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June 22, 2005

TO: Ms. Lee Dollar, Principal
Village Elementary School

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

SUBJECT: Indoor Air Quality (IAQ) Assessment
Portable 67C, 1347 and 1348 and FISH 402 and 501

On June 10, 2005 the IAQ Assessment Team conducted an assessment of Portable 67C, 1347 and 1348 and FISH 402 and 501 at **Village Elementary 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: Dr. Harry LaCava, Area Superintendent
Willie Dudley, Area Director
Jeffrey S. Moquin, Director, Risk Management
Charles Ricks, Project Manager II, Facilities and Construction Management
Gary Itzkowitz, 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

Village Elementary School

Evaluation Requested June 9, 2005

Time of Day 2:30 pm

Evaluation Date June 10, 2005

Outdoor Conditions Temperature 83.4 Relative Humidity 90.6 Ambient CO2 442

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
P-67C	72.3	72 - 78	74.3	30% - 60%	424	Max 700 > Ambient	2
Noticeable Odor		Yes	Visible water damage / staining?		Visible microbial growth?		Amount of material affected
Ceiling Type	2x4 Lay In		No		No		None
Wall Type	Drywall		Yes		Yes		42 square feet
Flooring	Carpet		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	No	Yes	Yes	Clean with Wexcide disinfectant
HVAC Return Grills	No	Yes	Yes	Clean with Wexcide disinfectant
Ceiling at Supply Grills	Yes	No	No	
Surfaces in Room	No	Yes	Yes	Clean as appropriate

Observations

Findings:	<ul style="list-style-type: none"> - Visible microbial growth on walls (South and Northwest) and tall cabinet - Roof leak identified in Northwest corner - Dust and debris on HVAC supply and return grills - Walls under windows (South, West and East) have 30% moisture content and visible staining - Humidity level is elevated - Dust and debris on environmental surfaces throughout the portable
Recommendations:	
Site Based Maintenance:	<ul style="list-style-type: none"> - Clean HVAC supply and return grills with Wexcide disinfectant solution - Clean/dust environmental surfaces throughout the portable - 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:	<ul style="list-style-type: none"> - Evaluate roof leak and repair as appropriate - Evaluate walls for water intrusion and repair/replace walls as appropriate - Seal exterior walls and caulk windows - Evaluate and repair HVAC system to lower humidity level

IAQ Assessment

Village Elementary School

Evaluation Requested June 9, 2005

Time of Day 1:20 pm

Evaluation Date June 10, 2005

Outdoor Conditions Temperature 83.4 Relative Humidity 90.6 Ambient CO2 442

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
P-1347	65.5	72 - 78	58.2	30% - 60%	441	Max 700 > Ambient	2
Noticeable Odor	No	Visible water damage / staining?	Yes	Visible microbial growth?	Yes	Amount of material affected	12 Stained Tiles
Ceiling Type	2x4 Lay In		Yes	Yes	Under Windows and at Doors		
Wall Type	Wood Paneling		Yes	No	Entire Carpet		
Flooring	Carpet		Yes	No			

	Clean	Minor Dust / Debris	Needs Cleaning	Corrective Action Required
Ceiling	No	Yes	Yes	Replace Tiles
Walls	Yes	No	No	
Flooring	No	Yes	Yes	Replace carpet
HVAC Supply Grills	No	Yes	Yes	Clean with Wexcide disinfectant
HVAC Return Grills	No	Yes	Yes	Clean with Wexcide disinfectant
Ceiling at Supply Grills	No	Yes	Yes	Replace Tiles
Surfaces in Room	No	Yes	Yes	Clean as appropriate

Observations

Findings:

- Visible staining and microbial growth on ceiling tiles throughout the portable - numerous roof leaks
- Visible microbial growth on ceiling in bathroom at exhaust fan
- Dust and debris and microbial growth on HVAC supply and return grills
- Stains and dirt on carpet throughout the portable
- Walls under windows have 20% moisture content and visible staining
- Termite wings on window sills throughout the portable
- Temperature is too cold
- Dust and debris on environmental surfaces throughout the portable

Recommendations:

Site Based Maintenance:

- Clean HVAC supply and return grills with Wexcide disinfectant solution
- Clean ceiling in bathroom with Wexcide disinfectant solution
- Adjust thermostat to increase temperature
- Clean/dust environmental surfaces throughout the portable
- 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 for roof leaks and repair/replace as appropriate and replace ceiling tiles
- Remove and replace carpet throughout entire portable
- Evaluate walls for water intrusion and repair/replace walls as appropriate
- Treat entire portable for termites
- Seal exterior walls and caulk windows

IAQ Assessment

Village Elementary School

Evaluation Requested June 9, 2005

Time of Day 2:00 pm

Evaluation Date June 10, 2005

Outdoor Conditions Temperature 83.4 Relative Humidity 90.6 Ambient CO2 442

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
P-1348	67	72 - 78	64.9	30% - 60%	421	Max 700 > Ambient	2
Noticeable Odor		Visible water damage / staining?		Visible microbial growth?		Amount of material affected	
No		Yes		Yes		8 Stained Tiles	
Ceiling Type	2x4 Lay In		Yes	Yes	Under Windows and at Doors		
Wall Type	Wood Paneling		Yes	No	None		
Flooring	12 x 12 Vinyl		No	No			

