

# managing risk with responsibility

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Jeffrey S. Moquin, Director Risk Management Department

January 4, 2008 Signature on File

TO: Mr. Chuck McCanna,, Principal

Nova Blanche Forman Elementary School

FROM: Edward See, Project Manager

Risk Management Department

SUBJECT: Indoor Air Quality (IAQ) Assessment

> FISH 104, 105, 107, 108, 109, 116, 134, 139, 142, 174 and Portable 847VE

1	Custodial Issues Addressed
7	Custodial Issues Not Addressed
_	Custodiai Issues Ivot Addressed

On November 21, 2007 Aston Henry and I conducted an assessment of FISH 104, 105, 107, 108, 109, 116, 134, 139, 142, 174 and Portable 847VE at Nova Blanche Forman 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 754-321-3200.

cc: Dr. Leontine Butler, Area Superintendent

Toni Weissberg, Area Director

Jeffrey S. Moquin, Director, Risk Management

Scott Gillen, Project Manager, Facilities and Construction Management

Diane Watts, 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/Grounds, Physical Plant Operations Division

Robert Krickovich, Coordinator, LEA, Facilities and Construction Management

ES/tc Enc.

N	Nova Blanche For	man Elementa	ry School		Evaluati	on Requested	Novembe	er 19, 2007
Time of Day	11:45 am				E	Evaluation Date	Novembe	er 21, 2007
Outdoor Cond	itions Tem	perature	81	Relative Humidi	ty 59.1	Ambie	nt CO2	438
Fish	Temperature	Range Rela	ative Humidity	Range	CO2	Ran	ge #	Occupants
104		2 - 78	47.5	30% - 60%	889		ອວ > Ambient	
Noticeable O			 Visible water nage / staining	Visible mid	robial	Amount of mat		
Ceiling Type	2 x 4 Lay		Yes	No	]		eiling tile	
Wall Type	Drywall		No	No	- 1		None	
Flooring	Tile		No	No	]		None	
	Clean	Minor Dust / Debris	Needs Cleaning		Correc	tive Action Re	quired	
Ceiling	No	Yes	Yes		Remove	and replace ce	iling tile	
Walls	Yes	No	No					
Flooring	Yes	No	No					
HVAC Supply	Grills Yes	No	No					
i i i i i i i i i i i i i i i i i i i	011113 [103]	140	140					
HVAC Return	Grills No	Yes	Yes	Clea	n with We	excide disinfec	tant soluti	on
Ceiling at Sup Grills	oply Yes	No	No					
Surfaces in R	oom Yes	No	No					
LObservations								
- HFSP advised	ris on HVAC retur	up on the roof		orm due to draina plenum.	ge problem	ns and issue is c	currently be	eing
Recommendat	tions:							
roof. - Clean HVAC ı	replace stained correturn grills with V	Vexcide disinfe	ctant solution	ntact Physical Plar	·	-		

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Nova Bland	che Forman Element	ary School		Evaluation Re	equested November 19, 2007
Time of Day 11:55	am			Evalua	November 21, 2007
Outdoor Conditions	Temperature	81 Rel	ative Humidity	59.1	Ambient CO2 438
Fish         Temperate           105         68.1	ure Range Re		Range % - 60%	<b>CO2</b> 896	Range # Occupants Max 700 > Ambient 3
Noticeable Odor	No da	Visible water mage / staining?	Visible microb growth?	oial Amo	ount of material affected
Ceiling Type 2 >	x 4 Lay In	No	No		None
Wall Type	Drywall	No	No		None
Flooring	Tile	No	No		None
Cle	ean Minor Dust / Debris	Needs Cleaning		Corrective A	Action Required
Ceiling	'es No	No			
Walls	es No	No			
Flooring	'es No	No			
HVAC Supply Grills Y	'es No	No			
HVAC Return Grills Y	'es No	No			
Ceiling at Supply Grills	res No	No			
Surfaces in Room Y	ves No	No			
bservations					
Findings: - No signs of water intrusi - Temperature was low at					
Recommendations:					
Site Based Maintenance - Adjust thermostat to inco Continue to monitor this appropriate	rease temperature ar	nd resolve indoor ai s of microbial growt	r quality concerns th as well as dust	s and debris a	accumulation and clean as

