

# RISK MANAGEMENT...

managing risk with responsibility

Aston A. Henry, Director  
Risk Management Department

Telephone: 754 321-1900  
Fax: 754 321-1917

September 10, 2013

Signature on File

TO: Shawn Allen, Principal  
**Lloyd Estates Elementary School**

FROM: Robert Krickovich, Coordinator I, LEA  
Risk Management Department

SUBJECT: Indoor Air Quality (IAQ) Assessment

<u>For Custodial Supervisor Use Only</u>	
<input type="checkbox"/>	Custodial Issues Addressed
<input type="checkbox"/>	Custodial Issues Not Addressed
_____	
_____	

On August 27, 2013, I conducted an assessment at **Lloyd Estates 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 754-321-1907.

cc: Shelley Meloni, Task Assigned Chief Facilities & Construction Officer, Facilities & Construction  
Mark Dorsett, Manager, Zone 1, Physical Plant Operations Division  
Roy Norton, Manager, Custodial/Grounds, Physical Plant Operations Division  
Aston Henry, Director, Risk Management  
Sonja Coley, Senior Project Manager, Facilities & Construction  
Broward Teachers Union  
Federation of Public Employees

RK/tc  
Enc.

# IAQ Assessment

Lloyd Estates Elementary

Evaluation Date August 27, 2013

Time of Day 2:00

Outdoor Conditions    Temperature 86.1    Relative Humidity 64.3    Ambient CO2 476

Fish	Temperature	Range	Relative Humidity	Range	CO <sup>2</sup>	Range	# Occupants
202	70.5	72 - 78	57.6	30% - 60%	773	MAX 700 > Ambient	4
Noticeable Odor		Visible water damage / staining?		Visible microbial growth?		Amount of material affected	
Ceiling		Walls		Floor			
No		No		No			
2' X 2' Lay in		No		No			
Vinyl Covered		No		No			
12" x 12" Vinyl		No		No			

Ceiling Clean	<input type="checkbox"/> Yes	HVAC Supply Grills Clean	<input type="checkbox"/> No	HVAC Return Grills Clean	<input type="checkbox"/> Yes
Walls Clean	<input type="checkbox"/> No	Inside of Supply Duct Clean	<input type="checkbox"/> Yes	Inside of Return Duct Clean	<input type="checkbox"/> Yes
Flooring Clean	<input type="checkbox"/> Yes	Ceiling at Supply Grills Clean	<input type="checkbox"/> No		
Room Surfaces Clean	<input type="checkbox"/> Yes				

Trash Removed	<input type="checkbox"/> Yes	Exhaust Fans Working	<input type="checkbox"/> No	Unapproved Chemicals / Cleaners in Room	<input type="checkbox"/> No
Signs of Pests	<input type="checkbox"/> No	Drain Traps Wet	<input type="checkbox"/> Yes	Air Fresheners in Room	<input type="checkbox"/> No
Room Cluttered	<input type="checkbox"/> No	Food if Stored in Room is in Sealed Containers	<input type="checkbox"/> N/A		

Mechanical Equipment Location	FISH 209	Mechanical Room Clean	<input type="checkbox"/> Yes
Filters Installed Properly	<input type="checkbox"/> Yes	Filters Clean	<input type="checkbox"/> Yes
Condensate Pan Clean	<input type="checkbox"/> No	Cooling Coil Clean	<input type="checkbox"/> No
		Inside of HVAC Unit Clean	<input type="checkbox"/> No

Fresh Air Intake Location	Outside of Room	Fresh Air Intake Free of Obstruction	<input type="checkbox"/> Yes
Pollutant Sources Near Air Intake	None		

**Observations**

Dust on wall surfaces - Exhaust fan in restroom not working - Dust build up on ceiling at HVAC supply grills. HVAC Unit rusted through in several locations - inside of unit dirty / dusty -

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**Corrective Actions to be Completed by Site Based Staff**

Clean ceilings around HVAC supply grills	▼
Clean HVAC supply grills with Wexcide	▼
Clean dust from wall surfaces	▼
	▼
	▼
	▼
	▼
	▼

