

The logo for IEA, INC. features a large, thin-lined circle. A thick, dark grey horizontal bar is positioned across the middle of the circle. The text "IEA, INC." is written vertically in a sans-serif font along the left side of this bar.

IEA, INC.

## 2023 - 2024 Ventilation Assessment



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## Saint Paul Public Schools The Heights Community School

Assessment Date:  
Thursday, April 6, 2023

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## Project Description

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IEA conducted a ventilation inspection in The Heights Community School by IEA representative, Sashya Wandmaker, with the intent of gathering visual observations and overall ventilation information which will assist the District in making informed and proactive decisions to improve and maintain acceptable air quality in the building. This inspection is based upon the Environmental Protection Agency's (EPA's) Tools for Schools IAQ guidelines and the recommended Minnesota Department of Education (MDE) portion of a school district's IAQ management plan. Ventilation verification is also recommended by American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE).

Some observations gathered during the inspection may identify issues which may require additional testing, evaluation, further investigation, or maintenance on the ventilation systems.

The findings, conclusions and recommendations presented herein are believed to be accurate and representative of the building on the date and time of the inspection.

### **GENERAL COMMENTS**

The analysis and opinions expressed in this report are based upon data obtained from Saint Paul Public Schools at the indicated locations. This report does not reflect variations in conditions that may occur across the site, property, or facility. Actual conditions may vary and may not become evident without further assessment.

The report is prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted indoor air quality practices. Other than as provided in the preceding sentence, no warranties are extended or made.

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## Building Information

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General information regarding the building was collected by IEA during an interview with building maintenance staff. The information gathered during this process is a vital component, as it is helpful in determining how these items may play a role in possible IAQ related issues.

**Below is a summary of the information gathered during the interview:**

- Automation controls are managed internally.
- A Building Automation System is present. The automation control software program is Tridium and controls can not be accessed remotely.
- Schedules:

Ventilation operation:

Day:	Occupied?	Start Time:	End Time:
Monday-Friday	Yes	5:30 AM	6:00 PM
Saturday			
Sunday			
Holiday			
<b>Notes:</b> Building engineer unsure about weekends and breaks.			

Typical occupancy:

Day:	Occupied?	Start Time:	End Time:
Monday-Friday	Yes	7:00 AM	3:30 PM
Saturday	No		
Sunday	No		
Holiday	No		

