

managing risk with responsibility

754 321-1900

754 321-1917

Telephone:

Fax:

Aston A. Henry, Supervisor Risk Management Department

April 16, 2012

To: Todd LaPace, Principal McArthur High School

FROM: Robert Krickovich, Coordinator I, LEA Facilities and Construction Management

SUBJECT: Indoor Air Quality (IAQ) Assessment

On February 6, 2012, I conducted an assessment at **McArthur High School**. Attached are findings and recommendations for further assessment, remediation, or corrective actions needed.

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. In an attempt to separate IAQ issues from general maintenance items, the attached assessment may contain direction for site based staff to generate a work order through COMPASS. Within two weeks a representative from the Custodial/Grounds Department will conduct a follow-up visit to ensure that all site based custodial 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 us at 754-321-1907.

cc: Area Superintendent

Area Directors

Shelley Meloni, Executive Director, Facilities and Construction Management Mark Dorsett, Acting Director, Physical Plant Operations Division, Maintenance Sonja Coley, Project Manager III, Facilities and Construction Management Roy Norton, Manager Custodial/Grounds, Physical Plant Operations Division Aston Henry, Supervisor, Risk Management Broward Teachers Union

Federation of Public Employees

RK/tc Enc.

		McArthur I	High School		Evaluati	ion Requested February 1, 2012
Time of Day	12:10				E	Evaluation Date February 6, 2012
Outdoor Condi	tions	Temperature	80.3	Relative Humidity	68.3	Ambient CO2 476
Fish 1	Temperature 75	Range R 72 - 78	elative Humidity 61.8	Range 30% - 60%	CO2 1316	Range # Occupants Max 700 > Ambient 34
Noticeable Od	or No		Visible water damage / staining	Visible micro g? growth?	bial	Amount of material affected
Ceiling Type	2 x 4 l	₋ay In	No	No		None
Wall Type	Plas	ster	No	No		None
Flooring	12 x 12	! Vinyl	No	No		None
	Clean	Minor Du: / Debris			Correc	ctive Action Required
Ceiling	Yes	No	No			
Walls	Yes	No	No			
Flooring	Yes	No	No			
HVAC Supply	Grills No	Yes	Yes		Clea	an as appropriate
HVAC Return (Grills No	Yes	Yes		Clea	an as appropriate
Ceiling at Sup Grills	ply No	Yes	Yes		Clea	an as appropriate
Surfaces in Ro	oom Yes	No	No			
bservations						
Findings - Dust build up of Humidity level			grills and on ceili	ng at supply grills		
	upply and re					ceiling at supply grills lebris accumulation and clean as

- Evaluate HVAC system for proper operation and repair as appropriate to lower humidity level

- NOTE: Work orders EQ02317 through EQ02320 generated 3-7-12

Physical Plant Operations:

IAQ Assessment

Location Number

		McArthur Hig	gh School	Ev	valuation Requested [February 1, 2012
Time of Day	12:10				Evaluation Date	February 6, 2012
Outdoor Condi	tions Ten	nperature	80.3	Relative Humidity	68.3 Ambier	nt CO2 476
703	76	72 - 78	63.2 Visible water	italige		> Ambient 25
Noticeable Od	or No		mage / staining		material affect	
Ceiling Type	2 x 4 Lay	In	No	No		None
Wall Type	Plaster		Yes	No	20 sc	uare feet
Flooring	12 x 12 Vi	ıyl	No	No		None
	Clean	Minor Dust / Debris	Needs Cleaning	С	Corrective Action Re	quired
Ceiling	Yes	No	No			
Walls	Yes	No	No			
Flooring	No	Yes	Yes		Clean as appropria	ite
HVAC Supply	Grills Yes	No	No			
HVAC Return (Grills Yes	No	No			
Ceiling at Supp Grills	ply				N/A	
Surfaces in Ro	oom No	Yes	Yes		Clean as appropria	ite
bservations						
Findings - Water damage	ed wall around v	vindows				

Location Number

- Dust and debris on floor
- Dust build up on surfaces

Site Based Maintenance:

- Ensure HVAC units are on at all times when the room is occupied
- Thoroughly clean and sanitize flooring
- Thoroughly clean all surfaces throughout the room
- Continue to monitor this location for any signs of microbial growth as well as dust and debris accumulation and clean as appropriate

- Evaluate for cause of damaged wall material around windows and repair as appropriate. Repair/replace wall material as necessary.
- NOTE: Work orders EQ02317 through EQ02320 generated 3-7-12