**Corrective Actions to be Completed by PPO**

Clean entire HVAC System - Unit and Drops	▼
Evaluate HVAC unit for proper operation	▼
Evaluate all HVAC controls and interlocks	▼
Repair exhaust fan in 202D	▼
	▼
	▼
	▼
	▼

# IAQ Assessment

Lloyd Estates Elementary

Evaluation Date August 27, 2013

Time of Day 2:00

Outdoor Conditions    Temperature 86.1

Relative Humidity 64.3

Ambient CO2 476

Fish	Temperature	Range	Relative Humidity	Range	CO <sup>2</sup>	Range	# Occupants
<span style="border: 1px solid black; padding: 2px;">204</span>	<span style="border: 1px solid black; padding: 2px;">70.7</span>	<span style="border: 1px solid black; padding: 2px;">72 - 78</span>	<span style="border: 1px solid black; padding: 2px;">54.1</span>	<span style="border: 1px solid black; padding: 2px;">30% - 60%</span>	<span style="border: 1px solid black; padding: 2px;">737</span>	<span style="border: 1px solid black; padding: 2px;">MAX 700 &gt; Ambient</span>	<span style="border: 1px solid black; padding: 2px;">2</span>
Noticeable Odor		<span style="border: 1px solid black; padding: 2px;">No</span>	Visible water damage / staining?		Visible microbial growth?		Amount of material affected
Ceiling	<span style="border: 1px solid black; padding: 2px;">2' X 2' Lay in</span>		<span style="border: 1px solid black; padding: 2px;">No</span>		<span style="border: 1px solid black; padding: 2px;">No</span>		<span style="border: 1px solid black; padding: 2px;"></span>
Walls	<span style="border: 1px solid black; padding: 2px;">Drywall/Tackboard</span>		<span style="border: 1px solid black; padding: 2px;">No</span>		<span style="border: 1px solid black; padding: 2px;">No</span>		<span style="border: 1px solid black; padding: 2px;"></span>
Floor	<span style="border: 1px solid black; padding: 2px;">12" x 12" Vinyl</span>		<span style="border: 1px solid black; padding: 2px;">No</span>		<span style="border: 1px solid black; padding: 2px;">No</span>		<span style="border: 1px solid black; padding: 2px;"></span>
Ceiling Clean	<span style="border: 1px solid black; padding: 2px;">Yes</span>	HVAC Supply Grills Clean		<span style="border: 1px solid black; padding: 2px;">No</span>	HVAC Return Grills Clean		<span style="border: 1px solid black; padding: 2px;">Yes</span>
Walls Clean	<span style="border: 1px solid black; padding: 2px;">Yes</span>	Inside of Supply Duct Clean		<span style="border: 1px solid black; padding: 2px;">Yes</span>	Inside of Return Duct Clean		<span style="border: 1px solid black; padding: 2px;">Yes</span>
Flooring Clean	<span style="border: 1px solid black; padding: 2px;">Yes</span>	Ceiling at Supply Grills Clean		<span style="border: 1px solid black; padding: 2px;">Yes</span>			
Room Surfaces Clean	<span style="border: 1px solid black; padding: 2px;">Yes</span>						
Trash Removed	<span style="border: 1px solid black; padding: 2px;">Yes</span>	Exhaust Fans Working		<span style="border: 1px solid black; padding: 2px;">Yes</span>	Unapproved Chemicals / Cleaners in Room		<span style="border: 1px solid black; padding: 2px;">No</span>
Signs of Pests	<span style="border: 1px solid black; padding: 2px;">No</span>	Drain Traps Wet		<span style="border: 1px solid black; padding: 2px;">Yes</span>	Air Fresheners in Room		<span style="border: 1px solid black; padding: 2px;">No</span>
Room Cluttered	<span style="border: 1px solid black; padding: 2px;">Yes</span>	Food if Stored in Room is in Sealed Containers		<span style="border: 1px solid black; padding: 2px;">N/A</span>			
Mechanical Equipment Location	<span style="border: 1px solid black; padding: 2px;">FISH 209</span>					Mechanical Room Clean	<span style="border: 1px solid black; padding: 2px;">Yes</span>
Filters Installed Properly	<span style="border: 1px solid black; padding: 2px;">Yes</span>	Filters Clean		<span style="border: 1px solid black; padding: 2px;">Yes</span>	Inside of HVAC Unit Clean		<span style="border: 1px solid black; padding: 2px;">No</span>
Condensate Pan Clean	<span style="border: 1px solid black; padding: 2px;">No</span>	Cooling Coil Clean		<span style="border: 1px solid black; padding: 2px;">No</span>			
Fresh Air Intake Location	<span style="border: 1px solid black; padding: 2px;">Outside of Room</span> ▼					Fresh Air Intake Free of Obstruction	<span style="border: 1px solid black; padding: 2px;">Yes</span>
Pollutant Sources Near Air Intake	<span style="border: 1px solid black; padding: 2px;">None</span> ▼						

