

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

IEA, INC.

2023 - 2024 Ventilation Assessment



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Saint Paul Public Schools Open World Learning

Assessment Date:
Thursday, April 6, 2023

Project Description

IEA conducted a ventilation inspection in Open World Learning by IEA representative, Jack Skluzacek, 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 Tridium and controls can not be accessed remotely.
- Schedules:

Ventilation operation:

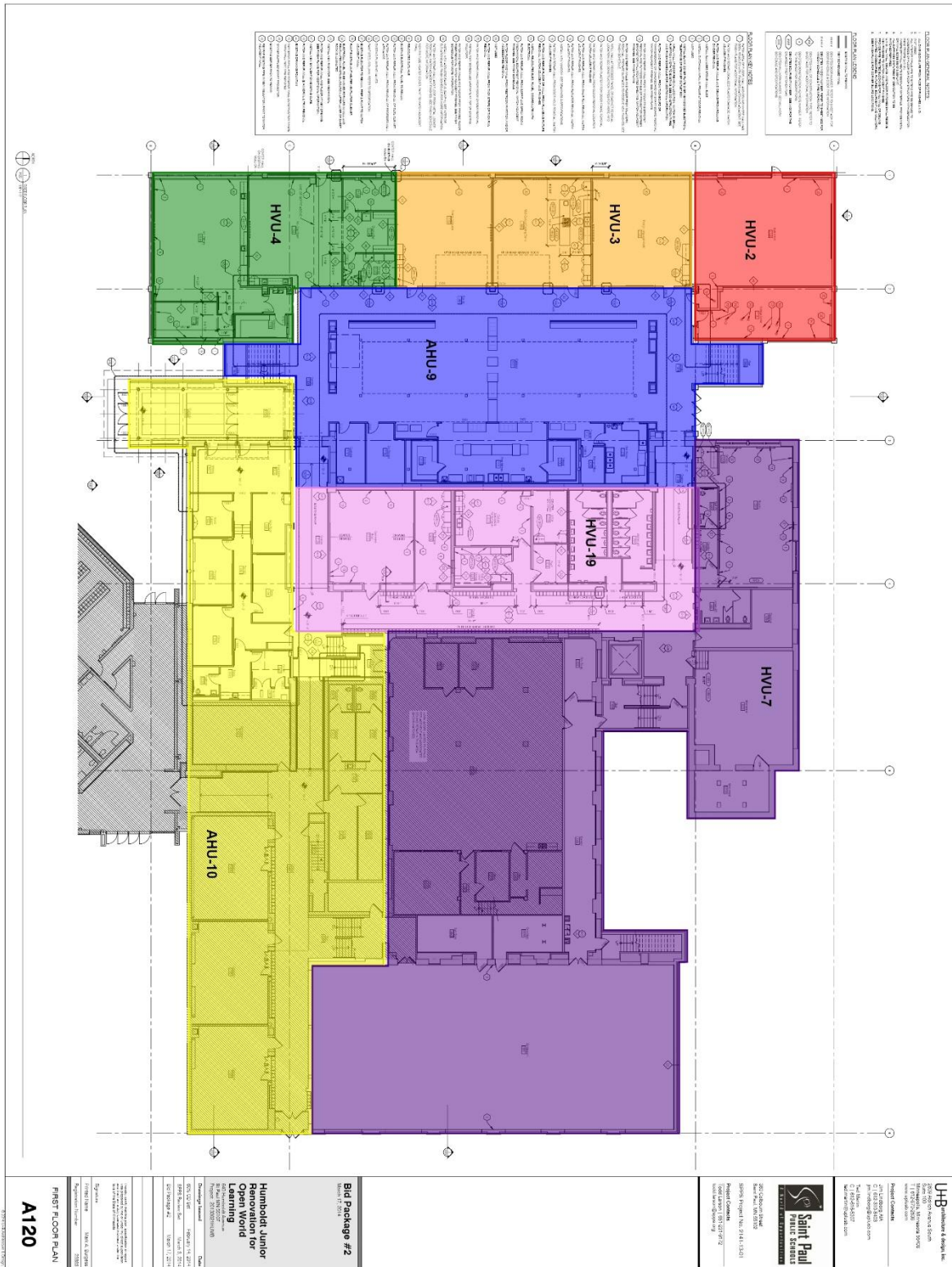
Day:	Occupied?	Start Time:	End Time:
Monday-Friday	Yes	6:00 AM	4:00 PM
Saturday	No		
Sunday	No		
Holiday	No		

