

September 10, 2007

managing risk with responsibility

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TO: Ms. Victoria Thurston,, Principal

Morrow Elementary School

FROM: Robert Krickovich, Coordinator, LEA

Facilities and Construction Management

SUBJECT: Indoor Air Quality (IAQ) Assessment

FISH 130, 132, 134, 136, 138, 140, 142 and 167

Signature on File

I	For Custodial Supervisor Use Only
	Custodial Issues Addressed
	Custodial Issues Not Addressed

On August 9, 2007 I conducted an assessment of FISH 130, 132, 134, 136, 138, 140, 142 and 167 at **Morrow Elementary School**. This evaluation included observations of the flooring system, ceiling tiles, false ceiling plenum, environmental surfaces, interior and exterior walls, and the accessible ventilation equipment. Additionally, environmental parameter measurements were taken to include temperature, relative humidity, and carbon dioxide. The detailed findings, along with the recommended corrective action can be found on the attached IAQ Assessment Worksheets.

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.

Please ensure that your Head Facilities Serviceperson receives a copy of this correspondence so that the recommendations requiring their attention can be addressed. Within two weeks a representative from the Custodial/Grounds Department will conduct a follow-up visit to ensure that all issues have been appropriately addressed.

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. Joanne Harrison, Area Superintendent
Sharon Airaghi, Area Director
Jeffrey S. Moquin, Director, Risk Management
Paul Bach, Project Manager, Facilities and Construction Management
Ruby Fitzgerald, Broward Teachers Union
Roy Jarrett, National Federation of Public and Private Employees
Mark Dorsett, Manager 1, Physical Plant Operations Division, Zone 1
Roy Norton, Manager Custodial (Crounds, Physical Plant Operations Division)

Roy Norton, Manager Custodial/Grounds, Physical Plant Operations Division

RK/tc Enc.

		Morrow Elem	entary School		Evaluation R	equested			
Time of Day	11:00 am				Evalua	ation Date	Augus	t 9, 2007	
Outdoor Condi	itions 7	emperature	90.3	Relative Humidity	57.4	Ambie	nt CO2	506	
Fish	Temperature	Range	Relative Humidity	Range	CO2	Ran	ne #	Occupants	
130	89.8	72 - 78	36.3	30% - 60%	657		> Ambient		
Noticeable Od	lor No		Visible water damage / staining	Visible micro g? growth?		ount of mat affected	erial		
Ceiling Type	2 x 4 L	ay In	No	No			None		
Wall Type	Tackb	oard	Yes	No		Entire	North Wal		
Flooring	12 x 12	Vinyl	No	No			None		
	Clean Minor Dust Needs Corrective Action Required / Debris Cleaning								
Ceiling	Yes	No	No						
Walls	No	Yes	Yes		Repair/replac	e as appr	opriate		
Flooring	Yes	No	No						
HVAC Supply	Grills Yes	No	No						
HVAC Return	Grills				N/A throug	h light fixt	tures		
Ceiling at Sup Grills	ply Yes	No	No						
Surfaces in Ro	oom Yes	No	No						
Dbservations									
Findings: - Elevated moisture content in 2 West wall panels and 4 East wall panels on the North wall. The 2 panels in between are dry but show signs of water damage and delamination. Possible hidden damage behind wall mounted cabinets.									
 Identify all wat Identify all mat 	intenance: aterials (book er damaged r terials that ha	naterials and ve or appear t	retain for replacent to have microbial g	including inside of canent growth and documen growth as well as dus	t the materials	and disca			
Facilities and (- Have the roofi				terials on the North v	vall				