**Observations**

Room and storage room has a lot of papers and boxes all hold moisture and odors and make it hard to clean the room properly -

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HVAC Unit rusted through in several locations - inside of unit dirty / dusty -

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**Corrective Actions to be Completed by Site Based Staff**

Clean HVAC supply grills with Wexcide	▼
Encourage occupant to reduce clutter	▼
	▼
	▼
	▼
	▼
	▼
	▼

**Corrective Actions to be Completed by PPO**

Clean entire HVAC System - Unit and Drops	▼
Evaluate HVAC unit for proper operation	▼
Evaluate all HVAC controls and interlocks	▼
	▼
	▼
	▼
	▼

# IAQ Assessment

Lloyd Estates Elementary

Evaluation Date August 27, 2013

Time of Day 2:00

Outdoor Conditions Temperature 86.1

Relative Humidity 64.3

Ambient CO2 476

Fish	Temperature	Range	Relative Humidity	Range	CO <sup>2</sup>	Range	# Occupants
<span style="border: 1px solid black; padding: 2px;">205</span>	<span style="border: 1px solid black; padding: 2px;">70.8</span>	<span style="border: 1px solid black; padding: 2px;">72 - 78</span>	<span style="border: 1px solid black; padding: 2px;">54.2</span>	<span style="border: 1px solid black; padding: 2px;">30% - 60%</span>	<span style="border: 1px solid black; padding: 2px;">659</span>	<span style="border: 1px solid black; padding: 2px;">MAX 700 &gt; Ambient</span>	<span style="border: 1px solid black; padding: 2px;">2</span>
Noticeable Odor		<span style="border: 1px solid black; padding: 2px;">No</span>	Visible water damage / staining?		Visible microbial growth?		Amount of material affected
Ceiling	<span style="border: 1px solid black; padding: 2px;">2' X 2' Lay in</span>		<span style="border: 1px solid black; padding: 2px;">No</span>		<span style="border: 1px solid black; padding: 2px;">No</span>		<span style="border: 1px solid black; padding: 2px;"></span>
Walls	<span style="border: 1px solid black; padding: 2px;">Drywall/Tackboard</span>		<span style="border: 1px solid black; padding: 2px;">Yes</span>		<span style="border: 1px solid black; padding: 2px;">No</span>		<span style="border: 1px solid black; padding: 2px;">2 Sq ft at exterior door</span>
Floor	<span style="border: 1px solid black; padding: 2px;">12" x 12" Vinyl</span>		<span style="border: 1px solid black; padding: 2px;">No</span>		<span style="border: 1px solid black; padding: 2px;">No</span>		<span style="border: 1px solid black; padding: 2px;"></span>
Ceiling Clean		<span style="border: 1px solid black; padding: 2px;">Yes</span>	HVAC Supply Grills Clean		<span style="border: 1px solid black; padding: 2px;">No</span>		HVAC Return Grills Clean <span style="border: 1px solid black; padding: 2px;">Yes</span>
Walls Clean		<span style="border: 1px solid black; padding: 2px;">No</span>	Inside of Supply Duct Clean		<span style="border: 1px solid black; padding: 2px;">Yes</span>		Inside of Return Duct Clean <span style="border: 1px solid black; padding: 2px;">Yes</span>
