

IEA, INC.

2023 - 2024 Ventilation Assessment



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Saint Paul Public Schools Global Arts Plus Lower

Assessment Date:
Thursday, April 20, 2023

Project Description

IEA conducted a ventilation inspection in Global Arts Plus Lower 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 managed internally.
- A Building Automation System is present. The automation control software program is Tritium and controls can be accessed remotely.
- Schedules:

Ventilation operation:

Day:	Occupied?	Start Time:	End Time:
Monday-Friday	Yes	6:00 AM	10:00 PM
Monday-Friday	Yes	6:00 AM	6:00 PM

Typical occupancy:

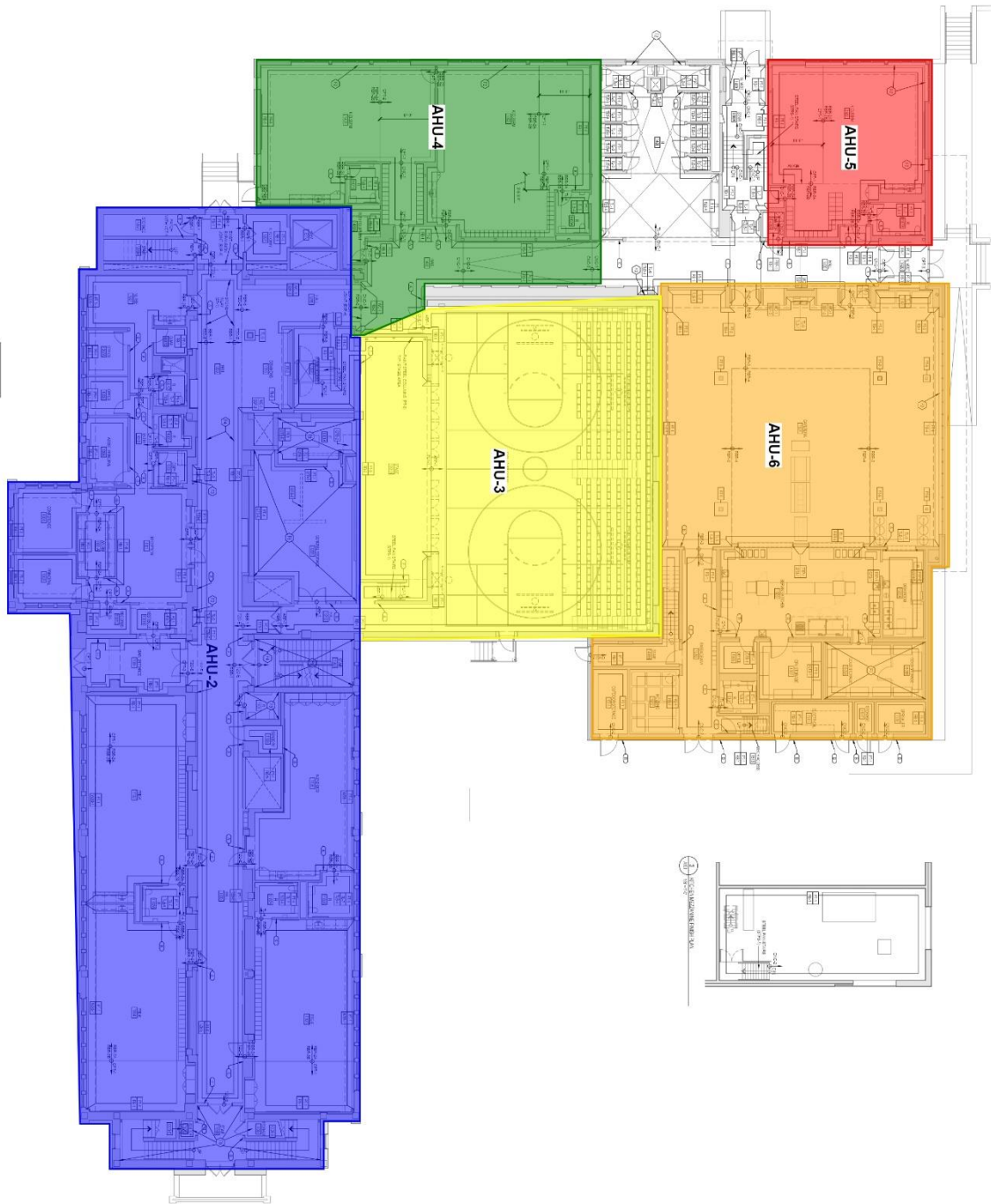
Day:	Occupied?	Start Time:	End Time:
Monday-Friday	Yes	8:00 AM	5:00 PM
Saturday	No		
Sunday	No		
Holiday	No		