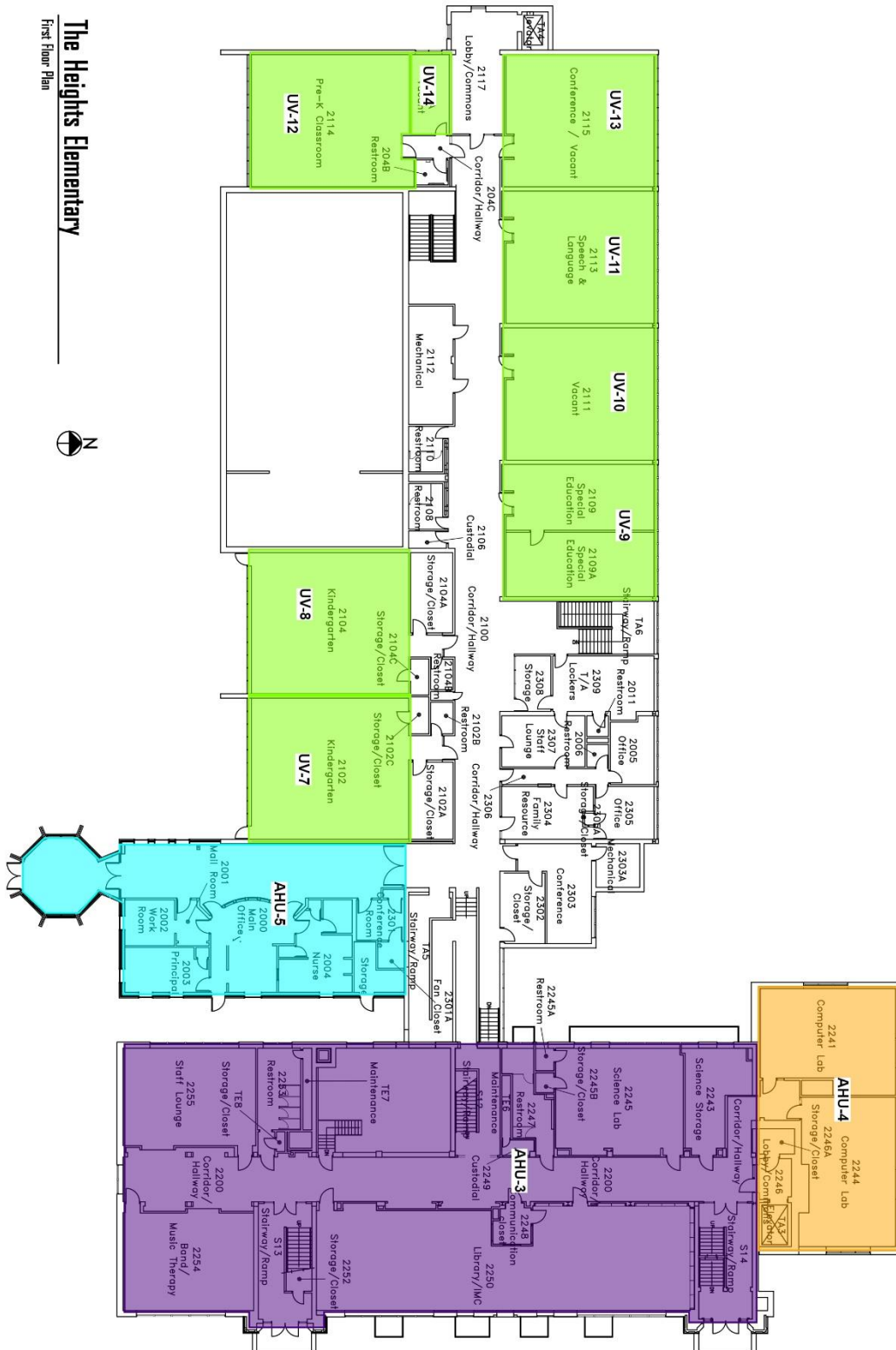
- CO2 sensors are associated with the ventilation system. They are located within rooms. The highest CO2 setpoint is unknown.
- VAVs are present. It is not known whether or not they are fan powered.
- Building has variable frequency drives (VFD).
- The heating system is gas-fired.
- A cooling system is present and is a Dx type system.
- Filters used are:

Filter Type	MERV Rating
Pleated	MERV 11

- Filters are changed quarterly.
- Energy Recovery Units are not present.
- Units do not contain system Enhancements.
- Personal air purifiers are supplied for individual rooms. They are Winix, 3M/Plasmawave 2.0, filtrete .
  - Location: Classrooms with poor air flow, health office
- It is not known whether or not the building was commissioned during the original construction.



# Air Handling Unit Designations & Service Zones: 1st Floor







## Assessment

### Ventilation System

The following information was gathered by IEA on Thursday, April 6, 2023 with support from the district building representative during the on-site interview. The type of heating, ventilating and air-conditioning (HVAC) system and its assessment is included for each unit below:

<b>Unit Designation:</b>	AHU 01	
<b>Location of Unit:</b>	Mechanical room 1351a	
<b>Areas Served:</b>	Old Gym See attached map	
<b>System Enhancements:</b>	None	
<b>Supply System</b>	<b>Outdoor Air</b>	<b>Cleanliness and Observations</b>
<b>Type</b> <ul style="list-style-type: none"> <li>Supply System - Constant Volume</li> <li>Heating - Hot Water</li> <li>Cooling - None</li> <li>Energy Recovery Unit (ERU) - None</li> </ul>	Outdoor air intake is accessible  Outdoor air intake is located on the roof.  No nearby pollution sources were found.	Outdoor air filters are not present.  Return air filters are not present.  Mixed air pre-filters are not present. Mixed air main filters are somewhat dirty and on the border of needing replacement (scoring 3 out of 5) and fit well. Mixed air main filters are installed correctly.  Drain pans are not applicable or not present. Drain pan condition is not known.
<b>Filter Type - Mixed</b> <ul style="list-style-type: none"> <li>Pre-filter: None</li> <li>Main filter: Pleated, MERV 11</li> </ul>	Outdoor air intake is in good condition.	Heating coils are clean.  Heat wheels are not present.  Exterior ducting is not visible. Exterior ducting insulation is in an unknown condition.  Interior ducting is not visible. Interior ducting insulation is in an unknown condition. Interior ducting is of unknown cleanliness.  Air handling room is free of trash/chemicals.  Outside damper is inaccessible, and its condition is good.  Return damper is open, and its condition is good.  The general condition of the unit is good.



