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

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January 11, 2	Signature on File	For Custodial Supervisor Use Only
TO:	Stephen Frazier, Principal Silver Trail Middle	Custodial Issues Addressed Custodial Issues Not Addressed
FROM:	Robert Krickovich, Coordinator, LEA Environmental Health & Safety Department	
SUBJECT:	Indoor Air Quality (IAQ) Assessment	

On January 10, 2018, I conducted an assessment at **Silver Trail Middle 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.

RK:smn Enc.

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

Federation of Public Employees

	S	Silver Trail M	liddle School	Evaluation Date	January 10, 2018	Time of	f Day 10:00
Outdoo	r Conditions	Tempe	rature	72.5 Relative I	Humidity 95.4	Ambie	nt CO2 452
FISI	H Ter	nperature	Range	Relative Humidity	Range	CO2	Range
133	3	71.9	72 - 78	71.6	30% - 60%	1297	MAX 700 > Ambient
Notice	eable Odor	No	Vis	ible water damage / staining?	Visible microbial growth?		mount of rial affected
Ceiling	2' X 4	4' Lay in		Yes	Yes	14 tiles	s -1 Sq" Microbial
Walls	Dr	ywall		No	No		
Floor	12" x	12" Vinyl		No	No		
5 Ceiling tiles missing, 2 broken and partially missing 7 stained ceiling tiles - 1 with a 1 square inch spot of microbial growth - Wood cabinets water damaged, paper covering wall water damaged. School staff - remove water damaged paper from wall and remove stained ceiling tiles. PPO - repair roofing, repair damaged cabinet, replace damaged / missing ceiling tiles.							
FISH	Tom	perature	Range	Relative Humidity	Range	CO2	Range
141		70.2	72 - 78	73.2	30% - 60%	1181	MAX 700 > Ambient
							ount of
Noticea	ble Odor	No	Visib	le water damage / staining?	Visible microbial growth?		al affected
Ceiling	2' X 4'	Lay in]	Yes	No		14 Tiles
Walls	Dry	wall]	No	Yes		6 Sq Ft
Floor	12" x 12	2" Vinyl]	No	No		
8 Ceiling tiles missing, 6 stained ceiling tiles - 6 Sq Ft spotty microbial growth on wall at HVAC return grill and on metal around return grill - microbial growth due to dust on surfaces and elevated humidity in building. School staff - remove water damaged paper from folding wall, remove stained ceiling tiles, clean wall, HVAC return grill, and area around grill with Wexcide. PPO - repair roofing, replace damaged / missing ceiling tiles.							
FISH	Tem	perature	Range	Relative Humidity	Range	CO2	Range
140		70.1	72 - 78	78.0	30% - 60%	1174	MAX 700 > Ambient
Noticea	able Odor	No	Visib	le water damage / staining?	Visible microbial growth?		ount of al affected
Ceiling	2' X 4'	Lay in]	Yes	No		6 Tiles
Walls		wall]	No	No		
Floor		2" Vinyl	- 1	No	No		
3 Ceilin			- ceiling tiles, i	paper covering wall water		open.	
			•	rom wall, remove staine ing ceiling tiles.	ed ceiling tiles, Keep w	rindows closed	I.

	S	lver Trail M	liddle School	Evaluation Date	January 10, 2018	Time of I	Day 10:00
Outdooi	· Conditions	Tempe	rature 7	2.5 Relative l	Humidity 95.4	Ambien	t CO2 452
FISH	H Tem	perature	Range	Relative Humidity	Range	CO2	Range
144	ļ	70.1	72 - 78	82.2	30% - 60%	1148	MAX 700 > Ambient
Notice	eable Odor [No	Visi	ble water damage / staining?	Visible microbial growth?		ount of al affected
Ceiling	2' X 4	' Lay in		Yes	No		7 Tiles
Walls	Dry	wall		Yes	No	;	36 Sq Ft
Floor	12" x 1	2" Vinyl		No	No		
high hu School	5 Ceiling tiles missing, 2 stained ceiling tiles, Rust and spotty microbial growth on HVAC return grill due to dust and high humidity in room - Drywall wall material East wall wet from window wall out 12' and up 3'. School staff - remove stained ceiling tiles, clean HVAC return grill with Wexcide. PPO - repair roofing, replace damaged / missing ceiling tiles, remove and replace wet wall material (wall backs to						
FISH	Temr	perature	Range	Relative Humidity	Range	CO2	Range
149		8.0	72 - 78	60.5	30% - 60%		MAX 700 > Ambient
Noticea Ceiling	ble Odor 2' X 4'	No Lay in	Visib	le water damage / staining? Yes	Visible microbial growth?	material	unt of affected) Tiles
Walls	Dryv	vall]	Yes	No	36	S Sq Ft
Floor	12" x 12	" Vinvl	1	No	No		
School s	5 Ceiling tiles missing, 5 stained ceiling tiles - Drywall wall material West wall wet from window wall out 12' and up 3'. School staff - remove stained ceiling tiles. PPO - repair roofing, replace damaged / missing ceiling tiles, remove and replace wet wall material (wall backs to 144).						·
FISH	Temp	erature	Range	Relative Humidity	Range	CO2	Range
150A		7.8	72 - 78	66.6	30% - 60%		MAX 700 > Ambient
Noticea	ble Odor		Visib	le water damage / staining?	Visible microbial growth?		unt of affected
Ceiling	2' X 4'	Lav in	1	Yes	No	8	Tiles
Walls	Dryv		1	Yes	No		Sq Ft
Floor			J 1				
	12" x 12		<u></u>	No l	No.		
blistered School	d top of folding staff - remove	y wall. stained cei	ling tiles.	issing, 3 stained ceiling	-		
1240 - ro	epair rooting, i	replace dan	naged / missi	ng ceiling tiles, repair v	inyi wali material - repl	iace missing fix	ture ienses