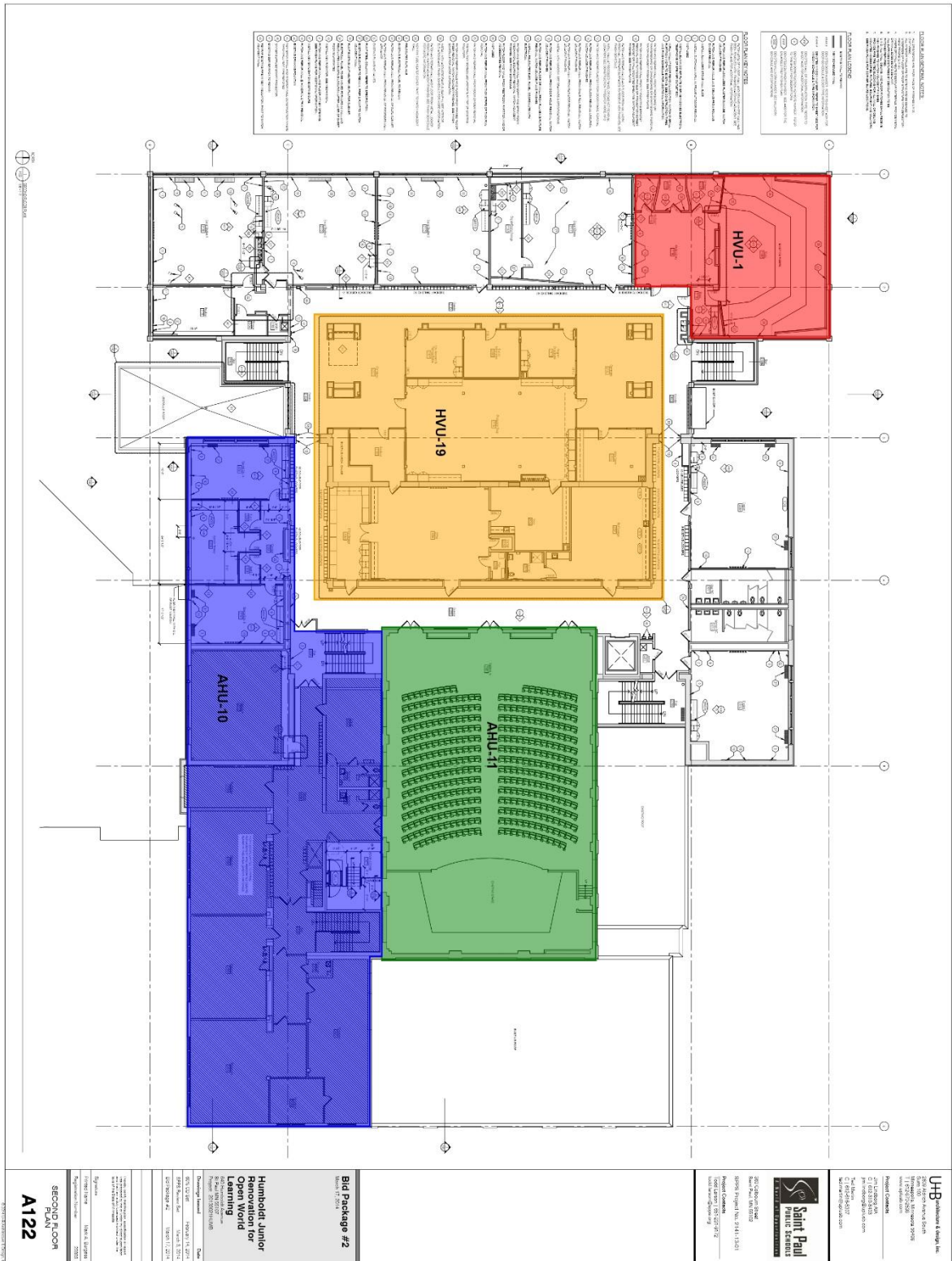
Typical occupancy:

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

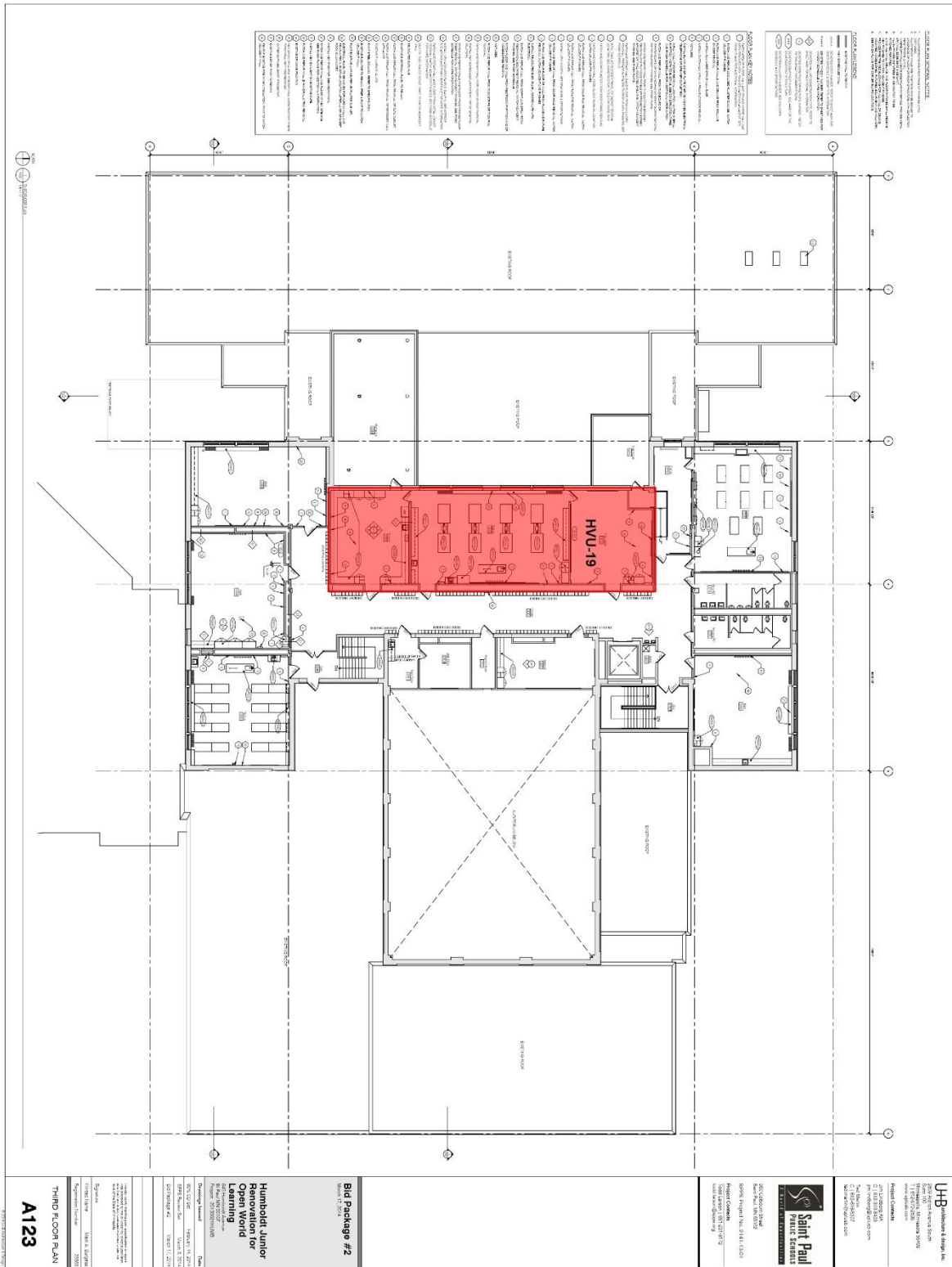
- CO2 sensors are not associated with the ventilation system.
- VAVs are not present.
- It is not known whether or not the building has variable frequency drives (VFD).
- The heating system is a steam boiler.
- A cooling system is not present.
- Filters used are:

Filter Type	MERV Rating
Pleated	MERV 11
Pleated	MERV 13
- 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 of unknown make or model.
 - Location: Nurse's office
- It is not known whether or not the building was commissioned during the original construction.