	Clean	Minor Dust / Debris	Needs Cleaning	Corrective Action Required
Ceiling	No	Yes	Yes	Replace Tiles
Walls	Yes	No	No	
Flooring	Yes	No	No	
HVAC Supply Grills	No	Yes	Yes	Clean with Wexcide disinfectant
HVAC Return Grills	No	Yes	Yes	Clean with Wexcide disinfectant
Ceiling at Supply Grills	No	Yes	Yes	Replace Tiles
Surfaces in Room	No	Yes	Yes	Clean as appropriate

Observations

Findings:

- Visible staining and microbial growth on ceiling tiles throughout the portable - numerous roof leaks
- Dust and debris and microbial growth on HVAC supply and return grills
- 2 missing HVAC supply grills and other supply grills are rusted
- Walls under windows have 50% moisture content and visible staining
- Termite wings on window sills throughout the portable
- Temperature is too cold and humidity level is elevated
- Dust and debris on environmental surfaces throughout the portable

Recommendations:

Site Based Maintenance:

- Clean HVAC return grills with Wexcide disinfectant solution
- Clean/dust environmental surfaces throughout the portable
- 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 for roof leaks and repair/replace as appropriate and replace ceiling tiles
- Install new HVAC supply grills
- Evaluate walls for water intrusion and repair/replace walls as appropriate
- Treat entire portable for termites
- Seal exterior walls and caulk windows
- Evaluate and repair HVAC system to raise temperature and lower humidity level

IAQ Assessment

Village Elementary School

Evaluation Requested

Time of Day

Evaluation Date

Outdoor Conditions Temperature Relative Humidity Ambient CO2

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
<input type="text" value="402"/>	<input type="text" value="72.6"/>	<input type="text" value="72 - 78"/>	<input type="text" value="80.3"/>	<input type="text" value="30% - 60%"/>	<input type="text" value="543"/>	<input type="text" value="Max 700 > Ambient"/>	<input type="text" value="2"/>
Noticeable Odor		<input type="text" value="Yes"/>	Visible water damage / staining?		Visible microbial growth?		Amount of material affected
Ceiling Type	<input type="text" value="2x4 Lay In"/>		<input type="text" value="Yes"/>	<input type="text" value="No"/>	<input type="text" value="2 Tiles (removed)"/>		
Wall Type	<input type="text" value="Drywall & Tackboard"/>		<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="Clean/replace as appropriate"/>
Walls	<input type="text" value="No"/>	<input type="text" value="Yes"/>	<input type="text" value="Yes"/>	<input type="text" value="Clean as appropriate"/>
Flooring	<input type="text" value="Yes"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text" value=""/>
HVAC Supply Grills	<input type="text" value="No"/>	<input type="text" value="Yes"/>	<input type="text" value="Yes"/>	<input type="text" value="Clean with Wexcide disinfectant"/>
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="No"/>	<input type="text" value="Yes"/>	<input type="text" value="Yes"/>	<input type="text" value="Clean/replace as appropriate"/>
Surfaces in Room	<input type="text" value="Yes"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text" value=""/>

Observations

Findings:

- Roof drain above ceiling appears to be leaking onto ceiling tiles
- Heavy dust and debris on ceiling tiles throughout the room
- Heavy dust and debris on walls near HVAC supply grills
- Dust and debris on HVAC supply and return grills
- Incorrect filters installed in HVAC unit allowing air by-pass
- Humidity level is elevated

Recommendations:

Site Based Maintenance:

- Clean/replace ceiling tiles as appropriate
- Clean walls with Wexcide disinfectant solution
- Clean HVAC supply and return grills with Wexcide disinfectant solution
- Install proper size filters in HVAC unit
- 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 and repair roof drain as appropriate and replace ceiling tiles as necessary
- Evaluate and repair HVAC system to lower humidity level

IAQ Assessment

Village Elementary School

Evaluation Requested

Time of Day

Evaluation Date

Outdoor Conditions Temperature Relative Humidity Ambient CO2

Fish	Temperature	Range	Relative Humidity	Range	CO2	Range	# Occupants
<input type="text" value="501"/>	<input type="text" value="72.6"/>	<input type="text" value="72 - 78"/>	<input type="text" value="80.2"/>	<input type="text" value="30% - 60%"/>	<input type="text" value="472"/>	<input type="text" value="Max 700 > Ambient"/>	<input type="text" value="2"/>
Noticeable Odor		<input type="text" value="Yes"/>	Visible water damage / staining?		Visible microbial growth?		Amount of material affected
Ceiling Type	<input type="text" value="2x4 Lay In"/>		<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text" value="None"/>		
Wall Type	<input type="text" value="Drywall"/>		<input type="text" value="Yes"/>	<input type="text" value="Yes"/>	<input type="text" value="8 square feet"/>		
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="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="No"/>	<input type="text" value="Yes"/>	<input type="text" value="Yes"/>	<input type="text" value="Clean with Wexcide disinfectant"/>
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:

- Visible microbial growth on wall (North of door)
- Dust and debris on HVAC supply and return grills
- Wall under windows (South) and wall left of door (North) have 20% moisture content and visible staining
- Leaking chiller pipe in North wall
- Humidity level is elevated

Recommendations:

Site Based Maintenance:

- Clean walls with Wexcide disinfectant solution
- Clean HVAC supply and 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 Division:

- Evaluate cause of water intrusion and repair as appropriate and repair/replace walls as appropriate
- Seal exterior walls and caulk windows
- Evaluate and repair leaking chiller pipe and replace damaged wall under chiller lines (floor to penetration - 4' wide minimum)
- Evaluate and repair HVAC system to lower humidity level