THE SCHOOL BOARD OF BROWARD COUNTY, FLORIDA ENVIRONMENTAL HEALTH & SAFETY DEPARTMENT

TELEPHONE (754) 321-4200

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November 8,	2016 Signature on File	For Custodial Supervisor Use Only
TO:	Erica Levine, Intern Principal Markham Elementary	Custodial Issues Addressed
FROM:	Daniel Meyer, Project Manger Environmental Health & Safety Department	Custodial Issues Not Addressed
SUBJECT:	Indoor Air Quality (IAQ) Assessment	

On November 4, 2016, I conducted an assessment at **Markham Elementary 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 754-321-4200.

DM:smn Enc.

cc: Shelley Meloni, Director, Pre-Construction Mark Dorsett, Manager, Zone 1, Physical Plant Operations Division Broward Teachers Union Federation of Public Employees Gerald Devio, Supervisor II Custodial Benjamin Osborne, Supervisor II Custodial Rich Volpi, Supervisor II Custodial Mark Murray, Supervisor II Custodial Sam Bays, Director, Maintenance Operations Kurt Wirz, Area Manager Trades

	IAQ Assessi	nent		
Markham, Robert C	Elementary Evaluation Dat	e November 4, 2016	Time of Day 10:0	0 AM
Outdoor Conditions Temper	ature 76.8 Relative	Humidity 90.2	Ambient CO2 43	5
		Range CO ² % - 60% 899	Range # Occ MAX 700 >	2
Noticeable Odor No	Visible water damage / staining?	Visible microbial growth?	Amount of material affected	
Ceiling2' X 2' Lay inWallsPlasterFloorCarpet	Yes No	No No	2 tiles	
Ceiling Clean Yes Walls Clean Yes	HVAC Supply Grills Clean Inside of Supply	No	HVAC Return Grills Clean Inside of Return	No
Flooring Clean Yes Room Surfaces Yes Clean	Duct Clean Ceiling at Supply Grills Clean	Yes	Duct Clean	No
Trash Removed Yes Signs of Pests No	Exhaust Fans Working Drain Traps Wet	N/A	Unapproved Chemicals / Cleaners in Room	No
Room Cluttered No	Food if Stored in Room is in Sealed Containers	N/A	Air Fresheners in Room	Yes
Mechanical Equipment Location	FISH #103		Mechanical Room Clean	Yes
Filters Installed Properly Yes Condensate Pan Clean No		Yes	Inside of HVAC Unit Clean	No
Fresh Air Intake Location Pollutant Sources Near Air Intake	Ducted to roof-top No	▼	Fresh Air Intake Free of Obstruction	Yes
Observations				
Both Supply and return grills ne (tested dry on Protimeter). Cano	eed to be cleaned. 2 water stain dle on hot plate needs to be rem		aced. Water / Rust stain or	n wall

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	IAQ Assessr	nent		
Markham, Robert C. Elem	entary Evaluation Dat	e November 4, 2016	Time of Day 10:	00 AM
Outdoor Conditions Temperature	76.8 Relative	Humidity 90.2	Ambient CO2 4	35
Fish Temperature Range 101K 71.9 72 - 78		Range CO ² % - 60% 901	Range # O MAX 700 > Ambient	ccupants 4
Noticeable OdorNoCeiling2' X 2' Lay inWallsPlaster	Visible water damage / staining? Yes No	Visible microbial growth? No No	Amount of material affected 2 tiles	
Floor 12" x 12" Vinyl	No	No		
Ceiling Clean Yes Walls Clean Yes Flooring Clean Yes Room Surfaces Yes Clean	HVAC Supply Grills Clean Inside of Supply Duct Clean Ceiling at Supply Grills Clean	No Yes Yes	HVAC Return Grills Clean Inside of Return Duct Clean	No No
Trash RemovedYesSigns of PestsNoRoom ClutteredNo	Exhaust Fans Working Drain Traps Wet Food if Stored in Room is in Sealed Containers	N/A N/A	Unapproved Chemicals / Cleaners in Room Air Fresheners in Room	No No
Mechanical Equipment Location FISI Filters Installed Properly Yes Condensate Pan Clean No	H #103 Filters Clean Cooling Coil Clean	Yes Yes	Mechanical Room Clean Inside of HVAC Unit Clean	Yes No
Fresh Air Intake Location Duc Pollutant Sources Near Air Intake No	eted to roof-top	▼	Fresh Air Intake Free of Obstruction	Yes
Observations Both Supply and return grills need to clean area.	be cleaned. 2 water staine	ed tiles need to be rep	laced. Move file cabinets	and