Silver Trail M	fiddle School	Evaluation Date	January 10, 2018	Time of	Day 10:00
Outdoor Conditions Tempe	rature 72.5	Relative H	lumidity 95.4	Ambie	nt CO2 452
FISH Temperature 242 71.3	Range 72 - 78	Relative Humidity 78.6	Range 30% - 60%	CO2	Range MAX 700 > Ambient
Noticeable Odor No		water damage / taining?	Visible microbial growth?		mount of rial affected
Ceiling 2' X 4' Lay in		Yes	No		45 Tiles
Walls Drywall		Yes	No	Entire N	orth & West walls
Floor Carpet		Yes	No	Along N	orth & West walls
10 Ceiling tiles missing, 35 stained ceiling tiles - Drywall wall material North & West wall wet from floor to ceiling. School staff - remove stained ceiling tiles. PPO - repair roofing, replace damaged / missing ceiling tiles, remove and replace wet wall material and water damaged carpet North and West walls.					
FISH Temperature	Range F	elative Humidity	Range	CO2	Range
135 70.6	72 - 78	75.9	30% - 60%	1287	MAX 700 > Ambient
Noticeable Odor No		ater damage / iining?	Visible microbial growth?		ount of al affected
Ceiling 2' X 4' Lay in		′es	No		4 Tiles
Walls Drywall		′es	No	2	40 Sq ft
Floor 12" x 12" Vinyl		No	No		
3 Ceiling tiles missing, 1 stained ceiling tile - Papers covering 2 folding wall panels water damaged - Drywall wall material North & East wall wet - Water staining on wall over windows. School staff - remove stained ceiling tiles, remove water damaged papers from walls. PPO - repair roofing, replace damaged / missing ceiling tiles, remove and replace wet wall material North & East wall from folding wall to corner of window wall out 2 feet on window wall and up to ceiling- Repair / replace stained wall over windows.					
FISH Temperature 71.4	Range F	relative Humidity	Range 30% - 60%	CO2 1206	Range MAX 700 > Ambient
Noticeable Odor No		ater damage / iining?	Visible microbial growth?		ount of al affected
Ceiling 2' X 4' Lay in		'es	No	3	35 Tiles
Walls Drywall		'es	No	Entir	e East wall
Floor 12" x 12" Vinyl		'es	No	40 Sq	Ft NE Corner
11 Ceiling tiles missing, 24 staine South wall Floor to ceiling- Water	-			idow on North	wall to door on
School staff - remove stained cei PPO - repair roofing, replace dan entire East wall to door on South	maged / missing o	_	and replace wet wall r	naterial from v	window on North wall,

