

Jeffrey S. Moquin, Director  
Risk Management Department

Telephone: 754-321-3200  
Facsimile: 754-321-3290

July 24, 2006

**Signature on File**

TO: Mr. John Hodge, Principal  
**Deerfield Beach Elementary School**

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

SUBJECT: Indoor Air Quality (IAQ) Assessment  
**Portable R-6 and FISH 109**

On July 19, 2006 Aston Henry and I conducted an assessment of Portable R-6 and a follow up assessment of FISH 109 at **Deerfield Beach Elementary School**. The assessment consisted of a reevaluation walkthrough of the previously identified areas to assess the current condition of the location with regard to indoor air quality. This assessment included reviewing previously generated work orders as well as observations of the areas of concern as stated in the IAQ Assessments performed on August 31, 2005 by Aston Henry and on September 13, 2005 by Robert Krickovich. Attached are the findings of this assessment along with recommendations for further assessment, remediation, or corrective actions, if needed.

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.

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  
Craig Anderson, Area Director  
Jeffrey S. Moquin, Director, Risk Management  
David DeWald, Project Manager, Facilities and Construction Management  
Jamie Daniels, 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

Deerfield Beach Elementary School

Location Number 0011  
 Evaluation Requested July 18, 2006  
 Evaluation Date July 19, 2006

Time of Day 11:20 a.m.

Outdoor Conditions      Temperature 90.1      Relative Humidity 63.6      Ambient CO2 527

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
<span style="border: 1px solid black; padding: 2px;">R-6</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;"></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;">Yes</span>	<span style="border: 1px solid black; padding: 2px;">Various</span>		
Wall Type	<span style="border: 1px solid black; padding: 2px;">Plaster</span>		<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;">Various</span>		
Flooring	<span style="border: 1px solid black; padding: 2px;">Tile</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;">Replace stained tiles</span>
Walls	<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 with Wexcide disinfectant</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;">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 with Wexcide disinfectant</span>
HVAC Return 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;">Clean with Wexcide disinfectant</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;">Cleanas appropriate</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:**

- Southeast section of the unit - Temperature 69.5, Relative Humidity 68.9, CO2 531
- Southwest section of the unit - Temperature 71, Relative Humidity 69.1, CO2 522
- Visible microbial growth on walls throughout the unit
- Temperature was low and humidity level was elevated throughout the unit
- Dust/dirt impaction on ceiling tiles at HVAC supply grills
- Dust and debris on HVAC supply and return grills
- Dust and debris on HVAC coils
- Damaged insulation around A/C unit ducts
- Visible microbial growth and staining on various ceiling tiles throughout the unit
- Southwest section - damaged plaster, baseboard and tile under A/C unit

**Recommendations:**

**Site Based Maintenance:**

- Clean walls with Wexcide disinfectant solution
- Clean HVAC supply and return grills with Wexcide disinfectant solution
- Increase temperature to 72 degrees
- 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 roof for leaks in Northwest and Northeast section of unit and repair
- Replace ceiling tiles for staining and visible growth as appropriate throughout the unit
- Remove and replace ceiling tiles around HVAC supply grills
- Evaluate HVAC for proper operation and adjust to lower humidity level
- Clean HVAC coils and remove and replace damaged insulation around A/C unit ducts
- Evaluate and repair damaged plaster, baseboard and tile in Southwest section of unit

# IAQ Assessment

Location Number   
 Evaluation Requested   
 Evaluation Date

Deerfield Beach Elementary School

Time of Day

Outdoor Conditions      Temperature       Relative Humidity       Ambient CO2

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
<input type="text" value="109"/>	<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 &gt; 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" value="2 x 4 Lay In"/>		<input type="text" value="Yes"/>		<input type="text" value="Yes"/>		<input type="text" value="Various"/>
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="Wood"/>		<input type="text" value="Yes"/>		<input type="text" value="No"/>		<input type="text" value="Various"/>

	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="Remove and replace ceiling tiles"/>
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="Evaluate floor from leak"/>
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:**

- Ceiling tiles saturated with visible microbial growth in various areas of the room
- Floor to the back of the room (separated by a door) is soaked

**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 for cause of saturated ceiling tiles and repair. Replace ceiling tiles as appropriate.
- Evaluate floor for saturation and repair/replace floor material as appropriate

**Note - Work order FM12886 was reopened to address**