

IEA, INC.

2023 - 2024 Ventilation Assessment



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Saint Paul Public Schools Cherokee Heights Elementary School

Assessment Date:
Monday, April 3, 2023

Project Description

IEA conducted a ventilation inspection in Cherokee Heights Elementary School by IEA representative, Eddie Anderson, 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	7:00 AM	8:30 PM
Monday-Friday	Yes	7:00 AM	4:00 PM

Typical occupancy:

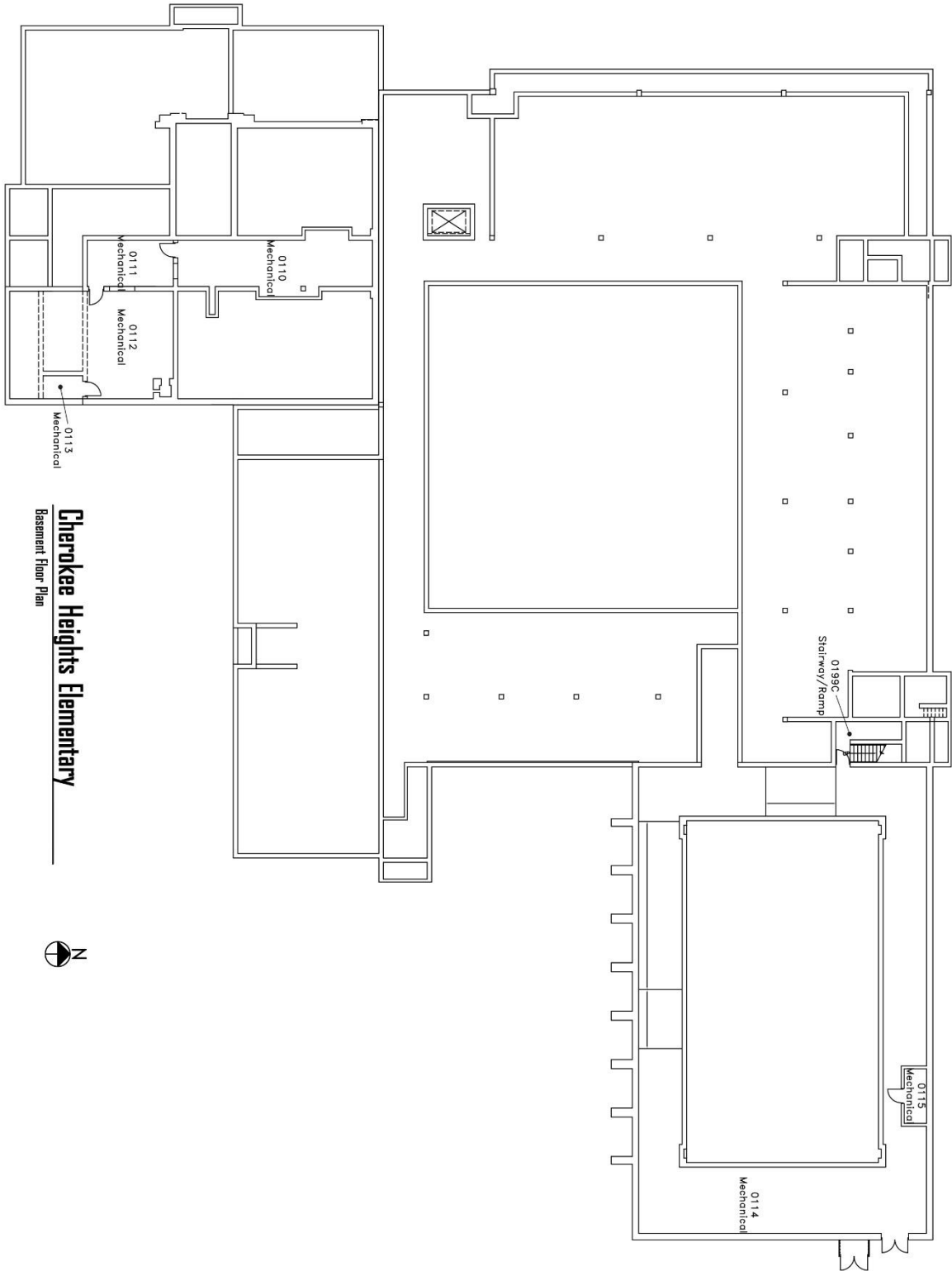
Day:	Occupied?	Start Time:	End Time:
Monday-Friday	Yes	7:00 AM	3:00 PM
Saturday	No		
Sunday	No		
Holiday	No		