Time of Day	12:10	Werkithan Filig	TT CONOCI		F	Evaluation Date February 6, 2012
						— — — — — — — — — — — — — — — — — — —
Outdoor Conditions	S Tem	perature 8	30.3	Relative Humidity	68.3	Ambient CO2 476
Fish Temp	erature F	Range Rela	tive Humidity	Range	CO2	Range # Occupants
805	68.6 7	2 - 78	64.1	30% - 60%	694	Max 700 > Ambient 5
Noticeable Odor	No		/isible water nage / staining	Visible micro growth?		Amount of material affected
Ceiling Type	2 x 4 Lay	ln	Yes	No	[4 ceiling tiles
Wall Type	Drywall		No	No	[None
Flooring	12 x 12 Vin	yl	No	No		None
	Clean	Minor Dust / Debris	Needs Cleaning		Correc	tive Action Required
Ceiling	No	Yes	Yes		Remov	ve and replace tiles
Walls	Yes	No	No			
Flooring	Yes	No	No			
HVAC Supply Grills	s No	Yes	Yes		Clea	n as appropriate
HVAC Return Grills	Yes	No	No			
Ceiling at Supply Grills	Yes	No	No			
Surfaces in Room	No	Yes	Yes		Clea	n as appropriate

McArthur High School

Location Number

Evaluation Requested

February 1 2012

Observations

Findings

- Temperature was low and humidity level was elevated
- Dust build up on surfaces
- Door to exterior of building is left open when the room is occupied so students know they can enter
- Dust build up on HVAC supply grills
- Stained ceiling tiles

Site Based Maintenance:

- Thoroughly clean all surfaces throughout the room
- Ensure doors and windows remain closed. Advised door is left open so students know they can come in. Open doors and windows allow untreated humid air into conditioned occupied spaces causing condensation and possible microbial growth.
- Clean HVAC supply grills with Wexcide disinfectant solution
- Remove and replace stained ceiling tiles. If stains return contact COMPASS to generate a work order for Physical Plant Operations to evaluate and repair.
- Continue to monitor this location for any signs of microbial growth as well as dust and debris accumulation and clean as appropriate

- Evaluate HVAC system for proper operation and repair as appropriate to increase temperature and lower humidity
- NOTE: Work orders EQ02317 through EQ02320 generated 3-7-12

		McArthur Hi	gh School		⊨valuat	ion Requested Febru	ary 1, 2012
Time of Day	12:10				E	Evaluation Date Febru	ary 6, 2012
Outdoor Condition	ns Tem	perature	80.3	Relative Humidi	ty 68.3	Ambient CO2	476
810 Noticeable Odor Ceiling Type	70 7 2 No 2 x 4 Lay	2 - 78 da	55.9 Visible water mage / staining?	Range 30% - 60% Visible mic growth		Max 700 > Ambie Amount of material affected None	# Occupants nt 23
Wall Type	Drywall		No	No		None	
Flooring	12 x 12 Vin	yl	No	No		None	
	Clean	Minor Dust / Debris	Needs Cleaning		Correc	ctive Action Required	
Ceiling	Yes	No	No				
Walls	Yes	No	No				
Flooring	Yes	No	No				
HVAC Supply Gri	lls Yes	No	No				
HVAC Return Gril	Is Yes	No	No				
Ceiling at Supply Grills	Yes	No	No				
Surfaces in Room	No	Yes	Yes		Clea	an as appropriate	
hearvations							

Location Number

Observations

Findings

- Temperature was low and humidity level was elevated
- Dust build up on surfaces
- Sinks and drains were dry
- Excessive termite damage in cabinets (science lab)

Site Based Maintenance:

- Thoroughly clean all surfaces throughout the room
- Ensure water is run in all sinks and drains at least once a month to prevent sewer gas from entering the building
- Continue to monitor this location for any signs of microbial growth as well as dust and debris accumulation and clean as appropriate

- Evaluate HVAC system for proper operation and repair as appropriate to increase temperature and lower humidity
- Pest control to investigate for termites
- Repair/replace damaged cabinet material termite damage
- NOTE: Work orders EQ02317 through EQ02320 generated 3-7-12