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	M	orrow Elementai	y School		Evaluat	ion Requested		
Time of Day	11:00 am				E	Evaluation Date	August	9, 2007
Outdoor Condi	tions Te	mperature (90.3	Relative Hum	idity 57.4	Ambier	nt CO2	506
	Temperature		tive Humidity	Range	CO2	Ran	•	Occupants
132	87.6	72 - 78	37.3	30% - 60%	668	Max 700 :	> Ambient	1
Noticeable Od	or No		/isible water nage / staining?		microbial wth?	Amount of mate affected	erial	
Ceiling Type	2 x 4 La	y In	No	N	lo		None	
Wall Type	Drywall/Tac	kboard	Yes	N	lo	Entire	North Wall	
Flooring	12 x 12 V	'inyl	No	N	lo		None	
	Clean	Minor Dust / Debris	Needs Cleaning		Correc	ctive Action Re	quired	
Ceiling	Yes	No	No					
Walls	No	Yes	Yes		Repair/r	eplace as appro	opriate	
Flooring	Yes	No	No					
HVAC Supply	Grills Yes	No	No					
HVAC Return (Grills				N/A th	rough light fixt	ures	
Ceiling at Sup Grills	ply Yes	No	No					
Surfaces in Ro	oom Yes	No	No					
bservations								
Findings: - Elevated moist Possible hidden -Recommendat	damage behin	entire North wall d wall mounted c		om 5 feet and	West panels	are wet from the	floor to the	ceiling.
lossa Baasal Mai								

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Location Number

Site Based Maintenance:

- Remove all materials (books, papers, etc.) from North wall, including inside of cabinets and bookcases
- Identify all water damaged materials and retain for replacement
- Identify all materials that have or appear to have microbial growth and document the materials and discard immediately
- 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:

Remove and replace all water damaged drywall on the North wall. Sheet rock is very dense and will not dry out properly

Facilities and Construction Management:

Have the roofing contractor reimburse for drywall replacement costs

	Morrow Ele	mentary School	Evalua	tion Requested
Time of Day	11:00 am			Evaluation Date August 9, 2007
Outdoor Condition	s Temperature	90.3	Relative Humidity 57.4	Ambient CO2 506
Fish Tem	perature Range 86.2 72 - 78	Relative Humidity	Range CO2 30% - 60% 654	Range # Occupants Max 700 > Ambient 1
Noticeable Odor	No No	Visible water damage / staining	Visible microbial	Amount of material affected
Ceiling Type	2 x 4 Lay In	No No	No	None
Wall Type	Tackboard	Yes	No	Entire North Wall
Flooring	12 x 12 Vinyl	No	No	None
	Clean Minor / Deb		Corre	ctive Action Required
Ceiling	Yes	No		
Walls	No	Yes	Repair/	replace as appropriate
Flooring	Yes	No		
HVAC Supply Gril	Is Yes No	No		
HVAC Return Grill	s		N/A ti	nrough light fixtures
Ceiling at Supply Grills	Yes	No		
Surfaces in Room	Yes	No		
) Dbservations				
			delaminating. 5 East pane d on North wall is water da	ls are wet from floor to ceiling. Standing maged.
 Identify all water da Identify all materia Continue to monito appropriate Facilities and Cons	nance: als (books, papers, et amaged materials and ls that have or appear or this location for any	d retain for replacement to have microbial gragins of microbial gragins of microbial gragins.	owth and document the ma	and bookcases Iterials and discard immediately Ebris accumulation and clean as

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	Мо	rrow Elemer	ntary School		Evaluat	ion Requested	
Time of Day 11	:00 am		_		E	Evaluation Date Aug	ust 9, 2007
Outdoor Conditions	Tem	perature	90.3	Relative Humidity	57.4	Ambient CO2	506
Fish Temp	erature	Range F	Relative Humidity	Range	CO2	Range	# Occupants
136	36.7 7	2 - 78	38.7	30% - 60%	712	Max 700 > Ambie	ent 3
Noticeable Odor	No		Visible water damage / staining	Visible micro growth?	bial	Amount of material affected	_
Ceiling Type	2 x 4 Lay	In	No	No		None	
Wall Type	Tackboai	·d	Yes	No		Entire North W	/all
Flooring	12 x 12 Vir	nyl	Yes	No		Along North V	Vall
	Clean	Minor Du			Correc	ctive Action Required	
Ceiling	Yes	No	No				
Walls	No	Yes	Yes		Repair/r	eplace as appropriate	
Flooring	No	Yes	Yes		Repair/r	eplace as appropriate	
HVAC Supply Grills	Yes	No	No				
HVAC Return Grills	;				N/A th	rough light fixtures	
Ceiling at Supply Grills	Yes	No	No				
Surfaces in Room	Yes	No	No				
bservations							

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Location Number

Elevated moisture content in entire North wall. Sink cabinet is water damaged. Wall cabinet is water damaged. Wall mounted shelving is water damaged along with books, boxes and papers on the shelves. Flooring is water damaged along North wall.