- It is not known whether or not CO2 sensors are associated with the ventilation system.
- VAVs are present. It is not known whether or not they are 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	Larger filters m11, smaller filters NA
Pleated	MERV 11
Pleated	MERV 8
Pleated	N/A

- Filters are changed quarterly.
- Energy Recovery Units are not present.
- Units do not contain system Enhancements.
- Personal air purifiers are not supplied for individual rooms.
- It is not known whether or not the building was commissioned during the original construction.

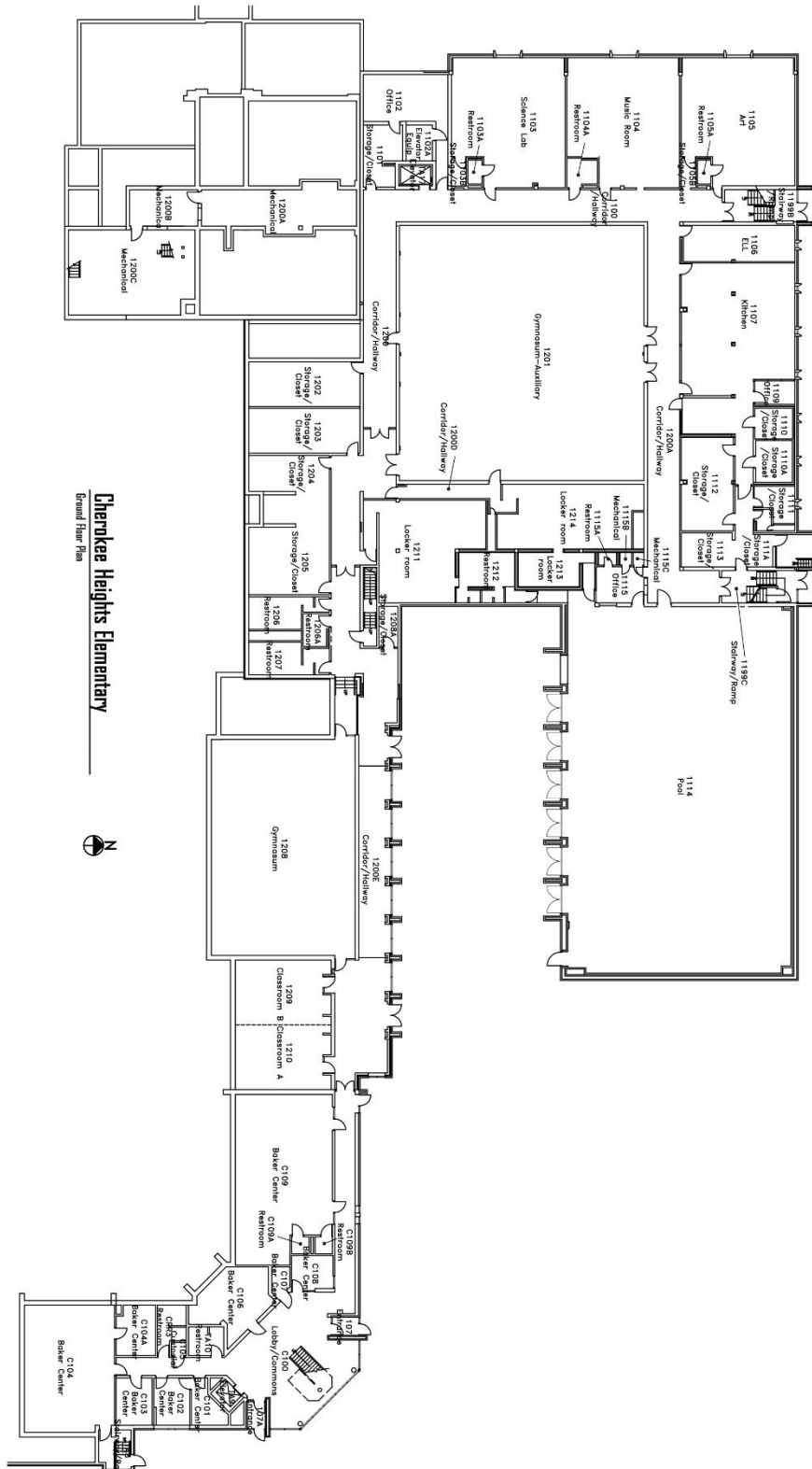
Air Handling Unit Designations & Service Zones: Basement Level