Replace stained ceiling tiles after roofing repairs	▼
Clean Supply Grills with Wexcide	▼
Remove return grill and vacuum	▼
Clean behind file cabinets	▼
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	IAQ Assessi	nent		
Markham, Robert C. Eler	mentary Evaluation Dat	e November 4, 2016	Time of Day 10:	00 AM
Outdoor Conditions Temperature	e 76.8 Relative	Humidity 90.2	Ambient CO2 4	35
FishTemperatureRange104D71.672 - 78		Range CO % - 60% 90 ²		ccupants 3
Noticeable OdorNoCeiling2' X 2' Lay inWallsPlaster	Visible water damage / staining? No	Visible microbial growth? No No	Amount of material affected	
Floor Carpet	No	No		
Ceiling Clean Yes Walls Clean Yes	HVAC Supply Grills Clean Inside of Supply	No	HVAC Return Grills Clean Inside of Return	No
Flooring Clean No Room Surfaces No	Duct Clean Ceiling at Supply	Yes	Duct Clean	No
Clean Trash Removed Yes	Grills Clean Exhaust Fans Working		Unapproved Chemicals / Cleaners in Room	No
Signs of Pests No Room Cluttered No	Drain Traps Wet Food if Stored in Room is in Sealed Containers	N/A N/A	Air Fresheners in Room	No
Mechanical Equipment Location FIS	SH #103		Mechanical Room Clean	Yes
Filters Installed ProperlyYesCondensate Pan CleanNo	Filters Clean Cooling Coil Clean	Yes	Inside of HVAC Unit Clean	No
Fresh Air Intake LocationDuPollutant Sources Near AirNoIntakeNo	cted to roof-top	▼	Fresh Air Intake Free of Obstruction	Yes
Observations				
Both Supply and return grills need to surfaces need to be wiped clean.	o be cleaned. Dust around	supply grills. Carpet r	needs to be vacuumed and	1

Corrective Actions to be Completed by Site Based Staff

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Clean microbial growth from inside unit	•
Repair HVAC to Reduce Humidity Levels	•
Clean return air ductwork	•

	IAQ Assessi	nent		
Markham, Robert C. Elem	nentary Evaluation Dat	e November 4, 2016	Time of Day 10:	00 AM
Outdoor Conditions Temperature	76.8 Relative	Humidity 90.2	Ambient CO2 4	35
Fish Temperature Range 119 71.9 72 - 78		Range CO % - 60% 996		ccupants 6
Noticeable OdorNoCeiling2' X 2' Lay inWallsPlasterFloor12" x 12" Vinyl	Visible water damage / staining? No No No	Visible microbial growth? No No	Amount of material affected	
Ceiling Clean Yes Walls Clean Yes Flooring Clean Yes Room Surfaces No Clean	HVAC Supply Grills Clean Inside of Supply Duct Clean Ceiling at Supply Grills Clean	No Yes No	HVAC Return Grills Clean Inside of Return Duct Clean	No No
Trash RemovedYesSigns of PestsNoRoom ClutteredNo	Exhaust Fans Working Drain Traps Wet Food if Stored in Room is in Sealed Containers	N/A N/A	Unapproved Chemicals / Cleaners in Room Air Fresheners in Room	No No
Mechanical Equipment Location FIS Filters Installed Properly Yes Condensate Pan Clean No	H #103 Filters Clean Cooling Coil Clean	Yes	Mechanical Room Clean Inside of HVAC Unit Clean	Yes No
Fresh Air Intake Location Due Pollutant Sources Near Air Intake No	cted to roof-top	▼ ▼	Fresh Air Intake Free of Obstruction	Yes
Observations Both Supply and return grills need to in plastic containers with lids	be cleaned. Dust around	supply grills. Remove	cardboard boxes and sto	re items