Air Handling Unit Designations & Service Zones: 3rd 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:

Unit Designation:	HVU 2	
Location of Unit:	Bike Shop 1114 above ceiling	
Areas Served:	See attached map	
System Enhancements:	None	
Supply System	Outdoor Air	Cleanliness and Observations
Type <ul style="list-style-type: none"> Supply System - Constant Volume Heating - Steam 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 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.
Filter Type - Mixed <ul style="list-style-type: none"> Pre-filter: None Main filter: Pleated, MERV 11 	Outdoor air intake is in good condition.	Heating coils are inaccessible. 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 not known. Return damper is inaccessible, and its condition is not known. The general condition of the unit is good.

Unit Designation:	HVU 3	
Location of Unit:	Art room 1106	
Areas Served:	See attached map	
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 	<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 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 pan plugged status is not known. Drain pan condition is not known.</p>
Filter Type - Mixed <ul style="list-style-type: none"> Pre-filter: None Main filter: Pleated, MERV 11 	<p>Outdoor air intake is in good condition.</p>	<p>Heating coils are inaccessible.</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 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>

Unit Designation:	HVU 4	
Location of Unit:	Art room 1106 above ceiling	
Areas Served:	See attached map	
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 	<p>Outdoor air intake is inaccessible</p> <p>Outdoor air intake is located on the unit.</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 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> <p>Heating coils are inaccessible.</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 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>
Filter Type - Mixed <ul style="list-style-type: none"> Pre-filter: None Main filter: Pleated, MERV 11 		

Unit Designation:	HVU 8	
Location of Unit:	Gym Storage	
Areas Served:	See attached map.	
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 	<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 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.</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 not visible. Exterior ducting insulation is not present.</p> <p>Interior ducting is not visible. Interior ducting insulation is not present. Interior ducting is of unknown cleanliness.</p> <p>Air handling room is free of trash/chemicals.</p> <p>Outside damper is not present.</p> <p>Return damper is inaccessible, and its condition is not known.</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 11 	<p>Outdoor air intake is in good condition.</p>	

Unit Designation:	HVU 9	
Location of Unit:	Gym Storage	
Areas Served:	See attached map	
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 	<p>Outdoor air intake is inaccessible</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 pre-filters are not present. Return air main filters are somewhat dirty and on the border of needing replacement (scoring 3 out of 5) and fit well. Return air main filters 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>
Filter Type - Return <ul style="list-style-type: none"> Pre-filter: None Main filter: Pleated, MERV 11 	<p>Outdoor air intake is in good condition.</p>	<p>Exterior ducting is not visible. Exterior ducting insulation is not present.</p> <p>Interior ducting is not visible. Interior ducting insulation is not present. Interior ducting is of unknown cleanliness.</p> <p>Air handling room is free of trash/chemicals.</p> <p>Outside damper is not present.</p> <p>Return damper is inaccessible, and its condition is good.</p> <p>The general condition of the unit is good.</p>

Unit Designation:	HVU 19	
Location of Unit:	Mechanical room 3208 A	
Areas Served:	See attached map	
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 an exterior wall. 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.
Filter Type - Mixed <ul style="list-style-type: none"> Pre-filter: None Main filter: Pleated, MERV 11 	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 good condition. Interior ducting is clean. 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 9	
Location of Unit:	Mechanical Room 3208A	
Areas Served:	See attached map.	
System Enhancements:	None	
Supply System	Outdoor Air	Cleanliness and Observations
Type <ul style="list-style-type: none"> Supply System - Unknown Heating - Steam Cooling - None Energy Recovery Unit (ERU) - None 	Outdoor air intake is accessible Outdoor air intake is located on an exterior wall. 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 4 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.
Filter Type - Mixed <ul style="list-style-type: none"> Pre-filter: None Main filter: Pleated, MERV 11 	Outdoor air intake is in good condition.	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 poor 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.

