



Jeffrey S. Moquin, Director Risk Management Department Telephone: 754-321-3200 Facsimile: 754-321-3290

August 2, 2005

TO:	Ms. Mary Lou Ridge, Principal Bethune Elementary School
FROM:	Robert J. Krickovich, Coordinator, LEA Facilities and Construction Management, Environmental Division
SUBJECT:	Indoor Air Quality (IAQ) Assessment FISH 801K, 806, 807, 809, 810 and 815

On July 21, 2005 the IAQ Assessment Team conducted an assessment of FISH 801K, 806, 807, 809, 810 and 815 at **Bethune 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: Sam Gregg, Area Superintendent Margaret Underhill, Area Director Jeffrey S. Moquin, Director, Risk Management Bertram Lewars, Project Manager II, Facilities and Construction Management Jerrod Neal, 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 AHU As	sessment		
		Bethune E	Elementary	Ev	aluation Requested	July 21, 2005
Time of Day	y 11:50) am			Evaluation Date	July 21, 2005
Outdoor Co	nditions	Temperature	93.1 Re	elative Humidity	58.8 Ambien	t CO2 404
AHU Roor	n #	Temperature Ra	nge Relative	Humidity Range	CO2	Range
801K		72 -	- 78	30% - 60%	/o	< 1,000 PPM
Noticeable	Odor	No	Visible water damage / staining?	Visible microbial growth?	Amount of mate affected	erial
Ceiling Typ	e N	letal Deck	No	No	Nor	ne
Wall Typ	e	Drywall	No	No	Nor	ne
Flooring	3	Concrete	Yes	No	Standing wa	ter on floor
	Clean	Minor Dust / Debris	Needs Cleaning		Corrective Act Required	ion
Room	No	Yes	Yes		Clean Room	
Filters	Yes	No	No			
Coil	No	Yes	Yes		Clean Coils	
Pan	Yes	No	No			
Duct	No	Yes	Yes	Yes Clean inside of unit		
Motorized [Damper Ins	stalled Unknow	vn	Cannot	determine location	
Damper	Damper Open / Operating Unknown Cannot determine location					
resh Air Inta	resh Air Intake Un-obstructed Unknown Cannot determine location					
Pollutant Sou	Pollutant Sources Near Air Intake Unknown Cannot determine location					
AHU Su	AHU Supply Water Temp 47 AHU Return Water Temp 52					

Findings:

- AHU in room has the wrong size filters or is missing filler panels allowing air to bypass filters (unfiltered air causes dirty supply grills, dirty ceiling tiles at supply grills and IAQ complaints)

- Heavy dust and debris on filters (one was so dirty that it was sucked out of hte frame and into the air handler coil)

- Standing water on floor from leaking valves

- Dust and debris in room and on floor (Pictures, television and carpet remnants stored in room)

- Dust and debris on HVAC coils

Recommendations:

Site Based Maintenance:

- Install new filters - proper size

- Thoroughly clean room

Physical Plant Operations Division:

- Clean HVAC coils and duct at units due to filter bypass

- Evaluate and repair leaking chilled water valves and evaluate and repair to lower humidity levels throughout the building

		IAQ As	sessment		
	Bethune Elen	nentary School		Evaluation Requested	July 21, 2005
Time of Day 11:5	50 am			Evaluation Date	July 21, 2005
Outdoor Conditions	Temperature	93.1	Relative Humidity	58.8 Ambie	ent CO2 404
Fish Temper	rature Range	Relative Humidity	Range	CO2 Rar	nge # Occupants
806 73	3.8 72 - 78	66.8	30% - 60%	397 Max 700	> Ambient 3
Noticeable Odor	No	Visible water damage / staining	Visible micro g? growth?	bial Amount of ma affected	terial
Ceiling Type	2x4 Lay In	Yes	No		One Tile
Wall Type	Drywall	Yes	Yes	120 square	feet - 2 Locations
Flooring	Carpet	No	No	Ca	rpet is New
C	Clean Minor I / Deb	Dust Needs ris Cleaning		Corrective Action Re	equired
Ceiling	No	s Yes		Cobwebs in corne	ers
Walls	No	s Yes		Clean and pain	t
Flooring	Yes	No		Carpet is new	
HVAC Supply Grills	No	s Yes	C	lean with Wexcide dis	infectant
HVAC Return Grills	No	s Yes	C	lean with Wexcide dis	infectant
Ceiling at Supply Grills	No	S Yes		Clean as appropri	ate
Surfaces in Room	No	Yes		Clean as appropri	ate

Findings:

- Visible microbial growth on Southwest wall (previously reported) and on South wall (new)
- Visible microbial growth on instrument cases
- One stained ceiling tile
- Water damaged drywall on left side of water cooler and in corridors at doors
- All exterior walls have water intrusion (elevated moisture levels)
- Heavy dust and debris on environmental surfaces and clutter throughout the room (boxes, papers, etc.)
- Heavy dust and debris on HVAC supply and return grills
- Dust and debris on ceiling at HVAC supply grills

