Yes	No	No	

**Observations**

**Findings:**

- Odor in room from Wexcide
- A/C - 2 individual floor vents and outside intakes are low to the ground (less than 1 foot)
- A/C drain pipes are inverted
- Humidity and CO2 were slightly elevated at the time of the assessment
- Visible staining on ceiling material
- Wall material under windows and in Southwest corner is effervescing

**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:**

- Evaluate cause of stained ceiling and repair as appropriate. Repair/replace ceiling material as necessary.
- Evaluate cause of wall material effervescing under windows and in Southwest corner and repair as appropriate. Repair/replace wall material as necessary.
- Evaluate HVAC for proper operation and repair as appropriate to lower humidity and CO2 level
- Evaluate A/C drain pipes and position of outside A/C intake

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Time of Day

Outdoor Conditions      Temperature 83.5      Relative Humidity 61.7      Ambient CO2 405

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
506	72.9	72 - 78	64.7	30% - 60%	907	Max 700 > Ambient	12
Noticeable Odor		Visible water damage / staining?		Visible microbial growth?		Amount of material affected	
Ceiling Type		Yes		No		Various	
Wall Type		No		No		None	
Flooring		No		No		None	

	Clean	Minor Dust / Debris	Needs Cleaning	Corrective Action Required
Ceiling	No	Yes	Yes	Repair/replace as appropriate
Walls	Yes	No	No	
Flooring	Yes	No	No	
HVAC Supply Grills	Yes	No	No	
HVAC Return Grills	Yes	No	No	
Ceiling at Supply Grills				N/A
Surfaces in Room	Yes	No	No	

## Observations

**Findings:**

- Musty odor in room
- Outside A/C intakes are 2 feet above the ground
- Humidity level was slightly elevated at the time of the assessment
- Visible staining on ceiling material

**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:**

- Evaluate cause of stained ceiling and repair as appropriate. Repair/replace ceiling material as necessary.
- Evaluate HVAC for proper operation and repair as appropriate to lower humidity level
- Evaluate position of outside A/C intake

# IAQ Assessment

Collins Elementary School

Location Number   
 Evaluation Requested   
 Evaluation Date

Time of Day

Outdoor Conditions      Temperature       Relative Humidity       Ambient CO2

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
<input type="text" value="606"/>	<input type="text" value="73.5"/>	<input type="text" value="72 - 78"/>	<input type="text" value="64.4"/>	<input type="text" value="30% - 60%"/>	<input type="text" value="1418"/>	<input type="text" value="Max 700 &gt; Ambient"/>	<input type="text" value="22"/>
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="Yes"/>	<input type="text" value="No"/>	<input type="text" value="2 square feet"/>		
Wall Type	<input type="text" value="Tackable/Homasote"/>		<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="No"/>	<input type="text" value="Yes"/>	<input type="text" value="Yes"/>	<input type="text" value="Repair/replace as appropriate"/>
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="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="No"/>	<input type="text"/>

**Observations**

**Findings:**  
 - Humidity and CO2 level were slightly elevated at the time of the assessment  
 - Visible staining on ceiling material - @2 square feet above dry erase board

**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:**  
 - Evaluate cause of stained ceiling and repair as appropriate. Repair/replace ceiling material as necessary.  
 - Evaluate HVAC for proper operation and repair as appropriate to lower humidity and CO2 level

# IAQ Assessment

Collins Elementary School

Location Number   
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 Evaluation Date

Time of Day

Outdoor Conditions      Temperature       Relative Humidity       Ambient CO2

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
<input type="text" value="710"/>	<input type="text" value="76.1"/>	<input type="text" value="72 - 78"/>	<input type="text" value="61.9"/>	<input type="text" value="30% - 60%"/>	<input type="text" value="1507"/>	<input type="text" value="Max 700 &gt; Ambient"/>	<input type="text" value="20"/>
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="Tackable"/>		<input type="text" value="Yes"/>		<input type="text" value="No"/>		<input type="text" value="Under Northeast window"/>
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="No"/>	<input type="text" value="Yes"/>	<input type="text" value="Yes"/>	<input type="text" value="Repair/replace 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="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"/>	<input type="text"/>	<input type="text"/>	<input type="text" value="N/A"/>
Surfaces in Room	<input type="text" value="Yes"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text"/>

**Observations**

**Findings:**  
 - Humidity and CO2 were slightly elevated at the time of the assessment  
 - Wall material under Northeast window is effervescing

**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:**  
 - Evaluate cause of wall material effervescing under Northeast window and repair as appropriate. Repair/replace wall material as necessary.  
 - Evaluate HVAC for proper operation and repair as appropriate to lower humidity and CO2 level