

# RISK MANAGEMENT...

managing risk with responsibility

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July 19, 2007

**Signature on File**

TO: Ms. Nancy Seiler, Principal  
**Tamarac Elementary School**

FROM: Edward See, Project Manager  
Risk Management Department

SUBJECT: Indoor Air Quality (IAQ) Assessment  
**FISH 203, 208, 209, 210 and 211**

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

On July 16, 2007 I conducted an assessment of FISH 203, 208, 209, 210 and 211 at **Tamarac 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. Joanne Harrison, Area Superintendent  
Jackie Haywood, Area Director  
Jeffrey S. Moquin, Director, Risk Management  
Marshall Washington, Project Manager, Facilities and Construction Management  
Gary Itzkowitz, 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

Tamarac Elementary School

Location Number 2621  
 Evaluation Requested July 11, 2007  
 Evaluation Date July 16, 2007

Time of Day 10:00 am

Outdoor Conditions      Temperature 96.7      Relative Humidity 51      Ambient CO2 507

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
203	76.8	72 - 78	48.8	30% - 60%	591	Max 700 > Ambient	1
Noticeable Odor		Visible water damage / staining?		Visible microbial growth?		Amount of material affected	
Ceiling Type		Yes		No		1 ceiling tile	
Wall Type		No		No		None	
Flooring		No		No		None	

	Clean	Minor Dust / Debris	Needs Cleaning	Corrective Action Required
Ceiling	No	Yes	Yes	Remove and replace 1 ceiling tile
Walls	No	Yes	Yes	Evaluate staining
Flooring	No	Yes	Yes	Clean and sanitize
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:**

- Visible staining on 1 ceiling tile
- Dust and debris on floor
- Visible rust on ceiling grid
- Visible staining and minor microbial growth on exhaust duct work within false ceiling plenum

**-Recommendations:**

**Site Based Maintenance:**

- Clean and sanitize floor
- 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:**

- Remove and replace stained ceiling tile (require cut)
- Evaluate cause of staining on drywall and evaluate condition of drywall and paint or repair as appropriate.
- Evaluate cause of rust on ceiling grid and repair/replace grid as appropriate
- Evaluate cause of staining and growth on exhaust duct work in false ceiling plenum and clean as appropriate

**Note - Roof was recently replaced by Facilities and Construction Management.**

# IAQ Assessment

Tamarac Elementary School

Location Number 2621  
 Evaluation Requested July 11, 2007  
 Evaluation Date July 16, 2007

Time of Day 10:00 am

Outdoor Conditions      Temperature 96.7      Relative Humidity 51      Ambient CO2 507

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
208	75.8	72 - 78	49	30% - 60%	522	Max 700 > Ambient	1
Noticeable Odor	No		Visible water damage / staining?	Visible microbial growth?	Amount of material affected		
Ceiling Type	2 x 4 Lay In		Yes	No	3 ceiling tiles (208A & D)		
Wall Type	Tackable		Yes	No	@10 square feet		
Flooring	Carpet		Yes	No	Various		

	Clean	Minor Dust / Debris	Needs Cleaning	Corrective Action Required
Ceiling	No	Yes	Yes	Remove and replace 3 ceiling tiles
Walls	No	Yes	Yes	Repair/replace as appropriate
Flooring	No	Yes	Yes	Clean and sanitize
HVAC Supply Grills	Yes	No	No	
HVAC Return Grills	Yes	No	No	
Ceiling at Supply Grills	Yes	No	No	
Surfaces in Room	No	Yes	Yes	Clean as appropriate

## Observations

**Findings: FISH 208A - Restroom FISH 208D - Storage**

- Visible staining on 2 ceiling tiles in **FISH 208D** and 1 ceiling tile in **FISH 208A**
- Visible staining on carpet
- Dust build up on environmental surfaces
- Visible staining on wall in **FISH 208D** (@ 10 square feet). Wall was painted over but staining and growth is showing through.
- Visible microbial growth on duct work in false ceiling plenum in **FISH 208D**

**-Recommendations:**

**Site Based Maintenance:**

- Clean and sanitize carpet
- Thoroughly clean environmental surfaces
- 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:**

- Remove and replace 3 stained ceiling tiles (require cut) - 2 in **FISH 208D** and 1 in **FISH 208A**
- Evaluate cause of growth on duct work in false ceiling plenum of **FISH 208D** and clean as appropriate

**Note - Roof was recently replaced by Facilities and Construction Management.**

# IAQ Assessment

Tamarac 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="209"/>	<input type="text" value="76.5"/>	<input type="text" value="72 - 78"/>	<input type="text" value="50"/>	<input type="text" value="30% - 60%"/>	<input type="text" value="600"/>	<input type="text" value="Max 700 &gt; Ambient"/>	<input type="text" value="1"/>
Noticeable Odor	<input type="text" value="No"/>		Visible water damage / staining?		Visible microbial growth?		Amount of material affected
Ceiling Type	<input type="text" value="2 x 2 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="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="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="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" 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: Restroom**