Elevated humidity level

Recommendations:

Site Based Maintenance:

- Dispose of all instrument cases with visible microbial growth
- Replace stained ceiling tile
- Clean all environmental surfaces and encourage occupant to remove clutter
- Clean HVAC supply and return grills with Wexcide disinfectant solution
- Clean ceiling at HVAC supply grills

- 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:

 Remove and replace all drywall where water damaged - Southwest wall and South wall, left side of water cooler and corridors at doors

- Evaluate and repair HVAC system to lower humidity level

Project Manager:

		IAQ A	ssessment		
	Bethune B	Elementary School		Evaluation Requested	July 21, 2005
Time of Day 11	:50 am			Evaluation Date	July 21, 2005
Outdoor Conditions	Temperat	ure 93.1	Relative Humidity	y 58.8 Ambie	ent CO2 404
Fish Tempe	erature Range	e Relative Humid	^{ity} Range	CO2 Rar	nge # Occupants
807 7	75.1 72 - 78	69.3	30% - 60%	415 Max 700	> Ambient 3
Noticeable Odor	No	Visible wate damage / stain	r Visible micr ing? growth?	obial Amount of ma ? affected	terial
Ceiling Type	2x4 Lay In	No	No		None
Wall Type	Drywall	Yes	No	Around se	condary exit door
Flooring	Carpet	No	No	Ca	rpet is New
	Clean Min / [or Dust Need Debris Cleani	s ng	Corrective Action Re	equired
Ceiling	No	Yes Yes]	Cobwebs in corne	ers
Walls	No	Yes		Clean and pain	t
Flooring	Yes	No]	Carpet is new	
HVAC Supply Grills	No	Yes		Clean with Wexcide dis	infectant
HVAC Return Grills	No	Yes		Clean with Wexcide dis	infectant
Ceiling at Supply Grills	No	Yes		Clean as appropri	ate
Surfaces in Room	No	Yes Yes		Clean as appropri	ate

Findings:

- Water damaged drywall around secondary exit door and in corridors at doors
- All exterior walls have water intrusion (elevated moisture levels)
- Heavy dust and debris on environmental surfaces and clutter throughout the room (boxes, papers, etc.)
- Heavy dust and debris on HVAC supply and return grills
- Dust and debris on ceiling at HVAC supply grills
- Elevated humidity level

Recommendations:

Site Based Maintenance:

- Clean all environmental surfaces and encourage occupant to remove clutter
- Clean HVAC supply and return grills with Wexcide disinfectant solution
- Clean ceiling at HVAC supply grills

- 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:

- Remove and replace drywall where water damaged around secondary exit doors and in corridors at doors
- Evaluate and repair HVAC system to lower humidity level

Project Manager:

		IAQ As	sessment		
	Bethune Ele	mentary School		Evaluation Requested	July 21, 2005
Time of Day 11:	:50 am			Evaluation Date	July 21, 2005
Outdoor Conditions	Temperatur	93.1	Relative Humidity	58.8 Ambie	ent CO2 404
Fish Tempe	erature Range	Relative Humidity	Range	CO2 Rar	nge # Occupants
809 72	2.9 72 - 78	69	30% - 60%	397 Max 700	> Ambient 3
Noticeable Odor	No	Visible water damage / staining	Visible micro growth?	obial Amount of ma affected	terial
Ceiling Type	2x4 Lay In	Yes	No	One	ceiling tile
Wall Type	Drywall	Yes	No	Around se	condary exit door
Flooring	Carpet	No	No	Ca	rpet is New
	Clean Minor / Del	Dust Needs oris Cleaning		Corrective Action Re	equired
Ceiling	No	s Yes		Cobwebs in corne	ers
Walls	No	s Yes		Clean and pain	t
Flooring	Yes	No		Carpet is new	
HVAC Supply Grills	No	s Yes	C	lean with Wexcide dis	infectant
HVAC Return Grills	No	s Yes	C	lean with Wexcide dis	infectant
Ceiling at Supply Grills	No	s Yes		Clean as appropri	ate
Surfaces in Room	No	Yes		Clean as appropri	ate

Findings:

- Water damaged drywall around secondary exit door and in corridors at doors
- All exterior walls have water intrusion (elevated moisture levels)
- One stained ceiling tile
- Heavy dust and debris on environmental surfaces and clutter throughout the room (boxes, papers, etc.)
- Heavy dust and debris on HVAC supply and return grills
- Dust and debris on ceiling at HVAC supply grills
- Elevated humidity level

Recommendations:

Site Based Maintenance:

- Replace stained ceiling tile
- Clean all environmental surfaces and encourage occupant to remove clutter
- Clean HVAC supply and return grills with Wexcide disinfectant solution
- Clean ceiling at HVAC supply grills

- 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:

- Remove and replace drywall where water damaged around secondary exit doors and in corridors at doors
- Evaluate and repair HVAC system to lower humidity level