	;	Silver Trail M	liddle School	Evaluation Date	January 10, 2018	Time of D	ay 10:00
Outdoor	⁻ Conditions	Tempe	rature	72.5 Relative	Humidity 95.4	Ambient	CO2 452
FISH	H Te	mperature	Range	Relative Humidity	Range	CO2	Range
165	5	70.7	72 - 78	76.2	30% - 60%	1125	MAX 700 > Ambient
Notice	able Odor	Yes	Vis	ible water damage / staining?	Visible microbial growth?		ount of I affected
Ceiling	2' X	4' Lay in		Yes	No	4	0 Tiles
Walls	D	rywall		Yes	No	Entire	e West wall
Floor	12" x	12" Vinyl		Yes	No	100 Sq	Ft West wall
on Sout School PPO - re	Musty Odor in room - 40 Ceiling tiles missing - Drywall wall material West wall wet from window on North wall to door on South wall Floor to ceiling- Water and water damaged ceiling tiles on floor along West wall. School staff - remove stained ceiling tiles. PPO - repair roofing, replace damaged / missing ceiling tiles, remove and replace wet wall material from window on North wall, entire West wall to door on South wall (wall backs to 161).						
FISH	Tem	perature	Range	Relative Humidity	Range	CO2	Range
166		71.7	72 - 78	64.4	30% - 60%		IAX 700 > Ambient
Noticea	ble Odor [No	Visib	ole water damage / staining?	Visible microbial growth?	Amou material	
Ceiling	2' X 4	' Lay in]	No	No		
Walls	Dry	/wall	1	Yes	No	24	Sq Ft
Floor		ırpet]	Yes	No	100	Sq Ft
Drvwall			et from door	to cabinet up 2 feet - C			
FISH		nperature	Range	Relative Humidity	Range	CO2	Range
166D		72.1	72 - 78	64.4	30% - 60%	1386N	IAX 700 > Ambient
Noticea	ble Odor [No	Visib	ole water damage / staining?	Visible microbial growth?	Amou material	
Ceiling	2' X 4	' Lay in]	Yes	No	1	Tile
Walls	<u>D</u> r\	/wall]	No	No		
Floor	Са	ırpet]	No	No		
1 Ceilin	g tile missing	J.					
PPO - re	epair roofing	, replace dar	naged / miss	sing ceiling tiles.			

Silver Tra	il Middle School	Evaluation Date	January 10, 2018	Time of Da	ay 10:00	
Outdoor Conditions Ten	nperature 72	.5 Relative	Humidity 95.4	Ambient (CO2 452	
FISH Temperatu	re Range	Relative Humidity	Range	CO2	Range	
162 70.0	72 - 78	63.9	30% - 60%	1017 N	MAX 700 > Ambient	
Noticeable Odor No	Visibl	le water damage / staining?	Visible microbial growth?	Amoi material	unt of affected	
Ceiling 2' X 4' Lay in		Yes	No	21	Tiles	
Walls Drywall		No	No			
Floor 12" x 12" Vinyl		No	No			
grills dirty. School staff - remove staine	4 Ceiling tiles missing, 2 ceiling tiles damaged partially missing, 15 stained ceiling tiles - HVAC Supply and return grills dirty. School staff - remove stained ceiling tiles, Clean HVAC supply and return grills with Wexcide. PPO - repair roofing, replace damaged / missing ceiling tiles,					
FISH Temperature	e Range	Relative Humidity	Range	CO2	Range	
168 69.2	72 - 78	63.0	30% - 60%		AX 700 > Ambient	
Noticeable Odor No		water damage / staining?	Visible microbial growth?	Amour material a	nt of	
Ceiling 2' X 4' Lay in		Yes	No	32	Tiles	
Walls Drywall		No	No			
Floor 12" x 12" Vinyl		No	No			
8 Ceiling tiles missing, 24 stai	ined ceiling tiles.					
School staff - remove stained ceiling tiles. PPO - repair roofing, replace damaged / missing ceiling tiles,						
FISH Temperature	e Range	Relative Humidity	Range	CO2	Range	
170 69.2	72 - 78	60.9	30% - 60%	802 M	AX 700 > Ambient	
Noticeable Odor No		water damage / staining?	Visible microbial growth?	Amour material a		
Ceiling 2' X 4' Lay in		Yes	No	14	Tiles	
Walls Drywall		No	No			
Floor 12" x 12" Vinyl		No	No			
11 Ceiling tiles missing, 3 stai	ined ceiling tiles.					
School staff - remove stained PPO - repair roofing, replace	-	g ceiling tiles,				