- Visible microbial growth on duct work in false ceiling plenum
- Bottle of odor neutralizer
- Dust and debris on HVAC return grills

**-Recommendations:**

**Site Based Maintenance:**

- Remove non-approved chemicals (odor neutralizer) from room
- Clean HVAC return grills with Wexcide disinfectant solution
- 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 growth on duct work in false ceiling plenum and clean as appropriate

**Note - Roof was recently replaced by Facilities and Construction Management.**

# IAQ Assessment

Tamarac Elementary School

Location Number 2621  
 Evaluation Requested July 11, 2007  
 Evaluation Date July 16, 2007

Time of Day 10:00 am

Outdoor Conditions      Temperature 96.7      Relative Humidity 51      Ambient CO2 507

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
<span style="border: 1px solid black; padding: 2px;">210</span>	<span style="border: 1px solid black; padding: 2px;">78.2</span>	<span style="border: 1px solid black; padding: 2px;">72 - 78</span>	<span style="border: 1px solid black; padding: 2px;">46.2</span>	<span style="border: 1px solid black; padding: 2px;">30% - 60%</span>	<span style="border: 1px solid black; padding: 2px;">564</span>	<span style="border: 1px solid black; padding: 2px;">Max 700 &gt; Ambient</span>	<span style="border: 1px solid black; padding: 2px;">1</span>
Noticeable Odor	<span style="border: 1px solid black; padding: 2px;">Yes</span>		Visible water damage / staining?		Visible microbial growth?		Amount of material affected
Ceiling Type	<span style="border: 1px solid black; padding: 2px;">2 x 4 Lay In</span>		<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;">7 ceiling tiles</span>
Wall Type	<span style="border: 1px solid black; padding: 2px;">Tackable</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; padding: 2px;">None</span>
Flooring	<span style="border: 1px solid black; padding: 2px;">Carpet</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; padding: 2px;">None</span>

	Clean	Minor Dust / Debris	Needs Cleaning	Corrective Action Required
Ceiling	<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;">Remove and replace 7 ceiling tiles</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; padding: 2px;"></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; padding: 2px;"></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; padding: 2px;"></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; padding: 2px;"></span>
Ceiling at 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; padding: 2px;"></span>
Surfaces in Room	<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; padding: 2px;"></span>

## Observations

### Findings:

- Visible staining on 7 ceiling tiles
- Visible rust and microbial growth on ceiling grid throughout the room
- Checked FISH 214 (AHU room) and no issues were observed
- Temperature was slightly elevated

### -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:

- Remove and replace 7 stained ceiling tiles (require cut)
- Evaluate cause of visible rust and microbial growth on ceiling grid throughout the room and repair/replace as appropriate
- Evaluate HVAC for proper operation and repair as appropriate to lower temperature

**Note - Roof was recently replaced by Facilities and Construction Management.**

# IAQ Assessment

Tamarac Elementary School

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Time of Day 10:00 am

Outdoor Conditions      Temperature 96.7      Relative Humidity 51      Ambient CO2 507

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
<span style="border: 1px solid black; padding: 2px;">211</span>	<span style="border: 1px solid black; padding: 2px;"></span>	<span style="border: 1px solid black; padding: 2px;">72 - 78</span>	<span style="border: 1px solid black; padding: 2px;"></span>	<span style="border: 1px solid black; padding: 2px;">30% - 60%</span>	<span style="border: 1px solid black; padding: 2px;"></span>	<span style="border: 1px solid black; padding: 2px;">Max 700 &gt; Ambient</span>	<span style="border: 1px solid black; padding: 2px;">1</span>
Noticeable Odor	<span style="border: 1px solid black; padding: 2px;">No</span>		Visible water damage / staining?	Visible microbial growth?	Amount of material affected		
Ceiling Type	<span style="border: 1px solid black; padding: 2px;">2 x 4 Lay In</span>		<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;">8 ceiling tiles</span>		
Wall Type	<span style="border: 1px solid black; padding: 2px;">Tackable</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; padding: 2px;">None</span>		
Flooring	<span style="border: 1px solid black; padding: 2px;">Carpet</span>		<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;">Various</span>		

	Clean	Minor Dust / Debris	Needs Cleaning	Corrective Action Required
Ceiling	<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;">Remove and replace 8 ceiling tiles</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; padding: 2px;"></span>
Flooring	<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;">Clean and sanitize</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; padding: 2px;"></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; padding: 2px;"></span>
Ceiling at 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; padding: 2px;"></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;">Clean as appropriate</span>

## Observations

### Findings:

- Visible staining on 8 ceiling tiles
- Visible staining on carpet
- Dust build up on environmental surfaces

### -Recommendations:

#### Site Based Maintenance:

- Clean and sanitize carpet
- Thoroughly clean environmental surfaces
- 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:

- Remove and replace 8 stained ceiling tiles (require cut)

**Note - Roof was recently replaced by Facilities and Construction Management.**