Unit Designation:	AHU 10	
Location of Unit:	Mechanical Room 2604	
Areas Served:	See attached map.	
System Enhancements:	None	
Supply System	Outdoor Air	Cleanliness and Observations
Type <ul style="list-style-type: none"> Supply System - Constant Volume Heating - Steam Cooling - None Energy Recovery Unit (ERU) - None 	<p>Outdoor air intake is inaccessible</p> <p>Outdoor air intake is located on the roof.</p> <p>It is not known if there are nearby pollution sources.</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 4 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 inaccessible.</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 inaccessible, and its condition is not known.</p> <p>Return damper is open, and its condition is good.</p> <p>The general condition of the unit is good.</p>
Filter Type - Mixed <ul style="list-style-type: none"> Pre-filter: None Main filter: Pleated, MERV 11 		

Unit Designation:	AHU 11 (RTU_11)	
Location of Unit:	Roof via stage access	
Areas Served:	Roof top on the stage See attached map	
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) - Wheel 	<p>Outdoor air intake is accessible</p> <p>Outdoor air intake is located on the roof.</p> <p>It is not known if there are nearby pollution sources.</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 inaccessible.</p> <p>Heat wheels are clean.</p> <p>Exterior ducting is visible. Exterior ducting insulation is not present.</p> <p>Interior ducting is visible. Interior ducting insulation is in good condition. Interior ducting is clean.</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 open, and its condition is good.</p> <p>The general condition of the unit is good.</p>
Filter Type - Mixed <ul style="list-style-type: none"> Pre-filter: None Main filter: Pleated, MERV 11 		

Unit Designation:	AHU 12 (RTU_12)	
Location of Unit:	Roof via stage access	
Areas Served:	Roof top on the stage See attached map	
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 filters are not present. Return air filters are not present.
	Outdoor air intake is located on the roof.	Mixed air pre-filters are not present. Mixed air main filters are somewhat dirty and on the border of needing replacement (scoring 4 out of 5) and fit well. Mixed air main filters are installed correctly.
	No nearby pollution sources were found.	Drain pan plugged status is not known. Drain pan condition is not known.
Filter Type - Mixed <ul style="list-style-type: none"> Pre-filter: None Main filter: Pleated, MERV 11 	Outdoor air intake is in good condition.	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 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.

Unit Designation:	AHU 13	
Location of Unit:	Unlabeled Mechanical Room on mezzanine between floors 1 and 2 (Theater Area)	
Areas Served:	OWL Gym	
System Enhancements:	None	
Supply System	Outdoor Air	Cleanliness and Observations
Type <ul style="list-style-type: none"> Supply System - Constant Volume Heating - Steam Cooling - Dx Energy Recovery Unit (ERU) - Fixed Plate 	<p>Outdoor air intake is inaccessible</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 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 well. Outdoor air main 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 2 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: None 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 inaccessible.</p> <p>Exterior ducting is visible. Exterior ducting insulation is in good condition.</p>
Filter Type - Return <ul style="list-style-type: none"> Pre-filter: None Main filter: Pleated, MERV 13 		<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>

Unit Designation:	ERV 2	
Location of Unit:	2114 A	
Areas Served:	See attached map	
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) - Fixed Plate 	<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 intake is in good condition.</p>	<p>Outdoor air filters are of unknown cleanliness and fit well. Outdoor air filters are installed correctly.</p> <p>Return air filters are of unknown cleanliness and fit well. Return air 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 inaccessible.</p> <p>Heat wheel cleanliness is not known.</p> <p>Exterior ducting is not visible. Exterior ducting insulation is in an unknown condition.</p> <p>Interior ducting is visible. Interior ducting insulation is in good condition. Interior ducting is clean.</p> <p>Air handling room is free of trash/chemicals.</p> <p>Outside damper is unknown, and its condition is good.</p> <p>Return damper is unknown, and its condition is good.</p> <p>The general condition of the unit is good.</p>
Filter Type - Outdoor <ul style="list-style-type: none"> Pre-filter: Unknown, N/A Main filter: Unknown, N/A 		
Filter Type - Return <ul style="list-style-type: none"> Pre-filter: Unknown, N/A Main filter: Unknown, N/A 		