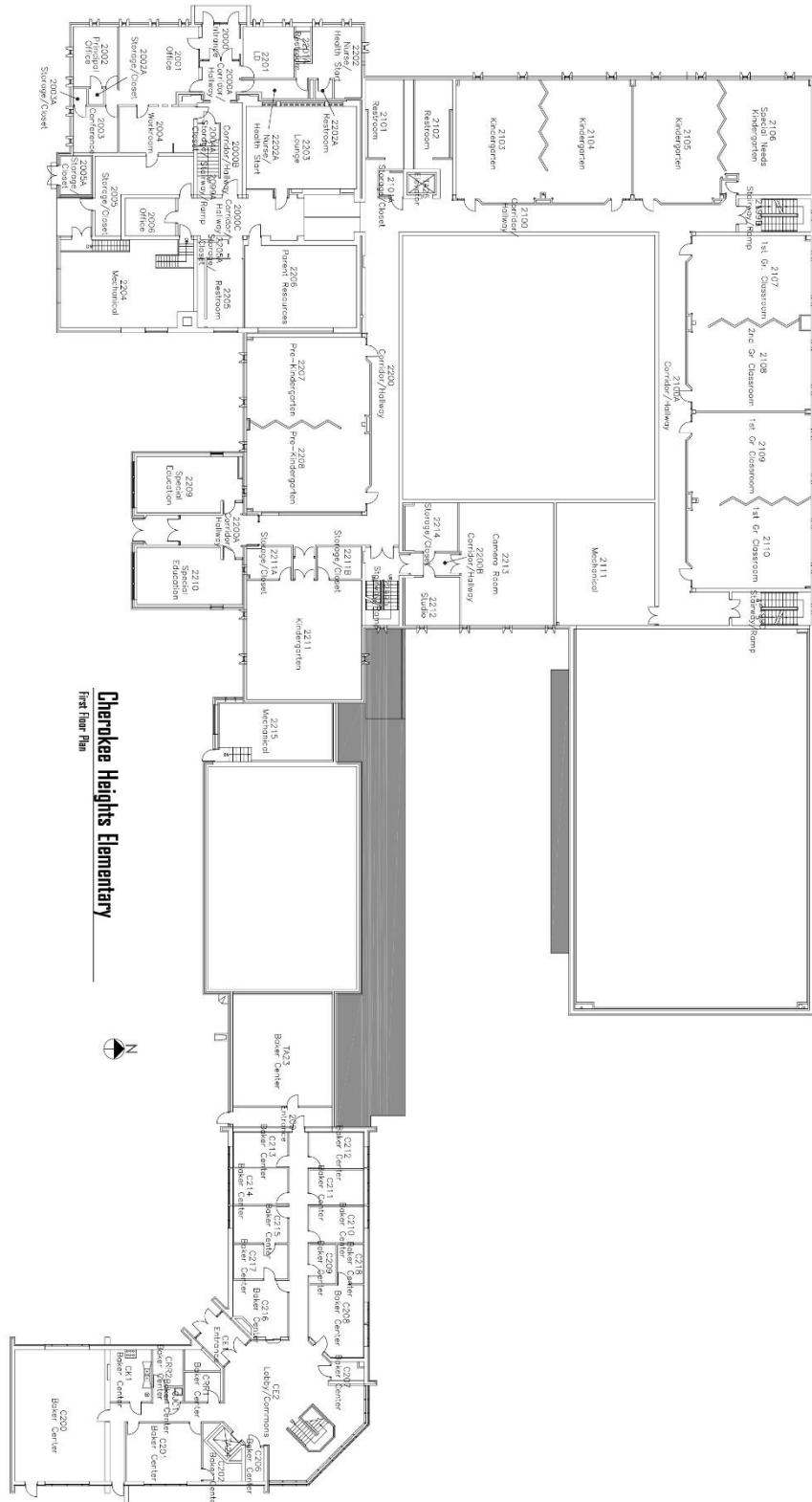
Cherokee Heights Elementary
Basement Floor Plan



