

IEA, INC.

## 2023 - 2024 Ventilation Assessment



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## Saint Paul Public Schools Galtier Elementary

Assessment Date:  
Wednesday, April 12, 2023

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## Project Description

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IEA conducted a ventilation inspection in Galtier Elementary 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.

## Building Information

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 contracted by .
- A Building Automation System is present. The automation control software program is and controls can be accessed remotely.
- Schedules:

Ventilation operation:

Day:	Occupied?	Start Time:	End Time:
Monday-Friday	Yes	5:00 AM	10:00 PM
Saturday	No		
Sunday	No		
Holiday	No	6:00 AM	3:00 PM

Typical occupancy:

Day:	Occupied?	Start Time:	End Time:
Monday-Friday	Yes	7:30 AM	4:00 PM
Saturday	No		
Sunday	No		
Holiday	No		

- CO2 sensors are not associated with the ventilation system.
- VAVs are not present.
- It is not known whether or not the building has variable frequency drives (VFD).
- The heating system is a hot water boiler and electric.
- A cooling system is not present.
- Filters used are:

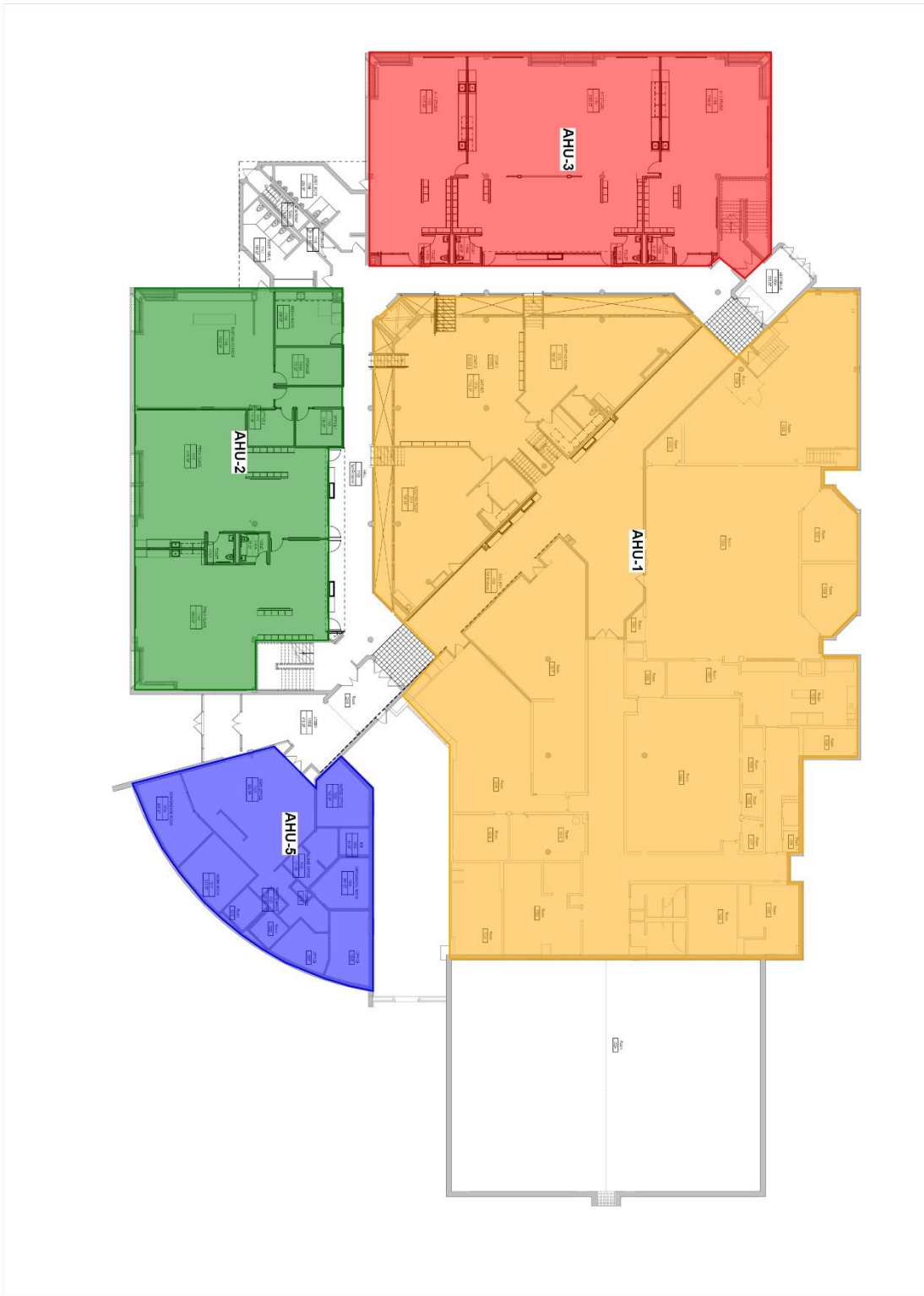
Filter Type	MERV Rating
Pleated	MERV 11

- Filters are changed Three times a year.
- Energy Recovery Units are not present.
- Units do not contain system Enhancements.
- Personal air purifiers are supplied for individual rooms. They are 3m, winix /Filtrete, .
  - Location: Health Office and some classrooms
- It is not known whether or not the building was commissioned during the original construction.

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## Air Handling Unit Designations & Service Zones: First Level

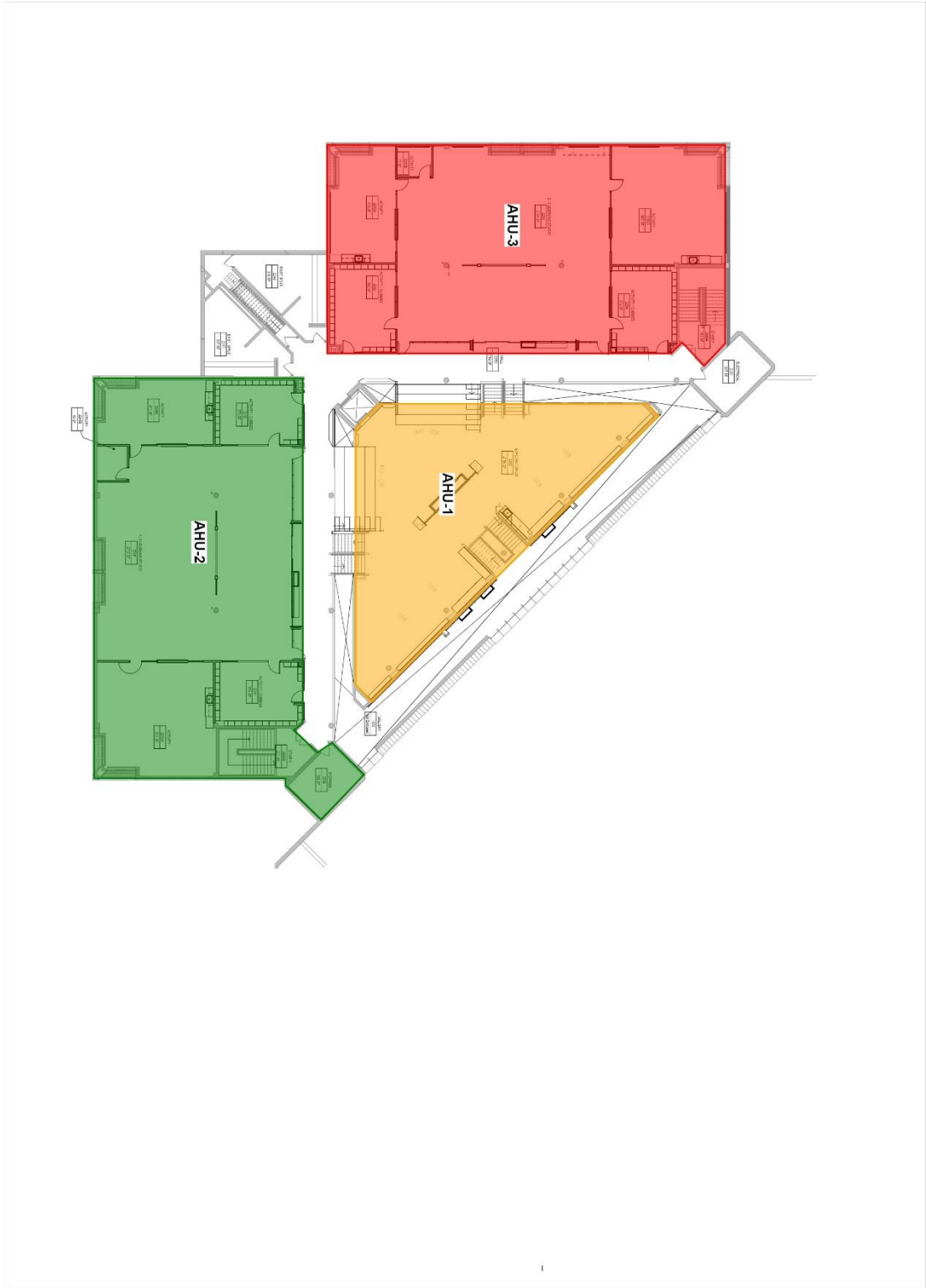
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## Air Handling Unit Designations & Service Zones: Second Level