<b>Unit Designation:</b>	AHU 02	
<b>Location of Unit:</b>	Mechanical room 2112	
<b>Areas Served:</b>	Cafeteria/Gym See attached map	
<b>System Enhancements:</b>	None	
<b>Supply System</b>	<b>Outdoor Air</b>	<b>Cleanliness and Observations</b>
<b>Type</b> <ul style="list-style-type: none"> <li>Supply System - Constant Volume</li> <li>Heating - Hot Water</li> <li>Cooling - None</li> <li>Energy Recovery Unit (ERU) - None</li> </ul>	Outdoor air intake is accessible  Outdoor air intake is located on the roof.  No nearby pollution sources were found.	Outdoor air filters are not present.  Return air filters are not present.  Mixed air pre-filters are not present. Mixed air main filters are clean and not in need of replacement (scoring 2 out of 5) and fit well. Mixed air main filters are installed correctly.  Drain pans are not applicable or not present. Drain pan condition is not known.
<b>Filter Type - Mixed</b> <ul style="list-style-type: none"> <li>Pre-filter: None</li> <li>Main filter: Pleated, MERV 11</li> </ul>	Outdoor air intake is in good condition.	Heating coils are clean.  Heat wheels are not present.  Exterior ducting is visible. Exterior ducting insulation is not present.  Interior ducting is not visible. Interior ducting insulation is in an unknown condition. Interior ducting is of unknown cleanliness.  Air handling room is free of trash/chemicals.  Outside damper is inaccessible, and its condition is not known.  Return damper is inaccessible, and its condition is not known.  The general condition of the unit is good.

<b>Unit Designation:</b>	AHU 03	
<b>Location of Unit:</b>	Mechanical room 1351, ceiling (filters) and in 1352 (motor and supply ducting)	
<b>Areas Served:</b>	Old Building See attached map	
<b>System Enhancements:</b>	None	
<b>Supply System</b>	<b>Outdoor Air</b>	<b>Cleanliness and Observations</b>
<b>Type</b> <ul style="list-style-type: none"> <li>Supply System - Constant Volume</li> <li>Heating - Hot Water</li> <li>Cooling - None</li> <li>Energy Recovery Unit (ERU) - None</li> </ul>	Outdoor air intake is accessible  Outdoor air intake is located on the roof.  No nearby pollution sources were found.	Outdoor air filters are not present.  Return air filters are not present.  Mixed air pre-filters are not present. Mixed air main filters are clean and not in need of replacement (scoring 2 out of 5) and fit well. Mixed air main filters are installed correctly.  Drain pans are not applicable or not present. Drain pan condition is not known.
<b>Filter Type - Mixed</b> <ul style="list-style-type: none"> <li>Pre-filter: None</li> <li>Main filter: Pleated, MERV 11</li> </ul>	Outdoor air intake is in good condition.	Heating coils are clean.  Heat wheels are not present.  Exterior ducting is visible. Exterior ducting insulation is not present.  Interior ducting is visible. Interior ducting insulation is not present. Interior ducting is clean.  Air handling room is free of trash/chemicals.  Outside damper is inaccessible, and its condition is not known.  Return damper is inaccessible, and its condition is not known.  The general condition of the unit is good.