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Nova B	lanche Forman Ele	mentary School		Evaluation Requested	November 19, 2007
Time of Day 12	:10 pm			Evaluation Date	November 21, 2007
Outdoor Conditions	Temperatur	e 81	Relative Humidity	59.1 Ambien	t CO2 438
Fish Temper 107 Noticeable Odor	Prature Range 72 - 78	Relative Humidity  Visible water damage / staining	30% - 60% Visible micro	CO2 Rang Max 700 >	Ambient
Ceiling Type	2 x 4 Lay In	No No	No		None
Wall Type	Drywall	No	No	N	lone
Flooring	Tile	No	No		None
	Clean Minor / De			Corrective Action Rec	quired
Ceiling	Yes	o No			
Walls	Yes	o No			
Flooring	Yes	o No			
HVAC Supply Grills	Yes	o No			
<b>HVAC</b> Return Grills	Yes	o No			
Ceiling at Supply Grills	Yes	o No			
Surfaces in Room	Yes	No			
bservations Findings:					
<ul> <li>Principal advised tha</li> <li>Principal advised tha</li> </ul>		s water leaks out fror tched/repaired	n under the wall		
Recommendations:	·	·			
appropriate  Physical Plant Opera	this location for any ations ater leaking out fro	m under the wall duri		t and debris accumulation	

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N	ova Blanche For	man Elementar	/ School		Evaluation Request	ed November 19, 2007
Time of Day	12:10 pm				Evaluation D	ate November 21, 2007
Outdoor Condi	tions Tem	perature	31	Relative Humidity	59.1 Am	abient CO2 438
Fish	Temperature F	Range Relat	ive Humidity	Range	CO2	Range # Occupants
108	69.9	2 - 78	35.5	30% - 60%	818 <b>Max</b> 7	700 > Ambient 2
Noticeable Od	or No	_	isible water age / staining?	Visible micro growth?	bial Amount of affec	ted
Ceiling Type	2 x 4 Lay	In	Yes	No		3 ceiling tiles
Wall Type	Drywall		No	No		None
Flooring	Tile		No	No		None
	Clean	Minor Dust / Debris	Needs Cleaning		Corrective Action	n Required
Ceiling	No	Yes	Yes	Re	emove and replace	ceiling tiles
Walls	Yes	No	No			
Flooring	Yes	No	No			
HVAC Supply	Grills Yes	No	No			
HVAC Return	Grills Yes	No	No			
Ceiling at Sup Grills	ply Yes	No	No			
Surfaces in Ro	oom Yes	No	No			
) bservations						

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**Location Number** 

# Findings:

- Occupant advised that during rain storms water leaks out from under the wall and A/C unit is non functional quite often.
- 3 stained ceiling tiles
- Wall molding is not attached to the wall
- Principal advised that roof has been patched/repaired

### Recommendations:

## Site Based Maintenance:

- Remove and replace stained ceiling tiles. If stains return, contact Physical Plant Operations to generate a work order to evaluate roof.
- 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 cause of water leaking out from under the wall during rain storms (as advised by occupant) and repair as appropriate. Attach loose wall molding.
- Evaluate HVAC system for proper operation and repair as appropriate