- CO2 sensors are not associated with the ventilation system.
- VAVs are present. They are not fan powered.
- Building has variable frequency drives (VFD).
- The heating system is a hot water boiler.
- A cooling system is present and is a Dx type system.
- Filters used are:

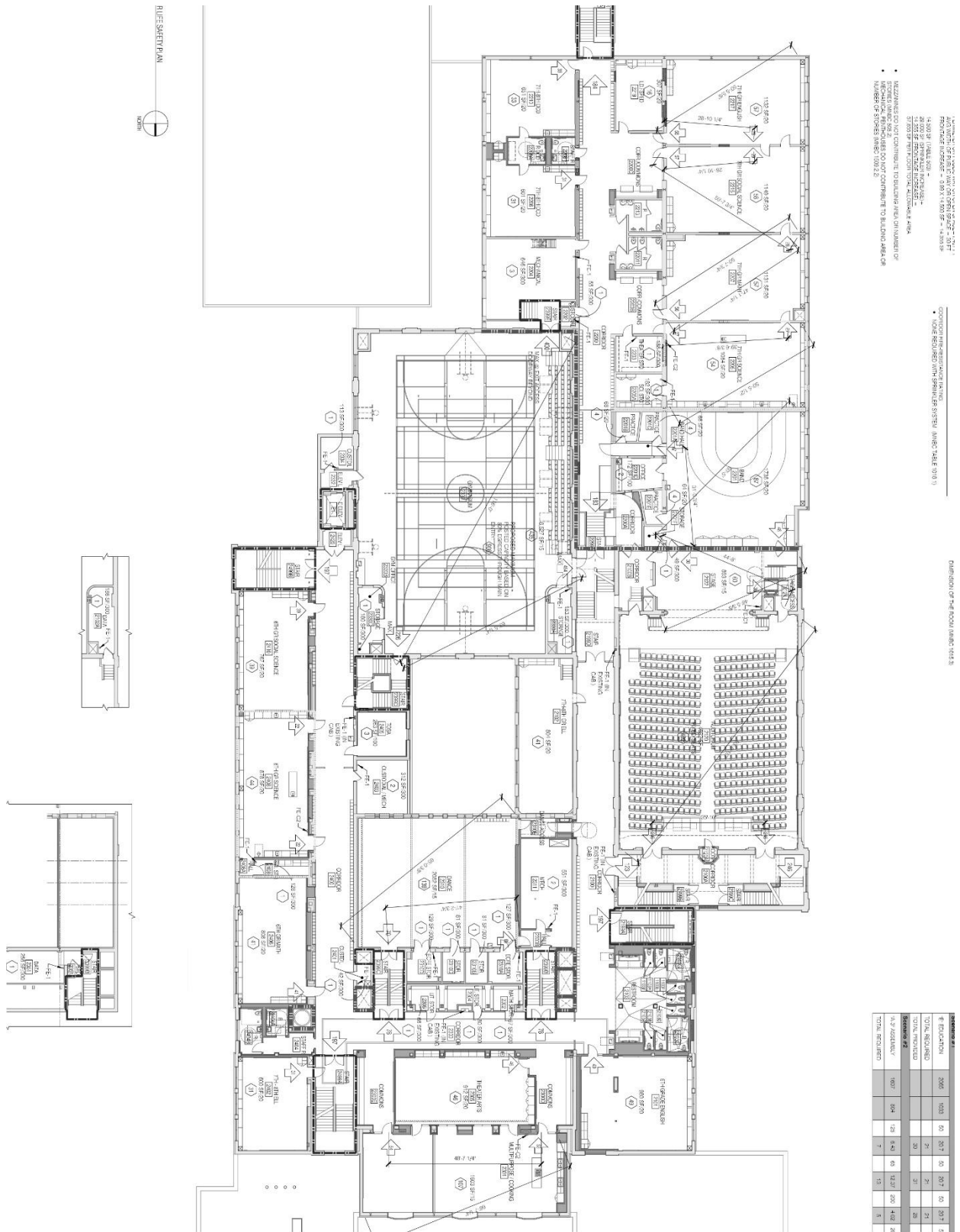
Filter Type	MERV Rating
Pleated	MERV 11
Pleated	MERV 13
Pleated	MERV 8