Corrective Actions to be Completed by Site Based Staff

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Clean ceilings around HVAC supply grills		
Clean Supply Grills with Wexcide		
Remove return grill and vacuum		
Thoroughly Clean		
Store items in plastic containers with lids	▼	
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Corrective Actions to be Completed by PPO

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	IAQ Assessi	ment		
Markham, Robert C.	Elementary Evaluation Dat	November 4, 2016	Time of Day 10:	00 AM
Outdoor Conditions Tempera	ture 76.8 Relative	e Humidity 90.2	Ambient CO2 4	35
		Range CO ² % - 60% 892		ccupants 3
Noticeable Odor No Ceiling 2' X 2' Lay in	Visible water damage / staining?	Visible microbial growth? Yes	Amount of material affected 3 tiles	
Walls Plaster Floor 12" x 12" Vinyl	No No	No		
Ceiling Clean Yes Walls Clean Yes	HVAC Supply Grills Clean Inside of Supply	No	HVAC Return Grills Clean Inside of Return	No
Flooring Clean Yes Room Surfaces Yes Clean	Duct Clean Ceiling at Supply Grills Clean	Yes	Duct Clean	<u>No</u>
Trash Removed Yes Signs of Pests No	Exhaust Fans Working Drain Traps Wet	N/A Yes	Unapproved Chemicals / Cleaners in Room	No
Room Cluttered No	Food if Stored in Room is in Sealed Containers	N/A	Air Fresheners in Room	No
Mechanical Equipment Location	FISH #126		Mechanical Room Clean	No
Filters Installed Properly Yes Condensate Pan Clean Yes	7	Yes	Inside of HVAC Unit Clean	No
Fresh Air Intake Location Pollutant Sources Near Air Intake	Ducted to roof-top No	▼	Fresh Air Intake Free of Obstruction	Yes
Observations				
Replace ceiling tiles. Cut needed growth on bulliten board can be		re dirty. Ceiling dusty	around supply grills. Spo	.tty

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Replace ceiling tiles with microbial growth	▼
Clean Supply Grills with Wexcide	▼
Remove return grill and vacuum	▼
Wipe board w/wexcide and monitor	▼
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Ceiling tile cuts needed around return vent	▼
Clean return air duct	▼
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	IAQ Assess	ment		
Markham, Robert C.	Elementary Evaluation Dat	November 4, 2016	Time of Day 10:	00 AM
Outdoor Conditions Tempera	ture 76.8 Relative	Humidity 90.2	Ambient CO2 4	35
		Range CO % - 60% 149		ccupants 22
Noticeable Odor No	Visible water damage / staining?	Visible microbial growth?	Amount of material affected	
Ceiling2' X 2' Lay inWallsPlasterFloor12" x 12" Vinyl	No No	No No No		
Ceiling Clean Yes Walls Clean Yes Flooring Clean Yes	HVAC Supply Grills Clean Inside of Supply Duct Clean	No Yes	HVAC Return Grills Clean Inside of Return Duct Clean	No No
Room Surfaces Yes Clean	Ceiling at Supply Grills Clean	No		
Trash RemovedYesSigns of PestsNoRoom ClutteredNo	Exhaust Fans Working Drain Traps Wet Food if Stored in Room is in Sealed Containers	N/A Yes N/A	Unapproved Chemicals / Cleaners in Room Air Fresheners in Room	No No
Mechanical Equipment Location	FISH		Mechanical Room Clean	No
Filters Installed Properly Yes Condensate Pan Clean Yes		Yes	Inside of HVAC Unit Clean	No
Fresh Air Intake Location Pollutant Sources Near Air Intake	Ducted to roof-top No	▼	Fresh Air Intake Free of Obstruction	Yes
Observations Supply grills need to be wiped w	rith wexcide. Room surfaces ar	e dirty. Floor needs to	o be cleaned.	