<b>Unit Designation:</b>	AHU 04	
<b>Location of Unit:</b>	Mechanical room 1344a	
<b>Areas Served:</b>	North Addition See attached map	
<b>System Enhancements:</b>	None	
<b>Supply System</b>	<b>Outdoor Air</b>	<b>Cleanliness and Observations</b>
<b>Type</b> <ul style="list-style-type: none"> <li>Supply System - Constant Volume</li> <li>Heating - Hot Water</li> <li>Cooling - None</li> <li>Energy Recovery Unit (ERU) - None</li> </ul>	Outdoor air intake is accessible	Outdoor air filters are not present.  Return air filters are not present.
<b>Filter Type - Mixed</b> <ul style="list-style-type: none"> <li>Pre-filter: None</li> <li>Main filter: Pleated, MERV 11</li> </ul>	Outdoor air intake is located on the roof.  No nearby pollution sources were found.	Mixed air pre-filters are not present. Mixed air main filters are somewhat dirty and on the border of needing replacement (scoring 3 out of 5) and fit well. Mixed air main filters are installed correctly.  Drain pans are not applicable or not present. Drain pan condition is not known.
	Outdoor air intake is in good condition.	Heating coils are clean.  Heat wheels are not present.  Exterior ducting is visible. Exterior ducting insulation is in good condition.  Interior ducting is not visible. Interior ducting insulation is in an unknown condition. Interior ducting is of unknown cleanliness.  Air handling room is free of trash/chemicals.  Outside damper is inaccessible, and its condition is not known.  Return damper is inaccessible, and its condition is not known.  The general condition of the unit is good.

<b>Unit Designation:</b>	AHU 05	
<b>Location of Unit:</b>	Mechanical room 2301a	
<b>Areas Served:</b>	South Addition See attached map	
<b>System Enhancements:</b>	None	
<b>Supply System</b>	<b>Outdoor Air</b>	<b>Cleanliness and Observations</b>
<b>Type</b> <ul style="list-style-type: none"> <li>Supply System - VAV</li> <li>Heating - Hot Water</li> <li>Cooling - Dx</li> <li>Energy Recovery Unit (ERU) - None</li> </ul>	Outdoor air intake is accessible  Outdoor air intake is located on the roof.  No nearby pollution sources were found.	Outdoor air filters are not present.  Return air filters are not present.  Mixed air pre-filters are not present. Mixed air main filters are clean and not in need of replacement (scoring 2 out of 5) and fit well. Mixed air main filters are installed correctly.  Drain pan plugged status is not known. Drain pan condition is good.
<b>Filter Type - Mixed</b> <ul style="list-style-type: none"> <li>Pre-filter: None</li> <li>Main filter: Pleated, MERV 11</li> </ul>	Outdoor air intake is in good condition.	Heating coils are dirty.  Heat wheels are not present.  Exterior ducting is visible. Exterior ducting insulation is not present.  Interior ducting is not visible. Interior ducting insulation is in an unknown condition. Interior ducting is of unknown cleanliness.  Air handling room is free of trash/chemicals.  Outside damper is inaccessible, and its condition is not known.  Return damper is inaccessible, and its condition is not known.  The general condition of the unit is good.

<b>Unit Designation:</b>	RTU 04 (100% OA)	
<b>Location of Unit:</b>	Mechanical room 4256 roof hatch	
<b>Areas Served:</b>	North Addition See attached map	
<b>System Enhancements:</b>	None	
<b>Supply System</b>	<b>Outdoor Air</b>	<b>Cleanliness and Observations</b>
<b>Type</b> <ul style="list-style-type: none"> <li>Supply System - Constant Volume</li> <li>Heating - Hot Water</li> <li>Cooling - None</li> <li>Energy Recovery Unit (ERU) - None</li> </ul>	<p>Outdoor air intake is accessible</p> <p>Outdoor air intake is located on the roof.</p> <p>No nearby pollution sources were found.</p>	<p>Outdoor air pre-filters are not present. Outdoor air main filters are somewhat dirty and on the border of needing replacement (scoring 4 out of 5) and fit well. Outdoor air main filters are installed correctly.</p> <p>Return air filters are not present.</p> <p>Drain pans are not applicable or not present. Drain pan condition is not known.</p> <p>Heating coils are clean.</p>
<b>Filter Type - Outdoor</b> <ul style="list-style-type: none"> <li>Pre-filter: None</li> <li>Main filter: Pleated, MERV 11</li> </ul>	<p>Outdoor air intake is in good condition.</p>	<p>Heat wheels are not present.</p> <p>Exterior ducting is not visible. Exterior ducting insulation is in an unknown condition.</p> <p>Interior ducting is not visible. Interior ducting insulation is in an unknown condition. Interior ducting is of unknown cleanliness.</p> <p>Air handling room is free of trash/chemicals.</p> <p>Outside damper is open, and its condition is good.</p> <p>Return damper is not present.</p> <p>The general condition of the unit is good.</p>