Flooring Clean		<span style="border: 1px solid black; padding: 2px;">Yes</span>	Ceiling at Supply Grills Clean		<span style="border: 1px solid black; padding: 2px;">Yes</span>		
Room Surfaces Clean		<span style="border: 1px solid black; padding: 2px;">Yes</span>					
Trash Removed		<span style="border: 1px solid black; padding: 2px;">Yes</span>	Exhaust Fans Working		<span style="border: 1px solid black; padding: 2px;">Yes</span>		Unapproved Chemicals / Cleaners in Room <span style="border: 1px solid black; padding: 2px;">No</span>
Signs of Pests		<span style="border: 1px solid black; padding: 2px;">No</span>	Drain Traps Wet		<span style="border: 1px solid black; padding: 2px;">Yes</span>		Air Fresheners in Room <span style="border: 1px solid black; padding: 2px;">No</span>
Room Cluttered		<span style="border: 1px solid black; padding: 2px;">No</span>	Food if Stored in Room is in Sealed Containers		<span style="border: 1px solid black; padding: 2px;">N/A</span>		
Mechanical Equipment Location			<span style="border: 1px solid black; padding: 2px;">FISH 209</span>			Mechanical Room Clean <span style="border: 1px solid black; padding: 2px;">Yes</span>	
Filters Installed Properly		<span style="border: 1px solid black; padding: 2px;">Yes</span>	Filters Clean		<span style="border: 1px solid black; padding: 2px;">Yes</span>		Inside of HVAC Unit Clean <span style="border: 1px solid black; padding: 2px;">No</span>
Condensate Pan Clean		<span style="border: 1px solid black; padding: 2px;">No</span>	Cooling Coil Clean		<span style="border: 1px solid black; padding: 2px;">No</span>		
Fresh Air Intake Location			<span style="border: 1px solid black; padding: 2px;">Outside of Room</span> ▼			Fresh Air Intake Free of Obstruction <span style="border: 1px solid black; padding: 2px;">Yes</span>	
Pollutant Sources Near Air Intake			<span style="border: 1px solid black; padding: 2px;">None</span> ▼				

**Observations**

Water damage @ bottom of exterior door - dust on back wall left of door in front of HVAC supply grill

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HVAC Unit rusted through in several locations - inside of unit dirty / dusty -

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**Corrective Actions to be Completed by Site Based Staff**

Clean dust from wall surfaces	▼
Clean HVAC supply grills with Wexcide	▼
	▼
	▼
	▼
	▼
	▼
	▼

**Corrective Actions to be Completed by PPO**

Clean Entire HVAC System - Unit and Drops	▼
Evaluate HVAC unit for proper operation	▼
Evaluate all HVAC controls and interlocks	▼
Repair water damaged wall @ exterior door	▼
	▼
	▼
	▼

# IAQ Assessment

Lloyd Estates Elementary

Evaluation Date August 27, 2013

Time of Day 2:00

Outdoor Conditions    Temperature 86.1

Relative Humidity 64.3

Ambient CO2 476

Fish	Temperature	Range	Relative Humidity	Range	CO <sup>2</sup>	Range	# Occupants
206	71.6	72 - 78	52.5	30% - 60%	723	MAX 700 > Ambient	3
Noticeable Odor		Visible water damage / staining?		Visible microbial growth?		Amount of material affected	
Ceiling		Walls		Floor			
No		No		No			
2' X 2' Lay in		Yes		Yes		2 sq ft at back door	
Drywall/Tackboard		No		No			
12" x 12" Vinyl							