- Filters are changed quarterly.
- Energy Recovery Units are present.
- Units do not contain system Enhancements.
- Personal air purifiers are supplied for individual rooms. They are 3M/Filtrete .
 - Location: In all classrooms
- It is not known whether or not the building was commissioned during the original construction.

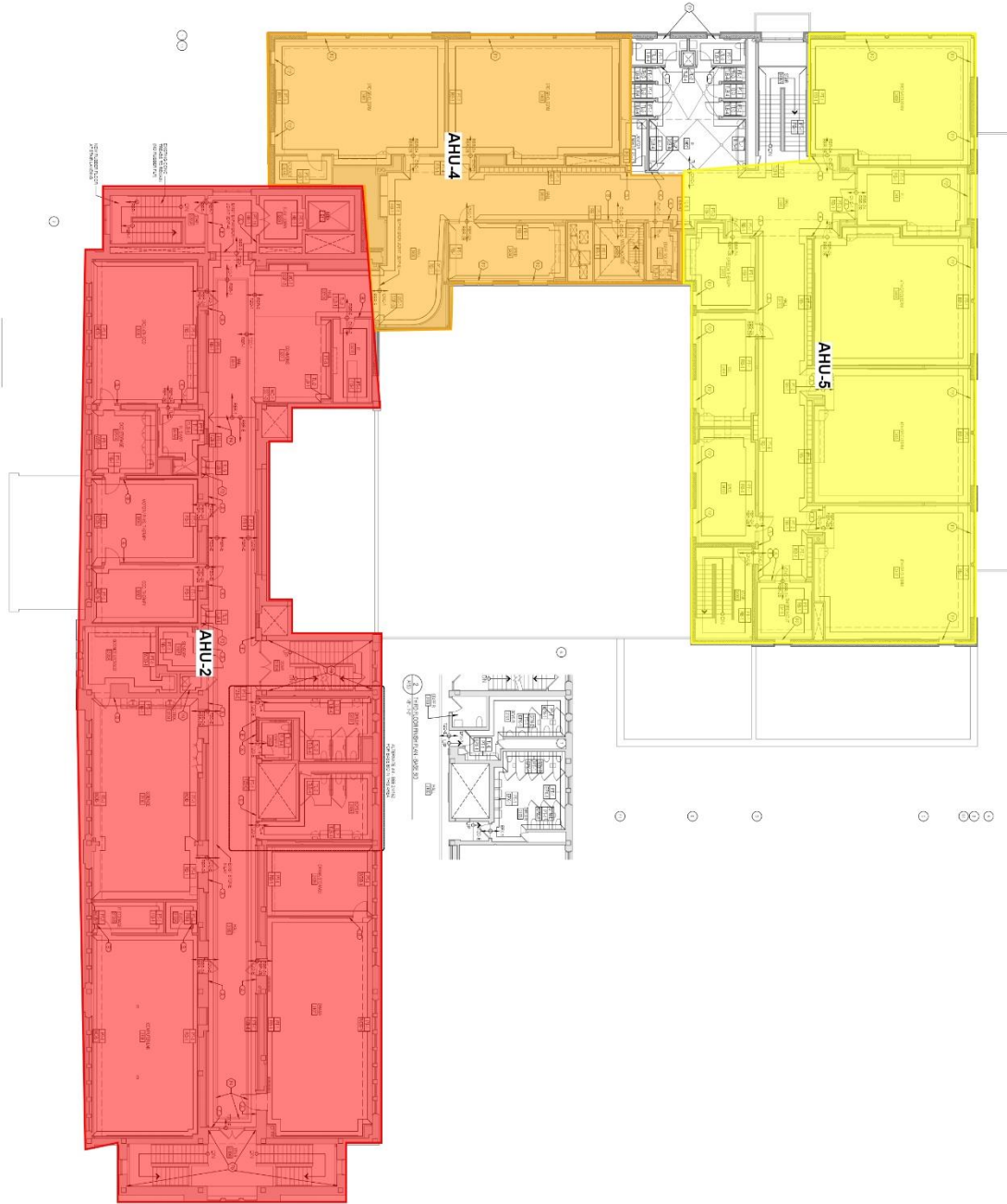
Air Handling Unit Designations & Service Zones: 1st Floor