Unit Designation:	ERV 3	
Location of Unit:	Hallway above ceiling near 2114	
Areas Served:	See attached map	
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) - Fixed Plate 	<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 intake is in good condition.</p>	<p>Outdoor air filters are of unknown cleanliness and fit well. Outdoor air filters are installed correctly.</p> <p>Return air filters are of unknown cleanliness and fit well. Return air filters are installed correctly.</p> <p>Mixed air filters are of unknown cleanliness and fit well. Mixed air 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 inaccessible.</p> <p>Heat wheel cleanliness is not known.</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 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 good.</p> <p>The general condition of the unit is good.</p>
Filter Type - Outdoor <ul style="list-style-type: none"> Pre-filter: Unknown, N/A Main filter: Unknown, N/A 		
Filter Type - Return <ul style="list-style-type: none"> Pre-filter: Unknown, N/A Main filter: Unknown, N/A 		
Filter Type - Mixed <ul style="list-style-type: none"> Pre-filter: Unknown, N/A Main filter: Unknown, N/A 		

Unit Designation:	ERV 1 (NEW)	
Location of Unit:	2114A	
Areas Served:	See attached map	
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) - Fixed Plate 	<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 pre-filters are inaccessible and fit well. Return air pre-filters are installed correctly. Return air main filters are of unknown cleanliness and fit well. Return 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 inaccessible.</p>
Filter Type - Return <ul style="list-style-type: none"> Pre-filter: Unknown, N/A Main filter: Unknown, N/A 	<p>Outdoor air intake is in good condition.</p>	<p>Heat wheel cleanliness is not known.</p> <p>Exterior ducting is not visible. Exterior ducting insulation is in an unknown condition.</p> <p>Interior ducting is visible. Interior ducting insulation is in good condition. Interior ducting is clean.</p> <p>Air handling room is free of trash/chemicals.</p> <p>Outside damper is unknown, and its condition is good.</p> <p>Return damper is unknown, and its condition is good.</p> <p>The general condition of the unit is good.</p>

Unit Designation:	2116 CEILING	
Location of Unit:	Room 2116 above Ceiling	
Areas Served:	See attached map.	
System Enhancements:	None	
Supply System	Outdoor Air	Cleanliness and Observations
Type <ul style="list-style-type: none"> Supply System - Constant Volume Heating - None Cooling - None Energy Recovery Unit (ERU) - None 	<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 pre-filters are not present. Return air main filters are somewhat dirty and on the border of needing replacement (scoring 3 out of 5) and fit well. Return air main filters 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>
Filter Type - Return <ul style="list-style-type: none"> Pre-filter: None Main filter: Pleated, MERV 11 	<p>Outdoor air intake is in good condition.</p>	<p>Exterior ducting is not visible. Exterior ducting insulation is in an unknown condition.</p> <p>Interior ducting is visible. Interior ducting insulation is not present. Interior ducting is clean.</p> <p>Air handling room is free of trash/chemicals.</p> <p>Outside damper is not present.</p> <p>Return damper is open, and its condition is good.</p> <p>The general condition of the unit is good.</p>

Unit Designation:	UNIVENT ROOM 2108 #1	
Location of Unit:	Room 2108	
Areas Served:	Room 2108	
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 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 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 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 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: None Main filter: Pleated, MERV 11 		

Unit Designation:	UNIVENT ROOM 2108 #2	
Location of Unit:	Room 2108	
Areas Served:	Room 2108	
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 	<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:</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>
Filter Type - Mixed <ul style="list-style-type: none"> Pre-filter: None Main filter: Pleated, MERV 11 	<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 visible. Exterior ducting insulation is not present.</p> <p>Interior ducting is visible. Interior ducting insulation is not present. Interior ducting is clean.</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>