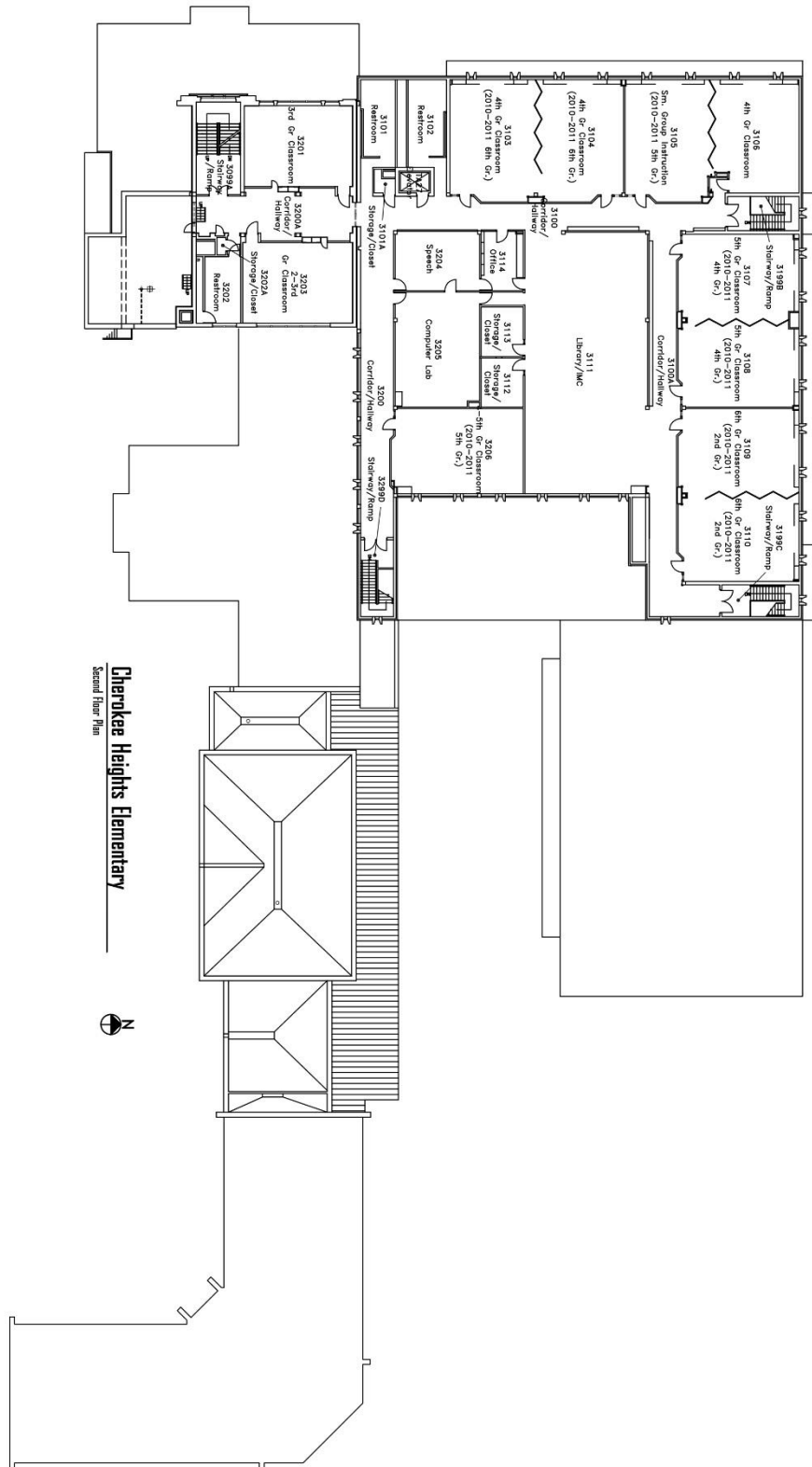
Air Handling Unit Designations & Service Zones: Ground Level