<b>Unit Designation:</b>	RTU 05 (100% OA)	
<b>Location of Unit:</b>	Mechanical room 2308, on roof	
<b>Areas Served:</b>	South addition See attached map	
<b>System Enhancements:</b>	None	
<b>Supply System</b>	<b>Outdoor Air</b>	<b>Cleanliness and Observations</b>
<b>Type</b> <ul style="list-style-type: none"> <li>Supply System - Constant Volume</li> <li>Heating - Hot Water</li> <li>Cooling - None</li> <li>Energy Recovery Unit (ERU) - None</li> </ul>	Outdoor air intake is accessible	Outdoor air pre-filters are not present. Outdoor air main filters are somewhat dirty and on the border of needing replacement (scoring 3 out of 5) and fit poorly. Outdoor air main filters are installed correctly.
	Outdoor air intake is located on the roof.	Return air filters are not present.
	No nearby pollution sources were found.	Drain pans are not applicable or not present. Drain pan condition is not known.
		Heating coils are clean.
<b>Filter Type - Outdoor</b>		
<ul style="list-style-type: none"> <li>Pre-filter: None</li> <li>Main filter: Pleated, MERV 11</li> </ul>	Outdoor air intake is in good condition.	Heat wheels are not present.
		Exterior ducting is not visible. Exterior ducting insulation is in an unknown condition.
		Interior ducting is not visible. Interior ducting insulation is in an unknown condition. Interior ducting is of unknown cleanliness.
		Air handling room is free of trash/chemicals.
		Outside damper is open, and its condition is good.
		Return damper is not present.
		The general condition of the unit is good.

<b>Unit Designation:</b>	FCU 01	
<b>Location of Unit:</b>	2104C inside storage closet	
<b>Areas Served:</b>	2102A and 2102A See attached map	
<b>System Enhancements:</b>	None	
<b>Supply System</b>	<b>Outdoor Air</b>	<b>Cleanliness and Observations</b>
<b>Type</b> <ul style="list-style-type: none"> <li>Supply System - Constant Volume</li> <li>Heating - Steam</li> <li>Cooling - None</li> <li>Energy Recovery Unit (ERU) - None</li> </ul>	<p>Outdoor air intake is inaccessible</p> <p>Outdoor air intake is located in an unknown location.</p> <p>It is not known if there are nearby pollution sources.</p>	<p>Outdoor air filters are not present.</p> <p>Return air filters are not present.</p> <p>Mixed air pre-filters are of unknown cleanliness and fit is unknown. Mixed air pre-filters are installed but it is unknown whether they are installed correctly. Mixed air main filters are inaccessible and fit is unknown. Mixed air main filters are installed but it is unknown whether they are installed correctly.</p>
<b>Filter Type - Mixed</b> <ul style="list-style-type: none"> <li>Pre-filter: Inaccessible</li> <li>Main filter: Inaccessible</li> </ul>	<p>Condition of the outdoor air intake is not known.</p>	<p>Drain pans are not applicable or not present. Drain pan condition is not known.</p> <p>Heating coils are inaccessible.</p> <p>Heat wheels are not present.</p> <p>Exterior ducting is visible. Exterior ducting insulation is in good condition.</p> <p>Interior ducting is not visible. Interior ducting insulation is in an unknown condition. Interior ducting is of unknown cleanliness.</p> <p>Access to the air handling room is blocked.</p> <p>Outside damper is inaccessible, and its condition is not known.</p> <p>Return damper is inaccessible, and its condition is not known.</p> <p>The general condition of the unit is good.</p>