Multiple Room IAQ Assessment Evaluation Date January 10, 2018 10:00 Silver Trail Middle School Time of Day **Temperature** 95.4 **Ambient CO2** 452 72.5 Relative Humidity **Outdoor Conditions Relative Humidity FISH Temperature** CO₂ Range Range Range 198 71.1 64.6 962 72 - 78 30% - 60% MAX 700 > Ambient Visible microbial **Amount of** Visible water damage / **Noticeable Odor** No material affected growth? staining? 2' X 4' Lay in 7 Tiles Ceiling No Yes Walls Drywall No No 12" x 12" Vinyl **Floor** No No 4 Ceiling tiles missing, 3 stained ceiling tiles. School staff - remove stained ceiling tiles. PPO - repair roofing, replace damaged / missing ceiling tiles, **Relative Humidity FISH Temperature** Range Range CO₂ Range 224 70.1 74.9 830 72 - 78 30% - 60% MAX 700 > Ambient Visible microbial **Amount of** Visible water damage / **Noticeable Odor** No material affected growth? staining? 22 Tiles Ceiling 2' X 4' Lay in Yes No **Entire West wall** Walls Yes No Drywall Floor 12" x 12" Vinyl No No 17 Ceiling tiles missing, 5 stained ceiling tiles - Entire West wall wet from 3 feet off window on South wall around West wall to door on North wall. School staff - remove stained ceiling tiles. PPO - repair roofing, replace damaged / missing ceiling tiles - Remove and replace entire West wall from 3 feet off window on South wall around West wall to door on North wall (wall backs to 223)

FISH	Temperature	Range	Relative Humidity	Range	CO2	Range
223	68.1	72 - 78	74.6	30% - 60%	635	MAX 700 > Ambient
Noticeabl	e Odor No	Visil	ole water damage / staining?	Visible microbial growth?		mount of rial affected
Ceiling	2' X 4' Lay in		Yes	No		29 Tiles
Walls	Drywall		Yes	No	En	tire East wall
Floor	12" x 12" Vinyl		No	No		

21 Ceiling tiles missing, 8 stained ceiling tiles - Entire East wall wet from 3 feet off window on South wall around East wall to door on North wall.

School staff - remove stained ceiling tiles.

PPO - repair roofing, replace damaged / missing ceiling tiles - Remove and replace entire East wall from 3 feet off window on South wall around East wall to door on North wall (wall backs to 224)

Multiple Room IAQ Assessment Evaluation Date January 10, 2018 10:00 Silver Trail Middle School Time of Day 95.4 **Ambient CO2** 452 **Temperature** 72.5 **Relative Humidity Outdoor Conditions Relative Humidity FISH Temperature** CO₂ Range Range Range 195 70.8 68.1 1195 72 - 78 30% - 60% MAX 700 > Ambient Visible microbial **Amount of** Visible water damage / **Noticeable Odor** No material affected growth? staining? 2' X 4' Lay in 18 Tiles Ceiling Yes No Walls Drywall No No 12" x 12" Vinyl Floor No No 11 Ceiling tiles missing, 7 stained ceiling tiles. School staff - remove stained ceiling tiles. PPO - repair roofing, replace damaged / missing ceiling tiles. **Relative Humidity FISH** Temperature Range Range CO₂ Range 193 71.5 62.5 1103 72 - 78 30% - 60% MAX 700 > Ambient Visible microbial Amount of Visible water damage / **Noticeable Odor** No material affected growth? staining? 43 Tiles Ceiling 2' X 4' Lay in Yes No Walls No Drywall No Floor 12" x 12" Vinyl No No 23 Ceiling tiles missing, 20 stained ceiling tiles. School staff - remove stained ceiling tiles. PPO - repair roofing, replace damaged / missing ceiling tiles. **Relative Humidity FISH Temperature** Range Range CO₂ Range

191	71.6	72 - 78 64.6	30% - 60%	1188 MAX 700 > Ambient
Noticea	ble Odor No	Visible water damage / staining?	Visible microbial growth?	Amount of material affected
Ceiling	2' X 4' Lay in	Yes	No	14 Tiles
Walls	Drywall	No	No	
Floor	12" x 12" Vinyl	No	No	

2 Ceiling tiles missing, 12 stained ceiling tiles.

School staff - remove stained ceiling tiles.

PPO - repair roofing, replace damaged / missing ceiling tiles.