Unit Designation:	UNIVENT ROOM 2110	
Location of Unit:	Room 2110	
Areas Served:	Room 2110	
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 	<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:</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>
Filter Type - Mixed <ul style="list-style-type: none"> Pre-filter: None Main filter: Pleated, MERV 11 	<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 visible. Exterior ducting insulation is not present.</p> <p>Interior ducting is visible. Interior ducting insulation is not present. Interior ducting is clean.</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>

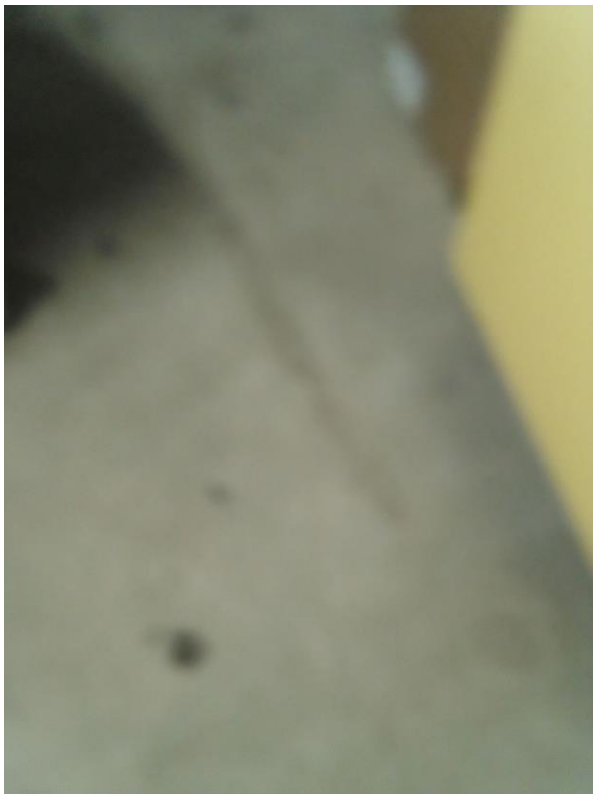
Recommendations

The accessible ductwork for unit AHU 9 was visibly dirty, damaged, or had evidence of moisture at the time of the site inspection.

Recommendation: IEA recommends further inspection into the overall condition of the interior ductwork and level of dirt/debris quantified. If deemed a concern, it is recommended that the interior ducting be cleaned by a professional contractor to improve the impact on the IAQ for the supply spaces.