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# Assessment

## Ventilation System

The following information was gathered by IEA on Wednesday, April 12, 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 1161/BOILER	
<b>Areas Served:</b>	Arts and Cafeteria 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 - Gas Fired</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>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 not present. Mixed air main filters are clean and not in need of replacement (scoring 1 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 coil cleanliness is not known.</p> <p>Heat wheels are not present.</p> <p>Exterior ducting is visible. Exterior ducting insulation is not present.</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 unknown, and its condition is not known.</p> <p>Return damper is unknown, and its condition is not known.</p> <p>The general condition of the unit is good.</p>

<b>Unit Designation:</b>	AHU 02	
<b>Location of Unit:</b>	Mechanical room 3001/2299D	
<b>Areas Served:</b>	South Classrooms 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 - Gas Fired</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 1 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 coil cleanliness is not known.  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 open, 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 03	
<b>Location of Unit:</b>	Mechanical room 3001/2299D	
<b>Areas Served:</b>	West Classrooms 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 - Gas Fired</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 1 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 coil cleanliness is not known.  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 open, 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 04	
<b>Location of Unit:</b>	Mechanical room 1205A	
<b>Areas Served:</b>	Gymnasium 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 an exterior wall.  No nearby pollution sources were found.  Outdoor air intake is in good condition.	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 1 out of 5) and fit well. Mixed air main filters are installed correctly.  Drain pan plugged status is not known. Drain pan condition is not known.  Heating coils are inaccessible.  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 unknown, and its condition is not known.  Return damper is unknown, and its condition is not known.  The general condition of the unit 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>		

<b>Unit Designation:</b>	AHU 05	
<b>Location of Unit:</b>	Mechanical room 1008/OFFICE	
<b>Areas Served:</b>	Administration 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 an exterior wall.  No nearby pollution sources were found.  Outdoor air intake is in good condition.	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 1 out of 5) and fit poorly. Mixed air main filters are installed correctly.  Drain pans are not applicable or not present. Drain pan condition is not known.  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 unknown, and its condition is not known.  Return damper is unknown, and its condition is not known.  The general condition of the unit 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>		

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## Recommendations

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Dirty Coils were observed on unit AHU 05 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.

Dirty or poorly fitting filters were observed in unit AHU 05 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.

# **Appendix A**

## Photo Documentation



AHU 05  
Mixed Main Filter Fit



AHU 05  
Heating Coils