Sil	lver Trail Middle Schoo	Evaluation Date	January 10, 2018	Time of Day 10:00
Outdoor Conditions	Temperature	72.5 Relative I	Humidity 95.4	Ambient CO2 452
	perature Range 71.4 72 - 78	Relative Humidity 57.8	Range 30% - 60%	CO2 Range 1403 MAX 700 > Ambient
Noticeable Odor	No Vis	sible water damage / staining?	Visible microbial growth?	Amount of material affected
Ceiling 2' X 4'	Lay in	Yes	No	18Tiles
Walls Dry	wall	No	No	
Floor 12" x 12	2" Vinyl	No	No	
8 Ceiling tiles missin	g, 10 stained ceiling	tiles.		
	e stained ceiling tiles replace damaged / m			
,				
	erature Range	Relative Humidity	Range	CO2 Range
180 70	0.5 72 - 78	57.2	30% - 60%	1280 MAX 700 > Ambient
Noticeable Odor	No Visi	ble water damage / staining?	Visible microbial growth?	Amount of material affected
Ceiling 2' X 4' L	_ay in	Yes	No	10 Tiles
Walls Dryw	/all	No	No	
Floor 12" x 12"	" Vinyl	No	No	
6 Ceiling tiles missing,	, 4 stained ceiling tiles.			
Sahaal ataff ramaya	stained soiling tiles			
School staff - remove PPO - repair roofing, r	replace damaged / mis	sing ceiling tiles.		
FISH Temp	erature Range	Relative Humidity	Range	CO2 Range
	V/A 72 - 78	N/A	30% - 60%	N/A MAX 700 > Ambient
Noticeable Odor	No Visi	ble water damage / staining?	Visible microbial growth?	Amount of material affected
Ceiling 2' X 4' L	_ay in	Yes	Yes	31 Tiles 4 Sq Ft Drywall
Walls Dryw		No	No	
Floor 12" x 12"		No	No	
Cafeteria - 11 Ceiling t damaged.	tiles missing, 20 staine	d ceiling tiles, 2 with 4 so	inch spots of microb	ial growth - Drywall soffit water

School staff - remove stained ceiling tiles.

PPO - repair roofing, replace damaged / missing ceiling tiles - Remove and replace water damaged drywall soffit over doors.

	Silver Trail Middle Scho	Evaluation Date	January 10, 2018	Time of Day 10:00
Outdoor Conditions	Temperature	72.5 Relative	Humidity 95.4	Ambient CO2 452
	mperature Range	Relative Humidity	· ·	CO2 Range
116	69.5 72 - 78	77.4	30% - 60%	842 MAX 700 > Ambient
Noticeable Odor	Yes	isible water damage / staining?	Visible microbial growth?	Amount of material affected
Ceiling 2' X	4' Lay in	Yes	No	16 Tiles
Walls D	rywall	Yes	Yes	Entire West wall
Floor Bare	Concrete	Yes	No	
West wall and cabir	nets wet and water da	pulled away from West maged with microbial g iling tiles, West wall, wa	rowth.	missing, 11 stained ceiling tiles -
PPO to repair roofin	ng, replace wall and c	eiling material after rem	oval by EH&S.	
FISH Tem	perature Range	Relative Humidity	Range	CO2 Range
117	70.2 72 - 78	76.2	30% - 60%	840 MAX 700 > Ambient
Noticeable Odor	No Vis	ible water damage / staining?	Visible microbial growth?	Amount of material affected
Ceiling 2' X 4	Lay in	Yes	No	10 Tiles
Walls Dry	wall	Yes	No	Entire East wall
Floor 12" x 1	2" Vinyl	No	No	
East wall wet and wa	ater damaged.			
EH&S Contractor to	remove damaged ceilin	ig tiles, and East wall.		
PPO to repair roofing	g, replace wall and ceili	ng material after removal	by EH&S.	
	5, I	3		
FISH Tem	perature Range	Relative Humidity	Range	CO2 Range
	72 - 78		30% - 60%	MAX 700 > Ambient
Noticeable Odor	Vis	ible water damage / staining?	Visible microbial growth?	Amount of material affected
Ceiling				
Walls				
Floor				

Silver Trail Middle School

Evaluation Date January 10, 2018

Time of Day

10:00

Corrective Actions to be Completed by Site Based Staff

Remove and replace stained ceiling tiles	▼
Remove water damaged paper from walls	▼
	▼
Clean Supply & Return Grills with Wexcide 162	▼
Clean HVAC Return Grill with Wexcide 144	▼
Clean wall and return in 141	▼
	▼
	▼
	▼
	▼
	T
	▼
	▼
	T▼
	▼
	▼

Corrective Actions to be Completed by PPO

Facility Wide	▼
Repair cause of stained ceiling tile - ROOFING	▼
Remove and replace stained ceiling tiles - ALL	▼
Evaluate and repair HVAC system as needed	·
Repair HVAC to Reduce Humidity Levels	▼
Set Temperature to 72 - 78 degrees	▼
Repair HVAC to reduce CO2	▼
	▼
Remove and replace wall material as needed	▼
144, 149, 161, 165, 166, 223, 224, & 242	▼
Evaluate carpet for replacement - 166 & 242	▼
Replace damaged drywall soffit - 230A & 230B	▼
Replace missing fixture lenses 150A	▼
	▼
	▼
	▼

Corrective Actions to be Completed by EH&S

Remove water damaged ceiling tiles, and mold contaminated wall, and cabinets in room 116	
Remove water damaged wall and ceiling tile in room 117	

Corrective Actions to be Completed by Facilities & Construction

Expedite Roofing Replacement Project					