Air Handling Unit Designations & Service Zones: First Level



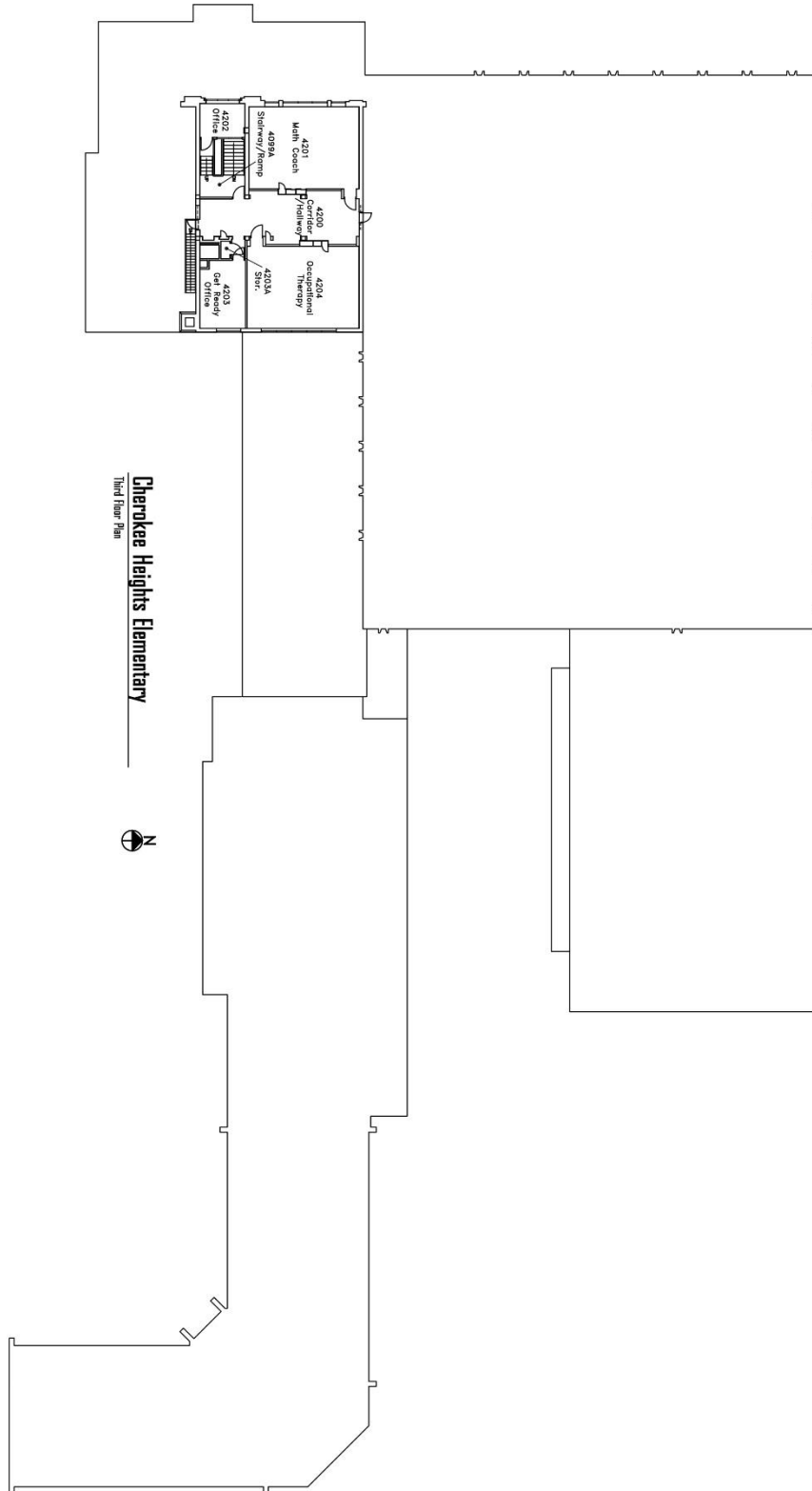
Air Handling Unit Designations & Service Zones: Second Level