N	lova Blanche	Forman Elem	entary School		Evaluat	tion Requested	November 19, 200	7
Time of Day	12:30 pm		_		1	Evaluation Date	November 21, 200	7
Outdoor Cond	itions 7	emperature	81	Relative Hun	nidity 59.1	I Ambie	ent CO2 438	
Fish	Temperature	Range	Relative Humid	<sup>ity</sup> Range	CO2	Rar	nge # Occupan	nts
109	71.6	72 - 78	41.2	30% - 60%	1047		> Ambient 2	
Noticeable Oc	dor Yes		Visible wate damage / staini		microbial owth?	Amount of ma affected	terial	
Ceiling Type	2 x 4 L	ay In	No		No		None	
Wall Type	Dryv	vall	No		No		None	]
Flooring	Carp	pet	No		No		None	
	Clean	Minor D / Debri		~	Corre	ctive Action Re	equired	
Ceiling	Yes	No	No					
Walls	Yes	No	No					
Flooring	No	Yes	Yes		E	Evaluate carpe	t	
HVAC Supply	Grills No	Yes	Yes		Clean wit	th Wexcide dis	infectant	
HVAC Return	Grills No	Yes	Yes		Clean wit	th Wexcide dis	infectant	
Ceiling at Sup Grills	pply Yes	No	No					
Surfaces in Ro	oom Yes	No	No					]
bservations								
Findings:				<del></del>				

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**Location Number** 

- Odor emanating from carpet
- CO2 level was slightly elevated for only 2 occupants
- No signs of water intrusion or microbial growth
- Dust and debris on HVAC supply and return grills
- Drainage outside of classroom is blocked in the flower garden

# Recommendations:

### Site Based Maintenance:

- Clean HVAC supply and return grills with Wexcide disinfectant solution
- Contact Physical Plant Operations to generate work order to correct drainage outside of classroom
- 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 carpet for replacement
- Evaluate HVAC system for proper operation and repair as appropriate to lower CO2 level

N	ova Blanche For	man Elementa	ry School		Evaluat	ion Requested	November	19, 2007
Time of Day	11:45 am				ı	Evaluation Date	November	21, 2007
Outdoor Condi	tions Tem	nperature	81	Relative Hum	idity 59.1	Ambie	nt CO2	438
Fish	Temperature <sub> </sub>	Range Rel	ative Humidity	Range	CO2	Ran	ge # (	Occupants
116	72.5 <b>7</b>	<b>'</b> 2 - 78	64.8	30% - 60%	894	Max 700	> Ambient	60
Noticeable Od	or No		Visible water mage / staining		microbial wth?	Amount of mat affected	erial	
Ceiling Type	2 x 4 Lay	In	Yes	N	lo	3 ce	eiling tiles	
Wall Type	Drywall		Yes	N	lo	Southeast c	orner at exit	door
Flooring	12 x 12 Vii	nyl	No	N	lo		None	
	Clean	Minor Dust / Debris	Needs Cleaning		Corre	ctive Action Re	quired	
Ceiling	No	Yes	Yes		Remove	and replace ce	iling tile	
Walls	No	Yes	Yes		Repair/	replace wall m	aterial	
Flooring	Yes	No	No					
HVAC Supply	Grills Yes	No	No					
HVAC Return	Grills Yes	No	No					
Ceiling at Sup Grills	ply Yes	No	No					
Surfaces in Ro	oom Yes	No	No					
bservations					-			

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**Location Number** 

- 3 stained ceiling tiles HFSP advised that ceiling tiles are changed regularly after rain event
- Exterior stucco has long cracks and bubbling paint possible source of water intrusion
- Visible water damage/staining in Southeast corner at the exit door
- Humidity level was slightly elevated

### Recommendations:

# Site Based Maintenance:

- Remove and replace stained 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 cause of stained ceiling tiles and repair as appropriate. Repair/replace wall material as appropriate.
- Evaluate exterior stucco and repair as appropriate
- Evaluate HVAC system for proper operation and repair as appropriate to lower humidity level