<b>Unit Designation:</b>	FCU 02	
<b>Location of Unit:</b>	2102C storage closet ceiling	
<b>Areas Served:</b>	Rooms 2102A & 2104A See attached map	
<b>System Enhancements:</b>	None	
<b>Supply System</b>	<b>Outdoor Air</b>	<b>Cleanliness and Observations</b>
<b>Type</b> <ul style="list-style-type: none"> <li>Supply System - Constant Volume</li> <li>Heating - None</li> <li>Cooling - None</li> <li>Energy Recovery Unit (ERU) - None</li> </ul>	<p>Outdoor air intake is inaccessible</p> <p>Outdoor air intake is located in an unknown location.</p> <p>It is not known if there are nearby pollution sources.</p> <p>Condition of the outdoor air intake is not known.</p>	<p>Outdoor air filters are not present.</p> <p>Return air filters are not present.</p> <p>Mixed air filters are of unknown cleanliness and fit is unknown. Mixed air filters are installed but it is unknown whether they are installed correctly.</p> <p>Drain pans are not applicable or not present. Drain pan condition is not known.</p> <p>Heat wheels are not present.</p> <p>Exterior ducting is visible. Exterior ducting insulation is in good condition.</p> <p>Interior ducting is not visible. Interior ducting insulation is in good condition. Interior ducting is of unknown cleanliness.</p> <p>Air handling room is free of trash/chemicals.</p> <p>Outside damper is inaccessible, and its condition is not known.</p> <p>Return damper is inaccessible, and its condition is not known.</p> <p>The general condition of the unit is good.</p>
<b>Filter Type - Mixed</b> <ul style="list-style-type: none"> <li>Pre-filter: Inaccessible</li> <li>Main filter: Inaccessible</li> </ul>		



<b>Unit Designation:</b>	UV 2115	
<b>Location of Unit:</b>	2115	
<b>Areas Served:</b>	2115	
<b>System Enhancements:</b>	None	
<b>Supply System</b>	<b>Outdoor Air</b>	<b>Cleanliness and Observations</b>
<b>Type</b> <ul style="list-style-type: none"> <li>Supply System - Constant Volume</li> <li>Heating - Steam</li> <li>Cooling - None</li> <li>Energy Recovery Unit (ERU) - None</li> </ul>	<p>Outdoor air intake is accessible</p> <p>Outdoor air intake is located on an exterior wall.</p> <p>Outdoor air intake has a nearby pollution source: Above parking lot</p>	<p>Outdoor air filters are not present.</p> <p>Return air filters are not present.</p> <p>Mixed air pre-filters are not present. Mixed air main filters are clean and not in need of replacement (scoring 2 out of 5) and fit well. Mixed air main filters are installed correctly.</p> <p>Drain pans are not applicable or not present. Drain pan condition is not known.</p>
<b>Filter Type - Mixed</b> <ul style="list-style-type: none"> <li>Pre-filter: None</li> <li>Main filter: Pleated, MERV 11</li> </ul>	<p>Outdoor air intake is in good condition.</p>	<p>Heating coils are clean.</p> <p>Heat wheels are not present.</p> <p>Exterior ducting is not visible. Exterior ducting insulation is in an unknown condition.</p> <p>Interior ducting is not visible. Interior ducting insulation is in an unknown condition. Interior ducting is of unknown cleanliness.</p> <p>Air handling room is free of trash/chemicals.</p> <p>Outside damper is inaccessible, and its condition is good.</p> <p>Return damper is open, and its condition is good.</p> <p>The general condition of the unit is good.</p>

