

managing risk with responsibility

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September 22, 2005

Signature on File

TO:	Ms. Mary Lou Ridge, Principal Bethune Elementary School
FROM:	Robert J. Krickovich, Coordinator, LEA Facilities and Construction Management, Environmental Divisior
SUBJECT:	Indoor Air Quality (IAQ) Assessment FISH 710, 805, 806, 807, 809, 810, 817, and 818

On September 15, 2005 the IAQ Assessment Team conducted an assessment of FISH 710, 805, 806, 807, 809, 810, 817 and 818 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 As	sessment	Locati	on Number	0341	
	Bet	thune Elementa	ry School		Evaluat	tion Requested	Septemb	er 15, 2005
Time of Day	3:50 pm]			I	Evaluation Date	Septemb	er 15, 2005
Outdoor Cond	litions Ter	nperature	88.9	Relative Humic	ity 58.5	5 Ambie	nt CO2	433
Fish	Temperature	Range Rela	ative Humidity	Range	CO2	Ran	ige #	Occupants
710	70.2	72 - 78	57.4	30% - 60%	627	Max 700	> Ambien	t 3
Noticeable Oc	dor No		Visible water nage / staining	Visible m I? grow		Amount of ma affected	terial	
Ceiling Type	Plaster/2 x 4	Lay In	No	No			None	
Wall Type	Drywa	I	No	No			None	
Flooring	New Carp	pet	No	No			None	
	Clean	Minor Dust / Debris	Needs Cleaning		Corre	ctive Action Re	equired	
Ceiling	Yes	No	No					
Walls	Yes	No	No					
Flooring	Yes	No	No					
HVAC Supply	Grills Yes	No	No					
HVAC Return	Grills No	Yes	Yes		Clean wit	th Wexcide dis	infectant	
Ceiling at Sup Grills	oply Yes	No	No					
Surfaces in R	oom No	Yes	Yes		Cle	an as appropri	ate	

Findings:

- Excessive dust on books and book shelves
- Dust and debris on environmental surfaces throughout room
- Visible minor microbial growth on 5 books
- Dust and debris on HVAC return grills
- Dust and debris in return air duct at return air grill. Heavy dust build up on turning vanes.
- AHU #4 in FISH 703 is holding water in pan and is overflowing onto the floor of the mechanical room

Recommendations:

Site Based Maintenance:

- Clean and vaccuum books and book shelves as appropriate
- Clean environmental surfaces as appropriate
- Clean or discard books with minor microbial growth
- 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 Division:

- Evaluate and clean return air duct at return air grill and turning vanes
- Evaluate and clean AHU #4 (drain pan and condensate drain) in FISH 703

			IAQ As	sessment	Locati	on Number	0341	
	Beth	une Elementary	y School		Evaluat	tion Requested	Septemb	er 15, 2005
Time of Day	1:00 pm				l	Evaluation Date	Septemb	er 15, 2005
Outdoor Condi	tions Tem	perature 8	8.9	Relative Humid	ty 58.5	5 Ambie	nt CO2	433
Fish	Temperature F	Range Relat	ive Humidity	Range	CO2	Ran	nge #	Occupants
805	74.7 7	2 - 78	50.4	30% - 60%	656	Max 700	> Ambien	t 23
Noticeable Od	or No	-	isible water age / staining	Visible mi growt		Amount of ma affected	terial	
Ceiling Type	2 x 4 Lay	In	Yes	No			One tile	
Wall Type	Drywall		No	No			None	
Flooring	NEW Carpo	et	No	No]		None	
	Clean	Minor Dust / Debris	Needs Cleaning		Corre	ctive Action Re	equired	
Ceiling	Yes	Νο	No					
Walls	Yes	No	No					
Flooring	Yes	Νο	No					
HVAC Supply	Grills Yes	Νο	No					
HVAC Return (Grills Yes	Νο	No					
Ceiling at Sup Grills	ply Yes	No	No					
Surfaces in Ro	oom Yes	No	No					

Findings:

- One stained ceiling tile on west side (6th tile from secondary exit door)

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 Division:

- Evaluate for leak (cause of stained ceiling tile on west side) and repair as appropriate and replace stained ceiling tile

			IAQ Ass	sessment	Locati	on Number	0341	
	Bethu	ne Element	ary School		Evaluat	tion Requested	Septemb	er 15, 2005
Time of Day	1:10 pm				l	Evaluation Date	Septemb	er 15, 2005
Outdoor Condition	s Temp	erature	88.9	Relative Humid	ty 58.5	5 Ambie	nt CO2	433
Fish Tem	perature Ra	ange Re	elative Humidity	Range	CO2	Ran	ge #	Occupants
806	70.1 72	- 78	58.3	30% - 60%	523	Max 700	> Ambient	3
Noticeable Odor	Yes	da	Visible water amage / staining	Visible mi ? growt		Amount of mat affected	terial	
Ceiling Type	2 x 4 Lay In		No	No			None	
Wall Type	Drywall		Νο	No]		None	
Flooring	NEW Carpet		No	No]	Odor fro	om New Car	pet
	Clean	Minor Dust / Debris	t Needs Cleaning		Corre	ctive Action Re	equired	
Ceiling	Yes	No	No					
Walls	Yes	No	No					
Flooring	Yes	No	No					
HVAC Supply Grill	s Yes	No	No					
HVAC Return Grill	s Yes	No	No					
Ceiling at Supply Grills	Yes	No	No					
Surfaces in Room	No	Yes	Yes		Cle	an as appropria	ate	

Findings:

- Noticeable odor from new carpet

- Dust and debris on environmental surfaces throughout the room

- Non-approved SBBC chemicals in room (Ace house and garden bug killer under cabinet)

Recommendations:

Site Based Maintenance:

- Thoroughly clean environmental surfaces throughout the room

- Remove non-approved chemicals from room

- Continue to monitor this location for any signs of microbial growth as well as dust and debris accumulation and clean as appropriate

		IAQ As	sessment	Location Number	0341
	Bethune Ele	mentary School		Evaluation Requested	September 15, 2005
Time of Day 1:	:20 pm			Evaluation Date	September 15, 2005
Outdoor Conditions	5 Temperatur	e 88.9	Relative Humidity	58.5 Ambie	ent CO2 433
Fish Tempo	erature Range	Relative Humidity	Range	CO2 Rar	nge # Occupants
807 7	72.7 72 - 78	56.6	30% - 60%	540 Max 700	> Ambient 3
Noticeable Odor	Yes	Visible water damage / staining	Visible micro g? growth?	bial Amount of ma affected	terial
Ceiling Type	2 x 4 Lay In	No	No		None
Wall Type	Drywall	No	No		None
Flooring	NEW Carpet	No	No	Odor fr	om New Carpet
	Clean Minor / Del		I	Corrective Action Re	equired
Ceiling	Yes	No			
Walls	Yes	No			
Flooring	Yes	No			
HVAC Supply Grills	S Yes N	No			
HVAC Return Grills	Yes	No			
Ceiling at Supply Grills	Yes	Νο			
Surfaces in Room	Yes	No			

Findings:

- Noticeable odor from new carpet

- Wall on both sides of secondary exit door has elevated moisture content - latch side is wet from top to bottom and hinge side is wet one foot up from the floor

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 Division:

- Evaluate cause of elevated moisture content on both sides of secondary exit door and repair exterior of building to stop water intrusion and repair/replace interior walls as appropriate