Clean Supply Grills with Wexcide	▼	
Thoroughly Clean classroom	▼	
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	IAQ Assessi	ment		
Markham, Robert C. E	Elementary Evaluation Dat	November 4, 2016	Time of Day 10:0	0 AM
Outdoor Conditions Temperat	ure 76.8 Relative	Humidity 90.2	Ambient CO2 43	5
Fish Temperature Ran 205 73.9 72 -		Range CO ² % - 60% 788		cupants 20
Noticeable Odor No	Visible water damage / staining?	Visible microbial growth?	Amount of material affected	
Ceiling2' X 2' Lay inWallsPlasterFloor12" x 12" Vinyl	Yes No	Yes No No	1 tile	
Ceiling Clean Yes Walls Clean Yes Flooring Clean Yes Room Surfaces Yes Clean	HVAC Supply Grills Clean Inside of Supply Duct Clean Ceiling at Supply Grills Clean	No Yes No	HVAC Return Grills Clean Inside of Return Duct Clean	No No
Trash Removed Yes Signs of Pests No Room Cluttered No	Exhaust Fans Working Drain Traps Wet Food if Stored in Room is in Sealed Containers	N/A Yes N/A	Unapproved Chemicals / Cleaners in Room Air Fresheners in Room	No No
Mechanical Equipment Location Filters Installed Properly Yes Condensate Pan Clean Yes	FISH #205C Filters Clean Cooling Coil Clean	Yes	Mechanical Room Clean Inside of HVAC Unit Clean	Yes Yes
Bollutant Sources Near Air	Ducted to roof-top No	▼	Fresh Air Intake Free of Obstruction	Yes
Observations Replace stained ceiling tile. Supp	ly grill needs to be replaced. I	ligh Humidity in class	room	

Replace stained ceiling tile	▼
Clean ceilings around HVAC supply grills	▼
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Corrective Actions to be Completed by PPO

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Replace Supply grill	▼
Repair HVAC to Reduce Humidity Levels	▼
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	IAQ Assess	ment		
Markham, Robert C.	Elementary Evaluation Da	te November 4, 2016	Time of Day 10:0	00 AM
Outdoor Conditions Tempera	ature 76.8 Relative	e Humidity 90.2	Ambient CO2 4	35
		Range CO ² % - 60% 1051		20
Noticeable Odor No	Visible water damage / staining?	Visible microbial growth?	Amount of material affected	
Ceiling2' X 2' Lay inWallsPlasterFloor12" x 12" Vinyl	Yes No No	Yes No No	5 tiles	
Ceiling Clean Yes Walls Clean Yes	HVAC Supply Grills Clean	Νο	HVAC Return Grills Clean	No
Flooring Clean Yes	Inside of Supply Duct Clean	Yes	Inside of Return Duct Clean	Yes
Room Surfaces Yes Clean	Ceiling at Supply Grills Clean	No		
Trash Removed Yes	Exhaust Fans Working	N/A	Unapproved Chemicals / Cleaners in Room	No
Signs of Pests No Room Cluttered No	Drain Traps Wet Food if Stored in Room is in Sealed Containers	Yes N/A	Air Fresheners in Room	No
Mechanical Equipment Location	FISH #206C		Mechanical Room Clean	Yes
Filters Installed Properly Yes	5 Filters Clean	Yes	Inside of HVAC Unit Clean	Yes
Condensate Pan Clean Yes	Cooling Coil Clean	Yes		
Fresh Air Intake Location Pollutant Sources Near Air Intake	Ducted to roof-top No	▼	Fresh Air Intake Free of Obstruction	Yes
Observations Replace supply grill. Tiles need	to be replaced by the supply g	rill. Tiles have microbia	al growth. Return ductwor	k dirty.