Recommendations:

Site Based Maintenance:

- Remove all materials (books, papers, etc.) from North wall, including inside of cabinets and bookcases
- Identify all water damaged materials and retain for replacement
- Identify all materials that have or appear to have microbial growth and document the materials and discard immediately
- Continue to monitor this location for any signs of microbial growth as well as dust and debris accumulation and clean as appropriate

Facilities and Construction Management:

Have the roofing contractor remove and replace all wall materials on the North wall, replace flooring along North wall as necessary and replace all water damaged case work.

	Mo	orrow Elementar	y School		Evaluati	ion Requested	
Time of Day	11:00 am]			E	Evaluation Date	August 9, 2007
Outdoor Condi	tions Ter	nperature 9	0.3	Relative Humidi	ty 57.4	Ambier	nt CO2 506
Fish 138		Range Rela	ive Humidity 52.3	Range 30% - 60%	CO2	Rang May 700	ge # Occupant
Noticeable Od			isible water age / staining?	Visible mid	crobial	Amount of mate	
Ceiling Type	2 x 4 Lay		No	No]		None
Wall Type	Tackboa	ırd	Yes	No		Entire	North Wall
Flooring	12 x 12 Vi	inyl	No	No]		None
	Clean	Minor Dust / Debris	Needs Cleaning		Correc	ctive Action Re	quired
Ceiling	Yes	No	No				
Walls	No	Yes	Yes		Repair/r	eplace as appro	opriate
Flooring	Yes	No	No				
HVAC Supply	Grills Yes	No	No				
HVAC Return	Grills				N/A th	rough light fixt	ures
Ceiling at Sup Grills	ply Yes	No	No				
Surfaces in Ro	oom Yes	No	No				
bservations							
Findings:							

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Location Number

- Entire North wall is delaminating (dry at time of assessment).
- Urine odor near restroom. Restroom was clean and had an odor of bleach.

Recommendations:

Site Based Maintenance:

- Remove all materials (books, papers, etc.) from North wall, including inside of cabinets and bookcases
- Identify all water damaged materials and retain for replacement
- Identify all materials that have or appear to have microbial growth and document the materials and discard immediately
- Continue to monitor this location for any signs of microbial growth as well as dust and debris accumulation and clean as appropriate

Facilities and Construction Management:

Have the roofing contractor remove and replace all wall materials on the North wall.

	Мо	rrow Elementar	y School		Evaluatio	n Requested		
Time of Day	11:00 am		_		Ev	aluation Date August 9, 2007		
Outdoor Cond	itions Tem	nperature 9	0.3	Relative Humidity	57.4	Ambient CO2 506		
l ,			tive Humidity	Range	CO2	Range # Occupants		
140	87.2 7	'2 - 78	51	30% - 60%	584	Max 700 > Ambient 1		
Noticeable Oc	dor No		isible water age / staining	Visible micro? growth?		Amount of material affected		
Ceiling Type	2 x 4 Lay	In	No	No		None		
Wall Type	Tackboai	rd	Yes	No		Entire North Wall		
Flooring	12 x 12 Vi	nyl	No	No		None		
	Clean	Minor Dust / Debris	Needs Cleaning		Correcti	ive Action Required		
Ceiling	Yes	No	No					
Walls	No	Yes	Yes		Repair/rep	place as appropriate		
Flooring	Yes	No	No					
HVAC Supply	Grills Yes	No	No					
HVAC Return	Grills				N/A thro	ough light fixtures		
Ceiling at Sup Grills	pply Yes	No	No					
Surfaces in Ro	oom Yes	No	No					
bservations								
	Findings: - Entire North wall is water damaged and is wet 3 feet up on the West side of the exterior doors and dry on the east side of the doors. However, may be hidden damage behind wall mounted cabinets.							
-Recommendations: Site Based Maintenance: - Remove all materials (books, papers, etc.) from North wall, including inside of cabinets and bookcases - Identify all water damaged materials and retain for replacement - Identify all materials that have or appear to have microbial growth and document the materials and discard immediately - Continue to monitor this location for any signs of microbial growth as well as dust and debris accumulation and clean as appropriate								
	Construction Ma ng contractor ren		e all wall mate	erials on the North v	vall.			