Nova Blanche Forman Elem	nentary School	Evaluation Requested November 19, 2007
Time of Day 11:30 am		Evaluation Date November 21, 2007
Outdoor Conditions Temperature	81 Relative Humidity	59.1 Ambient CO2 438
Fish         Temperature         Range           134         72.4         72 - 78		CO2         Range         # Occupants           1427         Max 700 > Ambient         20
Noticeable Odor Yes	Visible water Visible microl damage / staining? visible microl growth?	bial Amount of material affected
Ceiling Type 2 x 4 Lay In	No No	None
Wall Type Plaster	No No	None
Flooring 12 x 12 Vinyl	No No	None
Clean Minor D		Corrective Action Required
Ceiling Yes No	No	
Walls Yes No	No	
Flooring Yes No	No	
HVAC Supply Grills Yes No	No	
HVAC Return Grills No Yes	Yes CI	ean with Wexcide disinfectant
Ceiling at Supply Yes No Grills	No	
Surfaces in Room Yes No	No	
bservations		
Findings: - Humidity and CO2 levels were slightly ele - Dust and debris on HVAC return grills	evated	
Recommendations:		
Site Based Maintenance:  - Clean HVAC return grills with Wexcide di - Continue to monitor this location for any sappropriate  Physical Plant Operations - Evaluate HVAC system for proper operat	signs of microbial growth as well as dust	

**Location Number** 

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Evaluation Requested November 19, 2007

Nova B	lanche Forman Eler	mentary School		Evaluation Reque	sted November 19, 2007
Time of Day 11:	:50 am			Evaluation	Date November 21, 2007
Outdoor Conditions	Temperature	e 81	Relative Humidity	, 59.1 A	ambient CO2 438
Tompo					
Fish         Tempe           139         73	3.3 <b>72 - 78</b>	Relative Humidity 61.6	,age	845 Max	Range # Occupants x 700 > Ambient 2
		Visible water	30% - 60% Visible micr		of material
Noticeable Odor	No	damage / staining			ected
Ceiling Type	2 x 4 Lay In	No	No		None
Wall Type	Plaster	No	No		None
Flooring	12 x 12 Vinyl	No	No		None
	Clean Minor / Deb		1	Corrective Action	on Required
Ceiling	Yes		,		
Walls	Yes	No			
Flooring	Yes	No			
HVAC Supply Grills	Yes	No			
HVAC Return Grills	No	Yes		lean with Wexcid	e disinfectant
Ceiling at Supply Grills	Yes No	No			
Surfaces in Room	Yes No	No			
Observations					
Findings: - Humidity level was s - Dust and debris on F - Occupant advised no	HVAC return grills				
Recommendations:					
Site Based Maintena - Clean HVAC return of Continue to monitor appropriate	grills with Wexcide o	lisinfectant solution signs of microbial ç	growth as well as du	st and debris accur	nulation and clean as
Physical Plant Opera - Evaluate HVAC syst		tion and repair as a	appropriate to lower	humidity level	

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N	ova Blanche	Forman Eleme	entary School		Evaluat	ion Requested	November 19	, 2007
Time of Day	12:15 pm				I	Evaluation Date	November 21	, 2007
Outdoor Condi	tions	Temperature	81	Relative Humid	ity 59.1	Ambie	nt CO2 43	В
l	Temperature	Range	Relative Humidity		CO2	Ran	_	cupants
142	72.4	72 - 78	55.5	30% - 60%	1088		> Ambient	18
Noticeable Od	lor No		Visible water damage / staining	Visible mi growt		Amount of ma affected	terial	
Ceiling Type	2 x 4	Lay In	Yes	No		3 c	eiling tiles	
Wall Type	Pla	ster	No	No			None	
Flooring	12 x 1	2 Vinyl	No	No			None	
	Clean	Minor D / Debri		l	Corre	ctive Action Re	equired	
Ceiling	No	Yes	Yes		Remove a	and replace cei	iling tiles	
Walls	Yes	No	No					
Flooring	Yes	No	No					
HVAC Supply	Grills No	Yes	Yes		Clean wit	h Wexcide dis	infectant	
HVAC Return	Grills No	Yes	Yes		Clean wit	h Wexcide dis	infectant	
Ceiling at Sup Grills	ply No	Yes	Yes		Cle	an as appropri	ate	
Surfaces in Ro	oom No	Yes	Yes		Cle	an as appropri	ate	
Dbservations Findings:	na tiles							