<b>Unit Designation:</b>	UV 2111	
<b>Location of Unit:</b>	2111	
<b>Areas Served:</b>	2111	
<b>System Enhancements:</b>	None	
<b>Supply System</b>	<b>Outdoor Air</b>	<b>Cleanliness and Observations</b>
<b>Type</b> <ul style="list-style-type: none"> <li>Supply System - Constant Volume</li> <li>Heating - Steam</li> <li>Cooling - None</li> <li>Energy Recovery Unit (ERU) - None</li> </ul>	<p>Outdoor air intake is inaccessible</p> <p>Outdoor air intake is located on an exterior wall.</p> <p>Outdoor air intake has a nearby pollution source: Above parking lot</p>	<p>Outdoor air filters are not present.</p> <p>Return air filters are not present.</p> <p>Mixed air pre-filters are not present. Mixed air main filters are somewhat dirty and on the border of needing replacement (scoring 3 out of 5) and fit well. Mixed air main filters are installed correctly.</p> <p>Drain pans are not applicable or not present. Drain pan condition is poor.</p>
<b>Filter Type - Mixed</b> <ul style="list-style-type: none"> <li>Pre-filter: None</li> <li>Main filter: Pleated, MERV 11</li> </ul>	<p>Outdoor air intake is in good condition.</p>	<p>Heating coils are clean.</p> <p>Heat wheels are not present.</p> <p>Exterior ducting is not visible. Exterior ducting insulation is in an unknown condition.</p> <p>Interior ducting is not visible. Interior ducting insulation is in an unknown condition. Interior ducting is of unknown cleanliness.</p> <p>Air handling room is free of trash/chemicals.</p> <p>Outside damper is inaccessible, and its condition is good.</p> <p>Return damper is open, and its condition is good.</p> <p>The general condition of the unit is good.</p>

<b>Unit Designation:</b>	UV 2114	
<b>Location of Unit:</b>	2114	
<b>Areas Served:</b>	2114	
<b>System Enhancements:</b>	None	
<b>Supply System</b>	<b>Outdoor Air</b>	<b>Cleanliness and Observations</b>
<b>Type</b> <ul style="list-style-type: none"> <li>Supply System - Constant Volume</li> <li>Heating - Steam</li> <li>Cooling - None</li> <li>Energy Recovery Unit (ERU) - None</li> </ul>	<p>Outdoor air intake is inaccessible</p> <p>Outdoor air intake is located on an exterior wall.</p> <p>No nearby pollution sources were found.</p> <p>Outdoor air intake is in good condition.</p>	<p>Outdoor air filters are not present.</p> <p>Return air filters are not present.</p> <p>Mixed air pre-filters are not present. Mixed air main filters are somewhat dirty and on the border of needing replacement (scoring 3 out of 5) and fit well. Mixed air main filters are installed correctly.</p> <p>Drain pans are not applicable or not present. Drain pan condition is not known.</p> <p>Heating coils are dirty.</p> <p>Heat wheels are not present.</p> <p>Exterior ducting is not visible. Exterior ducting insulation is in an unknown condition.</p> <p>Interior ducting is not visible. Interior ducting insulation is in an unknown condition. Interior ducting is of unknown cleanliness.</p> <p>Air handling room is free of trash/chemicals.</p> <p>Outside damper is inaccessible, and its condition is good.</p> <p>Return damper is open, and its condition is good.</p> <p>The general condition of the unit is good.</p>
<b>Filter Type - Mixed</b> <ul style="list-style-type: none"> <li>Pre-filter: None</li> <li>Main filter: Pleated, MERV 11</li> </ul>		

<b>Unit Designation:</b>	UV 1111	
<b>Location of Unit:</b>	1111	
<b>Areas Served:</b>	1111	
<b>System Enhancements:</b>	None	
<b>Supply System</b>	<b>Outdoor Air</b>	<b>Cleanliness and Observations</b>
<b>Type</b> <ul style="list-style-type: none"> <li>Supply System - Constant Volume</li> <li>Heating - Steam</li> <li>Cooling - None</li> <li>Energy Recovery Unit (ERU) - None</li> </ul>	<p>Outdoor air intake is accessible</p> <p>Outdoor air intake is located on an exterior wall.</p> <p>No nearby pollution sources were found.</p>	<p>Outdoor air filters are not present.</p> <p>Return air filters are not present.</p> <p>Mixed air pre-filters are not present. Mixed air main filters are clean and not in need of replacement (scoring 2 out of 5) and fit well. Mixed air main filters are installed correctly.</p> <p>Drain pans are not applicable or not present. Drain pan condition is not known.</p>
<b>Filter Type - Mixed</b> <ul style="list-style-type: none"> <li>Pre-filter: None</li> <li>Main filter: Pleated, MERV 11</li> </ul>	<p>Outdoor air intake is in good condition.</p>	<p>Heating coils are dirty.</p> <p>Heat wheels are not present.</p> <p>Exterior ducting is not visible. Exterior ducting insulation is in an unknown condition.</p> <p>Interior ducting is not visible. Interior ducting insulation is in an unknown condition. Interior ducting is of unknown cleanliness.</p> <p>Air handling room is free of trash/chemicals.</p> <p>Outside damper is inaccessible, and its condition is good.</p> <p>Return damper is open, and its condition is good.</p> <p>The general condition of the unit is good.</p>