Air Handling Unit Designations & Service Zones: 2nd Floor



Air Handling Unit Designations & Service Zones: 3rd Floor



Assessment

Ventilation System

The following information was gathered by IEA on Thursday, April 20, 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:

Unit Designation:	AHU-01	
Location of Unit:	Mechanical room 0-101	
Areas Served:	See attached map 1st Floor South Vavs	
System Enhancements:	None	
Supply System	Outdoor Air	Cleanliness and Observations
Type <ul style="list-style-type: none"> Supply System - VAV Heating - Hot Water Cooling - Dx Energy Recovery Unit (ERU) - Wheel 	Outdoor air intake is accessible Outdoor air intake is located on the roof. No nearby pollution sources were found.	Outdoor air pre-filters are clean and not in need of replacement (scoring 1 out of 5) and fit well. Outdoor air pre-filters are installed correctly. Outdoor air main filters are clean and not in need of replacement (scoring 2 out of 5) and fit well. Outdoor air main filters are installed correctly. Return air pre-filters are not present. Return air main filters are clean and not in need of replacement (scoring 1 out of 5) and fit well. Return air main filters are installed correctly. Drain pans are not plugged. Drain pan condition is good. Heating coils are clean and cooling coils are clean. Heat wheels are clean.
Filter Type - Outdoor <ul style="list-style-type: none"> Pre-filter: Pleated, MERV 11 Main filter: Pleated, MERV 13 	Outdoor air intake is in good condition.	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.
Filter Type - Return <ul style="list-style-type: none"> Pre-filter: None Main filter: Pleated, MERV 11 		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.

Unit Designation:	AHU-02	
Location of Unit:	Penthouse	
Areas Served:	See attached map 2nd & 3rd Floor South Vavs	
System Enhancements:	None	
Supply System	Outdoor Air	Cleanliness and Observations
Type <ul style="list-style-type: none"> Supply System - VAV Heating - Hot Water Cooling - Chilled Water Energy Recovery Unit (ERU) - Wheel 	Outdoor air intake is accessible Outdoor air intake is located on the roof. No nearby pollution sources were found.	Outdoor air pre-filters are clean and not in need of replacement (scoring 2 out of 5) and fit well. Outdoor air pre-filters are installed correctly. Outdoor air main filters are clean and not in need of replacement (scoring 1 out of 5) and fit well. Outdoor air main filters are installed correctly. Return air pre-filters are not present. Return air main filters are clean and not in need of replacement (scoring 2 out of 5) and fit well. Return air main filters are installed correctly. Drain pans are not plugged. Drain pan condition is good. Heating coils are clean and cooling coils are clean. Heat wheels are clean. 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 open, and its condition is good. Return damper is open, and its condition is good. The general condition of the unit is good.
Filter Type - Outdoor <ul style="list-style-type: none"> Pre-filter: Pleated, MERV 8 Main filter: Pleated, MERV 13 	Outdoor air intake is in good condition.	
Filter Type - Return <ul style="list-style-type: none"> Pre-filter: None Main filter: Pleated, MERV 8 		

Unit Designation:	AHU-03	
Location of Unit:	Mechanical room 0-102	
Areas Served:	See attached map Gymnasium	
System Enhancements:	None	
Supply System	Outdoor Air	Cleanliness and Observations
Type <ul style="list-style-type: none"> Supply System - Constant Volume Heating - Hot Water Cooling - None Energy Recovery Unit (ERU) - None 	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 filters are clean and not in need of replacement (scoring 1 out of 5) and fit well. Mixed air filters are installed correctly. Drain pans are not applicable or not present. Drain pan condition is not known. 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 open, and its condition is good. Return damper is open, and its condition is good. The general condition of the unit is good.
Filter Type - Mixed <ul style="list-style-type: none"> Pre-filter: Pleated, MERV 8 Main filter: Pleated, MERV 13 	Outdoor air intake is in good condition.	