Ceiling Clean	<input checked="" type="checkbox"/>	HVAC Supply Grills Clean	<input checked="" type="checkbox"/>	HVAC Return Grills Clean	<input checked="" type="checkbox"/>
Walls Clean	<input checked="" type="checkbox"/>	Inside of Supply Duct Clean	<input checked="" type="checkbox"/>	Inside of Return Duct Clean	<input checked="" type="checkbox"/>
Flooring Clean	<input checked="" type="checkbox"/>	Ceiling at Supply Grills Clean	<input checked="" type="checkbox"/>		
Room Surfaces Clean	<input type="checkbox"/>				

Trash Removed	<input checked="" type="checkbox"/>	Exhaust Fans Working	<input checked="" type="checkbox"/>	Unapproved Chemicals / Cleaners in Room	<input type="checkbox"/>
Signs of Pests	<input type="checkbox"/>	Drain Traps Wet	<input checked="" type="checkbox"/>	Air Fresheners in Room	<input type="checkbox"/>
Room Cluttered	<input checked="" type="checkbox"/>	Food if Stored in Room is in Sealed Containers	<input type="checkbox"/>		

Mechanical Equipment Location	FISH 209	Mechanical Room Clean	<input checked="" type="checkbox"/>
Filters Installed Properly	<input checked="" type="checkbox"/>	Filters Clean	<input checked="" type="checkbox"/>
Condensate Pan Clean	<input type="checkbox"/>	Cooling Coil Clean	<input type="checkbox"/>
		Inside of HVAC Unit Clean	<input type="checkbox"/>

Fresh Air Intake Location	Outside of Room	Fresh Air Intake Free of Obstruction	<input checked="" type="checkbox"/>
Pollutant Sources Near Air Intake	None		

**Observations**

Spotty microbial growth on some wall surfaces and on laminated cabinets between doors - Room and storage room has a lot of papers and boxes all hold moisture and odors and make it hard to clean the room properly - Water damaged wall material at bottom of exterior door - Returned to room @ 3:00 humidity now 63.4% - PPO to evaluate cause and repair.

HVAC Unit rusted through in several locations - inside of unit dirty / dusty -

**Corrective Actions to be Completed by Site Based Staff**

Clean dust from wall surfaces	▼
Clean dust from surfaces	▼
Thoroughly clean all surfaces	▼
Encourage occupant to reduce clutter	▼
	▼
	▼
	▼
	▼

**Corrective Actions to be Completed by PPO**

Clean entire HVAC System - Unit and Drops	▼
Evaluate HVAC unit for proper operation	▼
Evaluate all HVAC controls and interlocks	▼
Repair water damaged wall @ exterior door	▼
	▼
	▼
	▼
	▼

# IAQ Assessment

Lloyd Estates Elementary

Evaluation Date August 27, 2013

Time of Day 2:00

Outdoor Conditions    Temperature 86.1

Relative Humidity 64.3

Ambient CO2 476

Fish	Temperature	Range	Relative Humidity	Range	CO <sup>2</sup>	Range	# Occupants
<span style="border: 1px solid black; padding: 2px;">207</span>	<span style="border: 1px solid black; padding: 2px;">77.7</span>	<span style="border: 1px solid black; padding: 2px;">72 - 78</span>	<span style="border: 1px solid black; padding: 2px;">49.5</span>	<span style="border: 1px solid black; padding: 2px;">30% - 60%</span>	<span style="border: 1px solid black; padding: 2px;">686</span>	<b>MAX 700 &gt; Ambient</b>	<span style="border: 1px solid black; padding: 2px;">2</span>
Noticeable Odor		Visible water damage / staining?		Visible microbial growth?		Amount of material affected	
Ceiling		Walls		Floor			
<span style="border: 1px solid black; padding: 2px;">2' X 2' Lay in</span>		<span style="border: 1px solid black; padding: 2px;">Drywall/Tackboard</span>		<span style="border: 1px solid black; padding: 2px;">12" x 12" Vinyl</span>			
<span style="border: 1px solid black; padding: 2px;">No</span>		<span style="border: 1px solid black; padding: 2px;">Yes</span>		<span style="border: 1px solid black; padding: 2px;">No</span>		<span style="border: 1px solid black; padding: 2px;">2 Tiles</span>	
<span style="border: 1px solid black; padding: 2px;">Yes</span>		<span style="border: 1px solid black; padding: 2px;">Yes</span>		<span style="border: 1px solid black; padding: 2px;">No</span>		<span style="border: 1px solid black; padding: 2px;">2 Sq Ft @ exterior door</span>	
<span style="border: 1px solid black; padding: 2px;">No</span>		<span style="border: 1px solid black; padding: 2px;">No</span>		<span style="border: 1px solid black; padding: 2px;">No</span>		<span style="border: 1px solid black; padding: 2px;"></span>	