<b>Unit Designation:</b>	UV 1107	
<b>Location of Unit:</b>	1107	
<b>Areas Served:</b>	1107	
<b>System Enhancements:</b>	None	
<b>Supply System</b>	<b>Outdoor Air</b>	<b>Cleanliness and Observations</b>
<b>Type</b> <ul style="list-style-type: none"> <li>Supply System - Constant Volume</li> <li>Heating - Steam</li> <li>Cooling - None</li> <li>Energy Recovery Unit (ERU) - None</li> </ul>	<p>Outdoor air intake is accessible</p> <p>Outdoor air intake is located on an exterior wall.</p> <p>Outdoor air intake has a nearby pollution source: Above parking lot</p>	<p>Outdoor air filters are not present.</p> <p>Return air filters are not present.</p> <p>Mixed air pre-filters are not present. Mixed air main filters are somewhat dirty and on the border of needing replacement (scoring 3 out of 5) and fit well. Mixed air main filters are installed correctly.</p> <p>Drain pans are not applicable or not present. Drain pan condition is not known.</p>
<b>Filter Type - Mixed</b> <ul style="list-style-type: none"> <li>Pre-filter: None</li> <li>Main filter: Pleated, MERV 11</li> </ul>	<p>Outdoor air intake is in good condition.</p>	<p>Heating coils are clean.</p> <p>Heat wheels are not present.</p> <p>Exterior ducting is not visible. Exterior ducting insulation is in an unknown condition.</p> <p>Interior ducting is not visible. Interior ducting insulation is in an unknown condition. Interior ducting is of unknown cleanliness.</p> <p>Air handling room is free of trash/chemicals.</p> <p>Outside damper is inaccessible, and its condition is good.</p> <p>Return damper is open, and its condition is good.</p> <p>The general condition of the unit is good.</p>

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## Recommendations

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Dirty Coils were observed on units AHU 05, UV 1111 and UV 2114 during the ventilation inspection.

**Recommendation:** Impacted/dirty coils can result in poor ventilation air supply as well as be a source for mold and bacterial growth on the coils. Coils should be cleaned annually, or as needed, as identified in the operations and maintenance program.

The drain pan for unit UV 2111 was plugged or damaged at the time of the site inspection.

**Recommendation:** Damage to the drain pan should be repaired, or the drain pan should be inspected more frequently to ensure that it does not become plugged.

Dirty or poorly fitting filters were observed in unit RTU 05 (100% OA) during the ventilation inspection.

**Recommendation:** The operations and maintenance program for filter changes should be reviewed and revised to ensure proper filter changes to optimize filtration capacity.

Excessive storage and/or chemical storage were observed in the mechanical equipment room(s) during the site inspection.

**Recommendation:** Excessive storage can block access to the ventilation equipment and prevent proper maintenance, filter changes and inspections. Stored items can potentially impact the operation of the systems and limit their ability to properly ventilate.

Chemicals stored in the mechanical room can result in odors or chemicals introduced into the ventilation air and impact the IAQ of building occupants.

## **Appendix A**

### Photo Documentation



AHU 01

Mixed Main Filter Cleanliness



AHU 04

Mixed Main Filter Cleanliness



AHU 05

Heating Coils



AHU 05

Cooling Coils





RTU 04 (100% OA)  
Outdoor Main Filter Cleanliness



RTU 05 (100% OA)  
Outdoor Main Filter Cleanliness



RTU 05 (100% OA)  
Outdoor Main Filter Fit



FCU 01  
Air Handling Room





UV 2111

Mixed Main Filter Cleanliness



UV 2114

Mixed Main Filter Cleanliness



UV 2114

Heating Coils



UV 1111

Heating Coils



UV 1107

Mixed Main Filter Cleanliness