Unit Designation:	AHU-04	
Location of Unit:	Mechanical room 3499c	
Areas Served:	See attached map 1st, 2nd, 3rd West Vavs	
System Enhancements:	None	
Supply System	Outdoor Air	Cleanliness and Observations
Type <ul style="list-style-type: none"> Supply System - VAV Heating - Hot Water Cooling - Dx Energy Recovery Unit (ERU) - Wheel 	<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 clean and not in need of replacement (scoring 1 out of 5) and fit well. Outdoor air filters are installed correctly.</p> <p>Return air pre-filters are not present. Return air main filters are clean and not in need of replacement (scoring 1 out of 5) and fit well. Return air main filters are installed correctly.</p> <p>Drain pans are not plugged. Drain pan condition is good.</p>
Filter Type - Outdoor <ul style="list-style-type: none"> Pre-filter: Pleated, MERV 8 Main filter: Pleated, MERV 13 	<p>Outdoor air intake is in good condition.</p>	<p>Heating coils are clean and cooling coils are clean.</p> <p>Heat wheels are clean.</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>Air handling room is free of trash/chemicals.</p> <p>Outside damper is open, 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>
Filter Type - Return <ul style="list-style-type: none"> Pre-filter: None Main filter: Pleated, MERV 8 		

Unit Designation:	AHU-05	
Location of Unit:	Mechanical room 3499c	
Areas Served:	See attached map 2nd & 3rd Floor North Vavs	
System Enhancements:	None	
Supply System	Outdoor Air	Cleanliness and Observations
Type <ul style="list-style-type: none"> Supply System - VAV Heating - Hot Water Cooling - Dx Energy Recovery Unit (ERU) - Wheel 	<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 clean and not in need of replacement (scoring 1 out of 5) and fit well. Outdoor air filters are installed correctly.</p> <p>Return air pre-filters are not present. Return air main filters are clean and not in need of replacement (scoring 1 out of 5) and fit well. Return air main filters are installed correctly.</p> <p>Drain pans are not plugged. Drain pan condition is good.</p>
Filter Type - Outdoor <ul style="list-style-type: none"> Pre-filter: Pleated, MERV 8 Main filter: Pleated, MERV 13 	<p>Outdoor air intake is in good condition.</p>	<p>Heating coils are clean and cooling coils are clean.</p> <p>Heat wheels are clean.</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>Air handling room is free of trash/chemicals.</p> <p>Outside damper is open, 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>
Filter Type - Return <ul style="list-style-type: none"> Pre-filter: None Main filter: Pleated, MERV 8 		

Unit Designation:	AHU-06	
Location of Unit:	Mezzanine by door #6	
Areas Served:	See attached map Cafeteria/Kitchen	
System Enhancements:	None	
Supply System	Outdoor Air	Cleanliness and Observations
Type <ul style="list-style-type: none"> Supply System - VAV Heating - Hot Water Cooling - None Energy Recovery Unit (ERU) - None 	Outdoor air intake is inaccessible Outdoor air intake is located in an unknown location. It is not known if there are nearby pollution sources.	Outdoor air filters are not present. Return air filters are not present. Mixed air filters are clean and not in need of replacement (scoring 1 out of 5) and fit well. Mixed air filters are installed correctly. Drain pans are not applicable or not present. Drain pan condition is not known.
Filter Type - Mixed <ul style="list-style-type: none"> Pre-filter: Pleated, MERV 8 Main filter: Pleated, MERV 13 	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 open, and its condition is good. Return damper is open, and its condition is good. The general condition of the unit is good.

Recommendations