		IAQ As	sessment	Location Number	0341
	Bethune Ele	mentary School		Evaluation Requested	September 15, 2005
Time of Day	:40 pm			Evaluation Date	September 15, 2005
Outdoor Conditions	5 Temperatur	e 88.9	Relative Humidity	58.5 Ambie	ent CO2 433
Fish Temp	erature Range	Relative Humidity	Range	CO2 Rar	nge # Occupants
809 7	73.1 72 - 78	57.2	30% - 60%	532 Max 700	> Ambient 3
Noticeable Odor	Yes	Visible water damage / staining	Visible micro g? growth?	bial Amount of ma affected	terial
Ceiling Type	2 x 4 Lay In	Yes	No	2 c	eiling tiles
Wall Type	Drywall	No	No		None
Flooring	NEW Carpet	No	No	Odor fr	om New Carpet
	Clean Minor / De		J	Corrective Action Re	equired
Ceiling	Yes	o No			
Walls	Yes	o No			
Flooring	Yes	o No			
HVAC Supply Grills	s Yes N	o No			
HVAC Return Grills	Yes	o No			
Ceiling at Supply Grills	Yes	o No			
Surfaces in Room	Yes	No			

Findings:

- Noticeable odor from new carpet

- Stained ceiling in northeast corner of room over teacher's desk and one stained ceiling tile over entry doors

- Wall on right side of secondary exit door has elevated moisture content - wet one foot up from the floor

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 Division:

- Evaluate for leak (cause of stained ceiling tiles northeast corner above teacher's desk and over entry door) and repair as appropriate and replace stained ceiling tiles

- Evaluate cause of elevated moisture content on right side of secondary exit door and repair exterior of building to stop water intrusion and repair/replace interior walls as appropriate

			IAQ As	sessment	Location N	umber	0341	
	Beth	nune Elementa	ry School		Evaluation I	Requested	Septembe	er 15, 2005
Time of Day	2:00 pm				Evalu	uation Date	Septembe	er 15, 2005
Outdoor Conditio	ons Tem	perature	38.9	Relative Humidity	58.5	Ambie	nt CO2	433
Fish Te	mperature	Range Rela	tive Humidity	Range	CO2	Ran	nge #	Occupants
810	70.1 7	2 - 78	59.1	30% - 60%	508] Max 700	> Ambient	3
Noticeable Odo	r Yes		/isible water nage / staining	Visible micro g? growth?		nount of ma affected	terial	
Ceiling Type	2 x 4 Lay	In	No	No			None	
Wall Type	Drywall		No	No			None	
Flooring	NEW Carp	et	No	No		Odor fro	om New Car	pet
	Clean	Minor Dust / Debris	Needs Cleaning		Corrective	Action Re	equired	
Ceiling	Yes	No	No					
Walls	Yes	No	No					
Flooring	Yes	No	No					
HVAC Supply G	rills Yes	No	No					
HVAC Return G	rills Yes	No	No					
Ceiling at Suppl Grills	y Yes	No	No					
Surfaces in Roo	m Yes	Νο	No					

Findings:

- Noticeable odor from new carpet
- Visible microbial growth on two wood desks
- Non-approved SBBC chemicals in room (Simple Green)
- Dust and debris on HVAC supply grill and wall at supply grill in FISH 810C
- Wall on right side of secondary exit door has elevated moisture content frame is rusted through on the hinge side

Recommendations:

Site Based Maintenance:

- Dispose of two wood desks
- Remove non-approved chemicals
- Clean HVAC supply grill and wall at supply grill in FISH 810C 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 elevated moisture content on right side of secondary exit door and repair exterior of building to stop water intrusion and repair/replace interior walls and rusted door frame as appropriate

			IAQ As	sessment	Location N	umber	0341	
	Betl	nune Elementa	ry School		Evaluation F	Requested	Septemb	er 15, 2005
Time of Day	2:20 pm				Evalu	uation Date	Septemb	er 15, 2005
Outdoor Condi	tions Terr	nperature	88.9	Relative Humidity	58.5	Ambie	nt CO2	433
Fish	Temperature	Range Rela	ative Humidity	Range	CO2	Ran	ige #	Occupants
817	75.8 7	2 - 78	53.8	30% - 60%	913	Max 700	> Ambient	24
Noticeable Od	or No		Visible water nage / staining	Visible micro growth?	obial An	nount of ma affected	terial	
Ceiling Type	2 x 4 Lay	In	Yes	No		1 c	eiling tile	
Wall Type	Drywall		No	No			None	
Flooring	12 x 12 Vir	ıyl	No	No			None	
	Clean	Minor Dust / Debris	Needs Cleaning		Corrective	Action Re	equired	
Ceiling	Yes	No	No					
Walls	Yes	No	No					
Flooring	Yes	No	No					
HVAC Supply	Grills No	Yes	Yes	C	lean with W	excide disi	infectant	
HVAC Return (Grills No	Yes	Yes	C	lean with W	excide disi	infectant	
Ceiling at Sup Grills	ply Yes	No	No					
Surfaces in Ro	oom Yes	No	No					