Ceiling Clean	<span style="border: 1px solid black; padding: 2px;">Yes</span>	HVAC Supply Grills Clean	<span style="border: 1px solid black; padding: 2px;">No</span>	HVAC Return Grills Clean	<span style="border: 1px solid black; padding: 2px;">Yes</span>
Walls Clean	<span style="border: 1px solid black; padding: 2px;">Yes</span>	Inside of Supply Duct Clean	<span style="border: 1px solid black; padding: 2px;">Yes</span>	Inside of Return Duct Clean	<span style="border: 1px solid black; padding: 2px;">Yes</span>
Flooring Clean	<span style="border: 1px solid black; padding: 2px;">Yes</span>	Ceiling at Supply Grills Clean	<span style="border: 1px solid black; padding: 2px;">Yes</span>		
Room Surfaces Clean	<span style="border: 1px solid black; padding: 2px;">Yes</span>				

Trash Removed	<span style="border: 1px solid black; padding: 2px;">Yes</span>	Exhaust Fans Working	<span style="border: 1px solid black; padding: 2px;">Yes</span>	Unapproved Chemicals / Cleaners in Room	<span style="border: 1px solid black; padding: 2px;">No</span>
Signs of Pests	<span style="border: 1px solid black; padding: 2px;">No</span>	Drain Traps Wet	<span style="border: 1px solid black; padding: 2px;">Yes</span>	Air Fresheners in Room	<span style="border: 1px solid black; padding: 2px;">No</span>
Room Cluttered	<span style="border: 1px solid black; padding: 2px;">No</span>	Food if Stored in Room is in Sealed Containers	<span style="border: 1px solid black; padding: 2px;">N/A</span>		

Mechanical Equipment Location	<span style="border: 1px solid black; padding: 2px;">FISH 209</span>	Mechanical Room Clean	<span style="border: 1px solid black; padding: 2px;">Yes</span>
Filters Installed Properly	<span style="border: 1px solid black; padding: 2px;">Yes</span>	Filters Clean	<span style="border: 1px solid black; padding: 2px;">Yes</span>
Condensate Pan Clean	<span style="border: 1px solid black; padding: 2px;">No</span>	Cooling Coil Clean	<span style="border: 1px solid black; padding: 2px;">No</span>
		Inside of HVAC Unit Clean	<span style="border: 1px solid black; padding: 2px;">No</span>

Fresh Air Intake Location	<span style="border: 1px solid black; padding: 2px;">Outside of Room</span> ▼	Fresh Air Intake Free of Obstruction	<span style="border: 1px solid black; padding: 2px;">Yes</span>
Pollutant Sources Near Air Intake	<span style="border: 1px solid black; padding: 2px;">None</span> ▼		

**Observations**

2 stained ceiling tiles (HFSP stated leak has been repaired). Replace tiles and monitor - water damage at bottom of exterior door

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HVAC Unit rusted through in several locations - inside of unit dirty / dusty -

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**Corrective Actions to be Completed by Site Based Staff**

Clean HVAC supply grills with Wexcide	▼
Replace water stained ceiling tiles	▼
	▼
	▼
	▼
	▼
	▼
	▼

**Corrective Actions to be Completed by PPO**

Clean entire HVAC System - Unit and Drops	▼
Evaluate HVAC unit for proper operation	▼
Evaluate all HVAC controls and interlocks	▼
Repair water damaged wall @ exterior door	▼
	▼
	▼
	▼
	▼