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	Mc	rrow Elemer	ntary School	Evaluation Requested				
Time of Day	11:00 am]			E	Evaluation Date	August	9, 2007
Outdoor Condition	ns Ten	nperature	90.3	Relative Humidit	y 57.4	Ambie	nt CO2	506
		Range R	Relative Humidity	Range	CO2	Ran	•	Occupants
142	83	72 - 78	40.6	30% - 60%	688	Max 700	> Ambient	1
Noticeable Odor	No] ,	Visible water damage / staining	Visible mic growth		Amount of mat affected	terial	
Ceiling Type	2 x 4 Lay	ln	No	No			None	
Wall Type	Tackboa	rd	Yes	No		Entire	North Wall	
Flooring	12 x 12 Vi	nyl	No	No			None	
	Clean	Minor Du		ı	Correc	ctive Action Re	quired	
Ceiling	Yes	No	No					
Walls	No	Yes	Yes		Repair/r	eplace as appr	opriate	
Flooring	Yes	No	No					
HVAC Supply Gri	lls Yes	No	No					
HVAC Return Gri	Is				N/A th	rough light fix	tures	
Ceiling at Supply Grills	Yes	No	No					
Surfaces in Room	Yes	No	No					
L Observations	-							
Findings:								
-Recommendation Site Based Mainte - Remove all mater	ns: enance: ials (books, p	papers, etc.)	from North wall,	including inside of	·	nd bookcases		
 Identify all water of all materials Continue to monitals Copposite 	als that have	or appear to	have microbial g					
Facilities and Con - Have the roofing of			blace all wall mat	erials on the North	wall.			

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Morrow Elementary School Evaluation Requested								
Time of Day	11:00 am					Evaluation Date	August	9, 2007
Outdoor Condit	ions Ţ	emperature	90.3	Relative Hur	nidity 57.4	4 Ambie	nt CO2	506
Fish T	emperature	Range	Relative Humidi	^{ty} Range	CO2	Ran	ige #	Occupants
167	78.2	72 - 78	59.6	30% - 60%	625	Max 700	> Ambient	3
Noticeable Odd	or No		Visible wate damage / staini		microbial owth?	Amount of mat affected	terial	
Ceiling Type	2 x 4 L	ay In	No		No		None	
Wall Type	Dryv	/all	Yes		No	No	orth Wall	
Flooring	12 x 12	Vinyl	No		No		None	
Clean Minor Dust Needs Cleaning Corrective Action Required Ceiling Yes No No Repair/replace as appropriate Flooring Yes No								
HVAC Supply (Grills Yes	No	- No					
HVAC Supply 6	Jillis Tes	No	No					
HVAC Return G	Brills				N/A t	hrough light fix	tures	
Ceiling at Supp Grills	oly Yes	No	No					
Surfaces in Roo	om Yes	No	No					
) Dbservations								
Findings: - Fast side of No.	rth wall has e	elevated mois	sture content 18 f	eet from floor to	ceiling			
-Recommendati Site Based Mair - Remove all mat - Identify all wate - Identify all mate - Continue to mo appropriate Physical Plant Op - Remove and repl	ions: ntenance: terials (books or damaged n erials that hav nitor this loca	s, papers, etc naterials and ve or appear ation for any s damaged dryw Managemer	e.) from North wal retain for replace to have microbial signs of microbial all on the North wa	I, including insidement growth and doo growth as well a	e of cabinets a ument the ma	aterials and disca	on and clear	

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