Noticeable Odor No		IVIO	ittidi riigii ociiooi		2	1 0010017 1, 2012
Fish Temperature Range Relative Humidity Range CO2 Range #Occupants 2003 71.4 72 - 78 67 30% - 60% 749 Max 700 > Ambient 5 Noticeable Odor No Visible water damage / staining? Ceiling Type 2 x 4 Lay In Yes No 4 ceiling tiles Wall Type Drywall Yes No 20 square feet Flooring 12 x 12 Vinyl No No None Clean Minor Dust / Debris Cleaning Ceiling No Yes Yes Clean as appropriate Walls Yes No	Time of Day	12:10			Ev	aluation Date February 6, 2012
2003 71.4 72 - 78 67 30% - 60% 749 Max 700 > Ambient 5	Outdoor Conditions	Temperat	ure 80.3	Relative Humidity	68.3	Ambient CO2 476
Noticeable Odor No Visible water damage / staining? Visible microbial growth? Material affected material affected material affected material affected water damage / staining? No 4 ceiling tiles Wall Type Drywall Yes No 20 square feet Flooring 12 x 12 Vinyl No No No None Clean Minor Dust / Debris Cleaning Ceiling No Yes Yes Clean as appropriate Walls Yes No No No Tolean as appropriate Walls Yes No	Fish Tempo	^{erature} Range	Relative Humidity	/ Range	CO2	Range # Occupants
Ceiling Type	2003 7	71.4 72 - 78	67	30% - 60%	749	Max 700 > Ambient 5
Wall Type Drywall Yes No 20 square feet Flooring 12 x 12 Vinyl No No No None Clean Minor Dust / Debris Cleaning Ceiling No Yes Yes Clean as appropriate Walls Yes No No No Total Clean as appropriate Flooring Yes No	Noticeable Odor	No			bial 	
Flooring 12 x 12 Vinyl No No No None Clean Minor Dust / Debris Cleaning Ceiling No Yes Yes Clean as appropriate Walls Yes No No No To The Control of the C	Ceiling Type	2 x 4 Lay In	Yes	No		4 ceiling tiles
Clean Minor Dust / Debris Cleaning Ceiling No Yes Yes Clean as appropriate Walls Yes No	Wall Type	Drywall	Yes	No		20 square feet
Ceiling No Yes Yes Cleaning Walls Yes No	Flooring	12 x 12 Vinyl	No	No		None
Walls Yes No No So			or Buot	9	Correcti	ve Action Required
Flooring Yes No No	Ceiling	No	Yes		Clean	as appropriate
	Walls	Yes	No No			
HVAC Supply Grille No. Vas Vas Clean as appropriate	Flooring	Yes	No No			
Trac Supply Stills [165] [165] [165] Clean as appropriate	HVAC Supply Grills	s No	Yes Yes		Clean	as appropriate
HVAC Return Grills No Yes Clean as appropriate	HVAC Return Grills	No	Yes		Clean	as appropriate
Ceiling at Supply No Yes Yes Clean as appropriate Grills		No	Yes Yes		Clean	as appropriate
Surfaces in Room No Yes Yes Clean as appropriate	Surfaces in Room	No	Yes Yes		Clean	as appropriate

McArthur High School

Location Number

Evaluation Requested

February 1 2012

Observations

Findings

- Temperature was low and humidity level was elevated
- Dust build up on surfaces
- Elevated moisture in wall around windows and at back door -- visible water damage
- Dust build up on HVAC supply and return grills and on ceiling at supply grills

Site Based Maintenance:

- Thoroughly clean all surfaces throughout the room
- Clean HVAC supply and return grills with Wexcide disinfectant solution and clean ceiling at supply grills
- Continue to monitor this location for any signs of microbial growth as well as dust and debris accumulation and clean as appropriate

- Evaluate HVAC system for proper operation and repair as appropriate to increase temperature and lower humidity
- Evaluate for cause of damaged wall material around windows and at back door and repair as appropriate. Repair/replace wall material as necessary.
- Replace weather strip at doors
- NOTE: Work orders EQ02317 through EQ02320 generated 3-7-12

		McArthur High	n School		Evaluation	Requested	February 1, 20	012
Time of Day	12:10				Eval	uation Date	February 6, 20	012
Outdoor Conditions	S Ten	nperature 8	0.3	Relative Humidit	y 68.3	Ambient	CO2 476	
		Range Relat	ive Humidity	Range	CO2	Range		
2007	72.6 7	72 - 78	72.3	30% - 60%	785	Max 700 > A	Ambient1	13
Noticeable Odor	No	_	isible water age / staining	Visible mic ? growth		Amount of naterial affected	d	
Ceiling Type	2 x 4 Lay	In	Yes	Yes		1 ceil	ing tile	
Wall Type	Drywall		Yes	No		East wall at	oove cabinet	
Flooring	12 x 12 Vir	nyl	No	No		N	one	
	Clean	Minor Dust / Debris	Needs Cleaning		Corrective	e Action Requ	uired	
Ceiling	Yes	No	No					
Walls	Yes	No	No					
Flooring	Yes	No	No					
HVAC Supply Grills	s No	Yes	Yes		Clean a	s appropriate	9	
HVAC Return Grills	No	Yes	Yes		Clean a	s appropriate	•	
Ceiling at Supply Grills	Yes	No	No					
Surfaces in Room	No	Yes	Yes		Clean a	s appropriate	9	

Location Number

Observations

Findings

- Humidity level was elevated
- Dust build up on surfaces
- Water damaged wall above cabinet on East wall and stained ceiling tile in center of East wall
- Dust build up on HVAC supply and return grills
- Live plant in room
- Missing ceiling tile in FISH 2007A

Site Based Maintenance:

- Thoroughly clean all surfaces throughout the room
- Clean HVAC supply and return grills with Wexcide disinfectant solution
- Remove plant. Soil is a source of microbial growth.
- FISH 2007A Replace missing ceiling tiles
- 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:

- Evaluate HVAC system for proper operation and repair as appropriate to lower humidity
- Evaluate for cause of damaged wall material above cabinet and on ceiling (East wall) and repair as appropriate.
 Repair/replace wall material as necessary. Remove and replace ceiling tiles as necessary.

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- NOTE: Work orders EQ02317 through EQ02320 generated 3-7-12