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October 12, 2005

**Signature on File**

TO: Ms. Debra Patterson, Principal  
**Gulfstream Middle School**

FROM: Robert J. Krickovich, Coordinator, LEA  
Facilities and Construction Management, Environmental Division

SUBJECT: Indoor Air Quality (IAQ) Assessment  
Portable R-7D and R-7E

On September 22, 2005 the IAQ Assessment Team conducted an assessment of Portable R-7D and R-7E at **Gulfstream Middle School**. The evaluation consisted of a walkthrough of the identified areas to assess the current condition of the location with regard to indoor air quality. This assessment included observations of the carpet, floor tile, ceiling tile, interior walls, false ceiling plenum, and accessible ventilation equipment.

Attached are the findings of this assessment along with recommendations for further assessment, remediation, or corrective actions, if needed.

Generally, the IAQ Assessment did not identify any existing conditions significantly impacting IAQ and thereby presenting immediate health and safety concerns 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 754-321-1638.

cc: Sam Gregg, Area Superintendent  
Steven Friedman, Area Director  
Jeffrey S. Moquin, Director, Risk Management  
Bertram Lewars, Project Manager II, Facilities and Construction Management  
Diane Watts, Broward Teachers Union  
Mark Dorsett, Manager 1, Physical Plant Operations Division, Zone 1  
Roy Norton, Manager Custodial/Grounds, Physical Plant Operations Division

RK/tc  
Enc.

# IAQ Assessment

Location Number 3931  
 Evaluation Requested September 19, 2005  
 Evaluation Date September 22, 2005

Gulfstream Middle School

Time of Day 1:30 pm

Outdoor Conditions      Temperature 90      Relative Humidity 65.3      Ambient CO2 432

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
<span style="border: 1px solid black; padding: 2px;">R-7D</span>	<span style="border: 1px solid black; padding: 2px;">78.9</span>	<span style="border: 1px solid black; padding: 2px;">72 - 78</span>	<span style="border: 1px solid black; padding: 2px;">66.2</span>	<span style="border: 1px solid black; padding: 2px;">30% - 60%</span>	<span style="border: 1px solid black; padding: 2px;">735</span>	<span style="border: 1px solid black; padding: 2px;">Max 700 &gt; Ambient</span>	<span style="border: 1px solid black; padding: 2px;">18</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;">No</span>		<span style="border: 1px solid black; padding: 2px;">No</span>		<span style="border: 1px solid black; padding: 2px;">None</span>	
Ceiling Type	<span style="border: 1px solid black; padding: 2px;">2 x 4 Lay In</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>		
Wall Type	<span style="border: 1px solid black; padding: 2px;">Homasote</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;">Around East HVAC return grill</span>		
Flooring	<span style="border: 1px solid black; padding: 2px;">12 x 12 Vinyl</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;">Floor buckling/soft</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; padding: 2px;"></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;">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;"></span>	<span style="border: 1px solid black; padding: 2px;"></span>	<span style="border: 1px solid black; padding: 2px;"></span>	<span style="border: 1px solid black; padding: 2px;">Wall mounted units</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:**

- East HVAC unit was not working at the time of the assessment
- Visible microbial growth around HVAC return grill (East)
- Moisture in walls - 40% West wall between doors, 29% South wall left of window, 24% North wall right side of door
- 22% moisture content in floor - floor is buckling and soft
- Restroom exhaust fan not working

**Recommendations:**

**Site Based Maintenance:**

- Clean HVAC return grill and wall around grill 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 Division:**

- Evaluate roofing of all 6 units of R-7 for leaks and repair/replace as necessary
- Evaluate exterior siding of R-7 for water intrusion and repair/replace as necessary
- Evaluate all interior walls for water damage and repair/replace as necessary
- Evaluate all wood flooring for water damage (buckling and soft) and repair/replace as necessary
- Evaluate HVAC for proper operation and repair/replace as necessary
- Evaluate and repair/replace exhaust fan in restroom

Note: May be more appropriate to recommend unit for demolition

# IAQ Assessment

Location Number   
 Evaluation Requested   
 Evaluation Date

Gulfstream Middle School

Time of Day

Outdoor Conditions      Temperature       Relative Humidity       Ambient CO2

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
<input type="text" value="R-7E"/>	<input type="text" value="72.3"/>	<input type="text" value="72 - 78"/>	<input type="text" value="51.7"/>	<input type="text" value="30% - 60%"/>	<input type="text" value="1391"/>	<input type="text" value="Max 700 &gt; Ambient"/>	<input type="text" value="30"/>
Noticeable Odor		Visible water damage / staining?		Visible microbial growth?		Amount of material affected	
<input type="text" value="No"/>		<input type="text" value="Yes"/>		<input type="text" value="No"/>		<input type="text" value="6 ceiling tiles"/>	
Ceiling Type	<input type="text" value="2 x 4 Lay In"/>	<input type="text" value="Yes"/>		<input type="text" value="No"/>		<input type="text" value="Various"/>	
Wall Type	<input type="text" value="Homasote"/>	<input type="text" value="Yes"/>		<input type="text" value="No"/>		<input type="text" value="Floor buckling/soft"/>	
Flooring	<input type="text" value="12 x 12 Vinyl"/>	<input type="text" value="Yes"/>		<input type="text" value="No"/>			

	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"/>	<input type="text"/>	<input type="text"/>	<input type="text" value="Wall mounted units"/>
Surfaces in Room	<input type="text" value="Yes"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text"/>

**Observations**

**Findings:**

- CO2 level slightly elevated
- 6 wet ceiling tiles
- Dust and debris on HVAC return grill
- Moisture in walls - 90% East wall just north of restroom, 25% East wall left side of whiteboard, 60% North wall left side of door
- 22% moisture content in floor - floor is buckling and soft

**Recommendations:**

**Site Based Maintenance:**

- Clean HVAC return grill 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 Division:**

- Evaluate roofing of all 6 units of R-7 for leaks and repair/replace as necessary and replace wet ceiling tiles
- Evaluate exterior siding of R-7 for water intrusion and repair/replace as necessary
- Evaluate all interior walls for water damage and repair/replace as necessary
- Evaluate all wood flooring for water damage (buckling and soft) and repair/replace as necessary
- Evaluate and repair HVAC system to lower CO2 level

Note: May be more appropriate to recommend unit for demolition