Project Manager:

IAQ Assessment								
	Beth	une Elementary	School		Evaluati	on Requested	July 2	1, 2005
Time of Day 11	1:50 am				E	valuation Date	July 2	1, 2005
Outdoor Conditions	s Temj	perature 93	3.1	Relative Humidit	y 58.8	Ambie	nt CO2	404
Fish Temp	erature R	ange Relati	ve Humidity	Range	CO2	Ran	ge #	Occupants
810	70.9 72	2 - 78	74.6	30% - 60%	396	Max 700	> Ambient	3
Noticeable Odor	Yes	Vi dama	sible water ige / staining	Visible mic ? growth	robial ?	Amount of mat affected	erial	
Ceiling Type	2x4 Lay Ir)	No	No] [None	
Wall Type	Drywall		Yes	No]	Around sec	ondary exit	door
Flooring	Carpet		No	No]	Car	pet is New	
	Clean	Minor Dust / Debris	Needs Cleaning		Correc	tive Action Re	quired	
Ceiling	No	Yes	Yes		Cok	webs in corne	ers	
Walls	Νο	Yes	Yes		С	lean and paint		
Flooring	Yes	No	No			Carpet is new		
HVAC Supply Grills	s No	Yes	Yes		Clean wit	h Wexcide disi	nfectant	
HVAC Return Grills	No	Yes	Yes		Clean witl	h Wexcide disi	nfectant	
Ceiling at Supply Grills	No	Yes	Yes		Clea	an as appropria	ate	
Surfaces in Room	No	Yes	Yes		Clea	an as appropria	ate	

Findings:

- Visible microbial growth on vinyl bag and instrument cases in room
- Visible microbial growth on wood furniture in room
- Water damaged drywall around secondary exit door frame rusted through
- All exterior walls have water intrusion (elevated moisture levels)
- Heavy dust and debris on environmental surfaces and clutter throughout the room (boxes, papers, etc.)
- Heavy dust and debris on HVAC supply and return grills
- Dust and debris on ceiling at HVAC supply grills
- Elevated humidity level
- Recommendations:

Site Based Maintenance:

- Dispose of vinyl bag and all instrument cases with visible microbial growth
- Clean wood furniture with Wexcide disinfectant solution to remove microbial growth
- Clean all environmental surfaces and encourage occupant to remove clutter
- Clean HVAC supply and return grills with Wexcide disinfectant solution
- Clean ceiling at HVAC supply grills

- 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:

Remove and replace all drywall where water damaged - around secondary exit door - and replace exterior door frame
Evaluate and repair HVAC system to lower humidity level

Project Manager:

			IAQ AHU As	ssessment		
		Bethune	Elementary	Eval	uation Requested July 21, 2005	
Time of Day	11:50) am			Evaluation Date July 21, 2005	
Outdoor Con	ditions	Temperature	93.1 R	elative Humidity 5	8.8 Ambient CO2 404	
AHU Room	#	Temperature R	Range Relative	Humidity Range	CO2 Range	
815]	72	2 - 78	30% - 60%	< 1,000 PPM	
Noticeable C	Ddor	No	Visible water damage / staining?	Visible microbial growth?	Amount of material affected	
Ceiling Type	N	/letal Deck	No	No	None]
Wall Type		Drywall	No	No	None	1
Flooring		Concrete	Yes	No	Standing water on floor	j
	Clean	Minor Dust / Debris	Needs Cleaning		Corrective Action Required	
Room	No	Yes	Yes		Clean Room	
Filters	No	Yes	Yes	Change Filters		
Coil	No	Yes	Yes		Clean Coils	
Pan	Yes	No	No			
Duct	No	Yes	Yes		Clean inside of unit	
Motorized Da	amper Ins	stalled Yes	S]
Damper O	pen / Ope	erating Yes	s]
Fresh Air Intake Un-obstructed Yes			s]
Pollutant Sources Near Air Intake Yes Return air grills are located on				on east side of building by bus loop]	
AHU Sup	ply Wate	r Temp 47	Ał	HU Return Water Tem	p 52	

Findings:

- 3 AHU's in room all have the wrong size filters or are missing filler panels allowing air to bypass filters (unfiltered air causes dirty supply grills, dirty ceiling tiles at supply grills and IAQ complaints)

- Heavy dust and debris on filters (one was so dirty that it was sucked out of hte frame and into the air handler coil)

- Standing water on floor from leaking valves
- Dust and debris in room (newspapers, soda cans, food wrappers, etc.)
- Dust and debris on HVAC coils

Recommendations:

Site Based Maintenance:

- Install new filters proper size
- Thoroughly clean room

Physical Plant Operations Division:

- Clean HVAC coils and duct at units due to filter bypass
- Evaluate and repair leaking chilled water valves and evaluate and repair to lower humidity levels throughout the building

Project Manager:

- Evaluate location of fresh air intakes and relocate away from bus loop