Findings:

- One stained ceiling tile in center of room
- Visible growth on filter in paint spray booth (817A)
- Damper on kiln hood is not working (817B) stuck wide open
- Paint booth exhaust hood shows signs of water intrusion
- Dust and debris on HVAC supply and return grills
- Wall at windows has elevated moisture content

- Wall on both sides of secondary exit door has elevated moisture content - frame is rusted through on the hinge side

Recommendations:

Site Based Maintenance:

- Dispose of filter in paint spray booth (817A)
- 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:

- Replace filters in paint booth (817A)

- Evaluate and repair/replace damper on kiln hood (817B) stuck wide open
- Evaluate and repair paint booth exhaust hood for water intrusion
- Evaluate for leak (cause of stained ceiling tile) and repair as appropriate and replace stained ceiling tile
- Evaluate cause of elevated moisture content on wall at windows and repair exterior of building and caulk windows to stop water intrusion and repair/replace interior walls as appropriate

- Evaluate cause of elevated moisture content on both sides of secondary exit door and repair exterior of building to stop water intrusion and repair/replace interior walls as appropriate

		IAQ As	sessment	Location Number	0341
	Bethune Eler	nentary School		Evaluation Requested	September 15, 2005
Time of Day 2:	50 pm			Evaluation Date	September 15, 2005
Outdoor Conditions	Temperature	88.9	Relative Humidity	58.5 Ambie	ent CO2 433
Fish Tempe	erature Range	Relative Humidity	Range	CO2 Ran	nge # Occupants
818 7	7.9 72 - 78	51.3	30% - 60%	1028 Max 700	> Ambient 20
Noticeable Odor	No	Visible water damage / staining	Visible micro g? growth?	bial Amount of ma affected	terial
Ceiling Type	2 x 4 Lay In	Yes	No	1 c	ceiling tile
Wall Type	Drywall	No	No		None
Flooring	12 x 12 Vinyl	No	No		None
Ceiling	Clean Minor / Deb	ris Cleaning		Corrective Action Re	equired
Walls	Yes No				
Flooring	Yes	No			
HVAC Supply Grills	Yes	No			
HVAC Return Grills	Yes	No			
Ceiling at Supply Grills	Yes	No			
Surfaces in Room	Yes	No			

Findings:

- One stained ceiling tile in center of room
- Visible growth on filter in paint spray booth (818A)
- Damper on kiln hood is not working (817B) stuck wide open
- Paint booth exhaust hood shows signs of water intrusion
- Wall at windows has elevated moisture content
- Windows do not close properly
- Wall on both sides of secondary exit door has elevated moisture content frame is rusted through on the hinge side
- Temperature elevated

Recommendations:

Site Based Maintenance:

- Dispose of filter in paint spray booth (818A)
- 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:

- Replace filters in paint booth (818A)
- Evaluiate and repair/replace damper on kiln hood (817B) stuck wide open
- Evaluate and repair paint booth exhaust hood for water intrusion
- Evaluate for leak (cause of stained ceiling tile) and repair as appropriate and replace stained ceiling tile
- Evaluate cause of elevated moisture content on wall at windows and repair exterior of building and caulk windows to stop water intrusion and
- repair/replace interior walls as appropriate
- Evaluate and repair windows as appropriate
- Evaluate cause of elevated moisture content on both sides of secondary exit door and repair exterior of building to stop water intrusion and repair/replace interior walls as appropriate
- Evaluate and repair HVAC system for elevated temperature