Appendix A

Photo Documentation



HVU 8

Return Main Filter Cleanliness



HVU 9

Return Pre-Filter Cleanliness



HVU 9

Return Main Filter Cleanliness



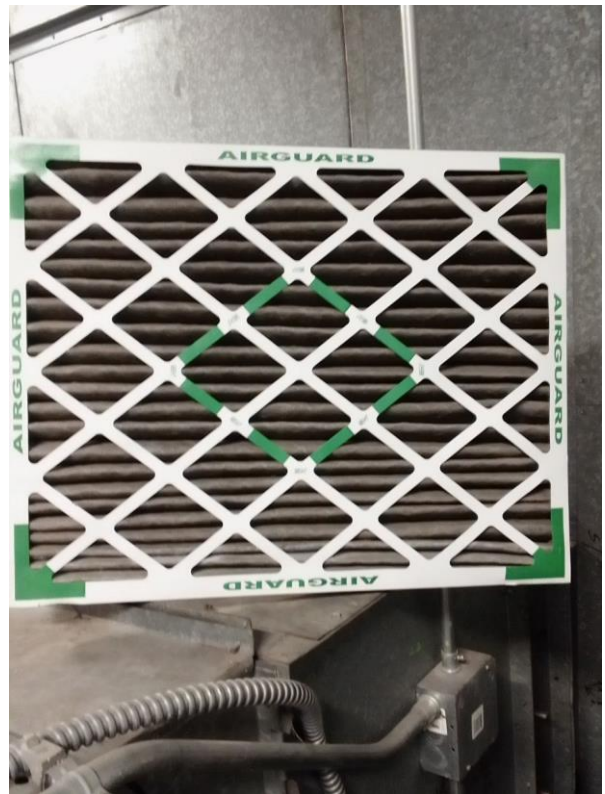
HVU 9

Mixed Main Filter Cleanliness



HVU 19

Mixed Main Filter Cleanliness



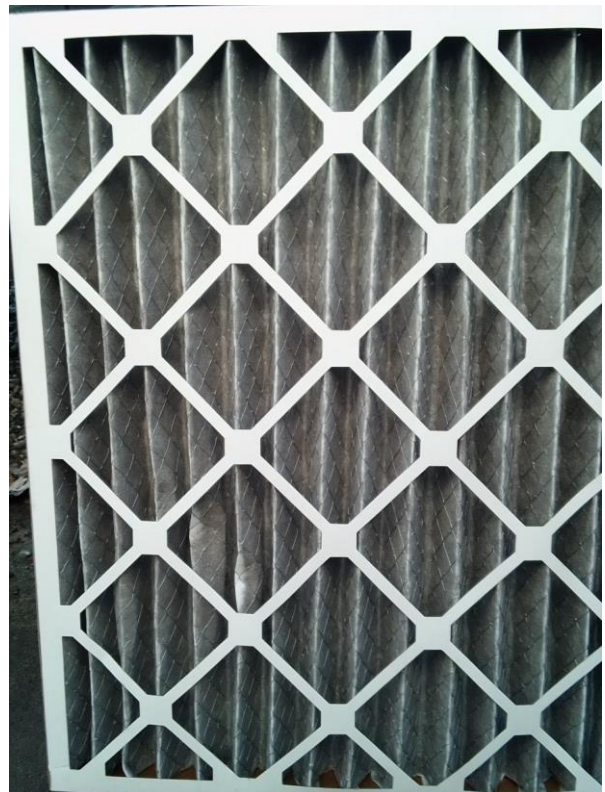
AHU 9

Mixed Main Filter Cleanliness



AHU 10

Mixed Main Filter Cleanliness

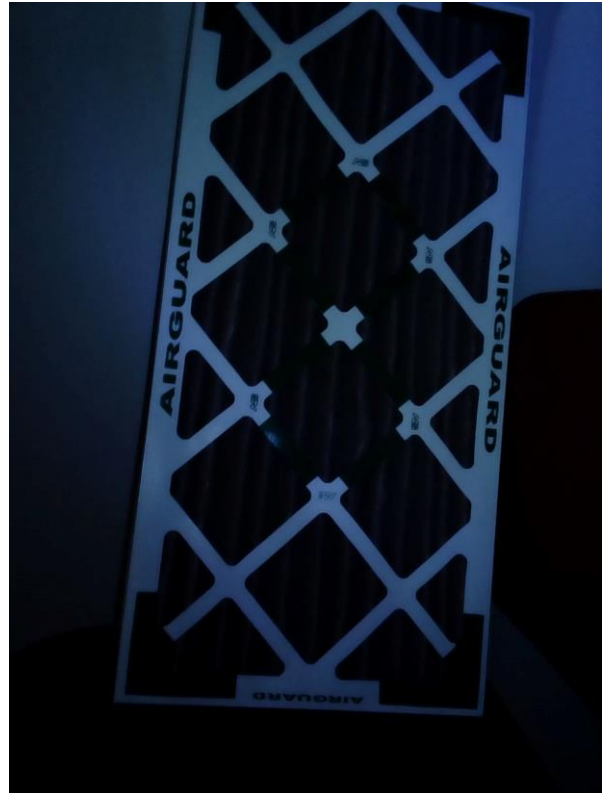


AHU 11 (RTU_11)

Mixed Main Filter Cleanliness



AHU 12 (RTU_12)
Mixed Main Filter Cleanliness



AHU 13
Outdoor Main Filter Cleanliness



2116 CEILING
Return Pre-Filter Cleanliness



2116 CEILING
Return Main Filter Cleanliness