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**Location Number** 

# 0

- Dust and debris on HVAC supply and return grills and on ceiling at supply grills
- Dust build up on environmental surfaces

### Recommendations:

### Site Based Maintenance:

- Remove and replace stained ceiling tiles
- Clean HVAC supply and return grills with Wexcide disinfectant solution and ceiling at supply grills
- Thoroughly clean environmental 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

# Physical Plant Operations

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

Nova Bl	lanche Forman Eleme	entary School		Evaluation F	Requested November 19, 2007
Time of Day 12:	:00 pm			Evalu	nation Date November 21, 2007
Outdoor Conditions	Temperature	81	Relative Humidity	59.1	Ambient CO2 438
Noticeable Odor Ceiling Type	3.1 <b>72 - 78</b> No 2 x 4 Lay In	Relative Humidity 60.8  Visible water damage / staining	No		Range # Occupants  Max 700 > Ambient 1  rount of material affected  3 ceiling tiles
Wall Type	Drywall	No	No		None
Flooring	12 x 12 Vinyl	No	No		None
	Clean Minor D	s Cleaning			Action Required
Ceiling	No	Yes	R	emove and i	replace ceiling tiles
Walls	Yes No	No			
Flooring	Yes No	No			
HVAC Supply Grills	Yes No	No			
HVAC Return Grills	Yes No	No			
Ceiling at Supply Grills	Yes No	No			
Surfaces in Room	Yes No	No			
Observations					
Findings: - Humidity level was sl - 3 stained ceiling tiles - HYVAC recently repl  Recommendations:  Site Based Maintenal - Continue to monitor tappropriate  Physical Plant Operal - Evaluate HVAC systematics	aced A/C controls  nce: this location for any si	on and repair as a	ppropriate to lower h		accumulation and clean as

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Time of Day	11:50 am	1				E	Evaluation Date	Novemb	er 21, 2007
Outdoor Condi	tions	Temperature	81	Relative	Humidity	y 59.1	Ambie	ent CO2	438
Fish	Temperature	Range	Relative Hum	nidity Ranç	e	CO2	Rai	nge #	Occupants
P-847VE	71.8	72 - 78	63.2	30% - 6	0%	446	Max 700	) > Ambien	t 1
Noticeable Od			Visible wa damage / sta		isible micr growth		Amount of ma affected		
Ceiling Type		Lay In	Yes		No		Li	ight Grids	
Wall Type	Tac	kable	No		No			None	
Flooring	12 x 1	2 Vinyl	No		No			None	
	Clean	Minor D		eds Ining		Correc	ctive Action R	equired	
Ceiling	Yes	No	N	0					
Walls	Yes	No	N	0					
Flooring	Yes	No	N	0					
HVAC Supply	Grills Yes	No	N	0					
HVAC Return	Grills Yes	No	N	0					
Ceiling at Sup Grills	ply Yes	No	N	0					
Surfaces in Ro	oom Yes	No	N	0					
bservations									
- 2 vinyl floor tile	Operations es were crac	is currently wo	rking on the e	xterior of the p	ortable - ⁻	Γ 1-11 ins	talled but not y	et painted.	
Recommendati	ions:								
Site Based Mai - Contact Physic - Continue to mo	cal Plant Ope							ion and clea	an as
Physical Plant - Evaluate A/C f	Operations or proper op	eration and re	pair as approp	oriate to lower	humidity le	evel			
Work orders	s - J27542	3 and J275	427						

Nova Blanche Forman Elementary School

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November 19, 2007

Location Number
Evaluation Requested