Replace stained ceiling tile	▼
Clean ceilings around HVAC supply grills	▼
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Replace Supply grill	▼
Repair HVAC to Reduce Humidity Levels	▼
Install new ceiling tile upon repair, cuts needed	▼
Clean return air ductwork	▼
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	IAQ Assess	ment		
Markham, Robert C	. Elementary Evaluation Da	te November 4, 2016	Time of Day 10:00 AM	
Outdoor Conditions Temper	ature 76.8 Relativ	e Humidity 90.2	Ambient CO2 435	
	angeRelative Humidity2 - 7870.530	Range CO % - 60% 962		າts
Noticeable Odor No Ceiling 2' X 2' Lay in	Visible water damage / staining?	Visible microbial growth?	Amount of material affected	_
Ceiling 2' X 2' Lay in Walls Plaster Floor 12" x 12" Vinyl	No No No No	No No No		
Ceiling Clean Yes Walls Clean Yes	HVAC Supply Grills Clean	No	HVAC Return Grills Clean	
Flooring Clean Yes	Inside of Supply Duct Clean	Yes	Inside of Return Duct Clean Yes	;]
Room Surfaces Yes Clean	Ceiling at Supply Grills Clean	No		
Trash Removed Yes	Exhaust Fans Working	N/A	Unapproved Chemicals / Cleaners in Room	
Signs of PestsNoRoom ClutteredNo	Drain Traps Wet Food if Stored in Room is in Sealed Containers	Yes N/A	Air Fresheners No in Room	ב
Mechanical Equipment Location	FISH #206C		Mechanical Room Clean Yes	;
Filters Installed Properly Ye	s Filters Clean	Yes	Inside of HVAC Unit Clean Yes	;]
Condensate Pan Clean Yes	s Cooling Coil Clean	Yes		
Fresh Air Intake Location	Ducted to roof-top	▼	Fresh Air Intake Free of Obstruction Yes	;
Pollutant Sources Near Air Intake	Νο	▼		
Observations Clean supply grills. Return grill classroom.	needs to be cleaned. Return du	uctwork needs to be c	leaned. High humidity in	

Clean HVAC supply grill with wexcide	▼
Remove return grill and vacuum	▼
Thoroughly Clean classroom	▼
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Repair HVAC to Reduce Humidity Levels	▼
Clean return ductwork	▼
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	IAQ Assess	ment		
Markham, Robert C. Ele	mentary Evaluation Dat	te November 4, 2016	Time of Day 10:	00 AM
Outdoor Conditions Temperatur	e 76.8 Relative	e Humidity 90.2	Ambient CO2 4	35
Fish Temperature Range 601A 76.9 72 - 76		Range CO % - 60% 659		ccupants 2
Noticeable Odor No	Visible water damage / staining?	Visible microbial growth?	Amount of material affected	
Ceiling2' X 2' Lay inWallsDrywallFloor12" x 12" Vinyl	Yes No No	Yes No No	5 tiles	
Ceiling Clean Yes Walls Clean Yes Flooring Clean Yes	HVAC Supply Grills Clean Inside of Supply Duct Clean	No Yes	HVAC Return Grills Clean Inside of Return Duct Clean	No Yes
Room Surfaces Yes Clean	Ceiling at Supply Grills Clean	No		
Trash RemovedYesSigns of PestsNoRoom ClutteredNo	Exhaust Fans Working Drain Traps Wet Food if Stored in Room is in Sealed Containers	N/A Yes N/A	Unapproved Chemicals / Cleaners in Room Air Fresheners in Room	No No
Mechanical Equipment Location Reference Filters Installed Properly Condensate Pan Clean	oof Top Filters Clean Cooling Coil Clean		Mechanical Room Clean Inside of HVAC Unit Clean	
Fresh Air Intake Location	0	▼	Fresh Air Intake Free of Obstruction	
Observations Clean supply grills. Return grill nee Ceiling tiles need to be replace	ds to be cleaned. Return du	ctwork needs to be cl	leaned. High humidity in o	ffice.

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Clean HVAC supply grill with wexcide	▼
Remove return grill and vacuum	▼
Thoroughly Clean	▼
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Repair HVAC to Reduce Humidity Levels	▼
Replace ceiling tiles	▼
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