Cherokee Heights Elementary
Second Floor Plan



Air Handling Unit Designations & Service Zones: Third Level



Assessment

Ventilation System

The following information was gathered by IEA on Monday, April 3, 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-1	
Location of Unit:	Mechanical room C106	
Areas Served:	See attached map Serving Upper & Lower Level Baker Center	
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) - None 	Outdoor air intake is inaccessible Outdoor air intake is located on an exterior wall. 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 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 plugged. Drain pan condition is good.
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 and cooling coils are clean. Heat wheels are not present. Exterior ducting is not 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 closed, and its condition is good. The general condition of the unit is good.

Unit Designation:	AHU-01	
Location of Unit:	Mechanical room 2111	
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 - Unknown • 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 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>
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 dirty.</p> <p>Heat wheels are not present.</p> <p>Exterior ducting is visible. Exterior ducting insulation is in poor 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 poor. The seal is damaged.</p> <p>Return damper is open, and its condition is poor. The seal is damaged.</p> <p>The general condition of the unit is good.</p>

Unit Designation:	AHU-02	
Location of Unit:	Mechanical Room 2111	
Areas Served:	See attached map Library	
System Enhancements:	None	
Supply System	Outdoor Air	Cleanliness and Observations
Type <ul style="list-style-type: none"> • Supply System - Unknown • 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 roof.</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 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 clean.</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 closed, and its condition is poor. The seal is damaged.</p> <p>Return damper is open, and its condition is poor. The seal is damaged.</p> <p>The general condition of the unit is poor.</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>	

Unit Designation:	AHU-03	
Location of Unit:	2111	
Areas Served:	Pool	
System Enhancements:	None	
Supply System	Outdoor Air	Cleanliness and Observations
Type <ul style="list-style-type: none"> Supply System - Unknown Heating - Hot Water Cooling - None Energy Recovery Unit (ERU) - None Filter Type - Mixed <ul style="list-style-type: none"> Pre-filter: None Main filter: Pleated, MERV 11 	<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>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 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> <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:	AHU-04	
Location of Unit:	Mechanical room 2204	
Areas Served:	See attached map Main Building	
System Enhancements:	None	
Supply System	Outdoor Air	Cleanliness and Observations
Type <ul style="list-style-type: none"> • Supply System - Unknown • Heating - Hot Water • Cooling - Chilled Water • 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 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>
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 and cooling 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 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:	UV 11	
Location of Unit:	2107	
Areas Served:	2107	
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 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>
Filter Type - Mixed <ul style="list-style-type: none"> • Pre-filter: None • Main filter: Pleated, MERV 8 	<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 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 not present.</p> <p>The general condition of the unit is good.</p>

Unit Designation:	UV 10	
Location of Unit:	2108	
Areas Served:	2108	
System Enhancements:	None	
Supply System	Outdoor Air	Cleanliness and Observations
Type <ul style="list-style-type: none"> Supply System - Unknown 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 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>
Filter Type - Mixed <ul style="list-style-type: none"> Pre-filter: None Main filter: Pleated, MERV 8 	<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 not present.</p> <p>Return damper is not present.</p> <p>The general condition of the unit is good.</p>

Unit Designation:	UV 0008	
Location of Unit:	2110	
Areas Served:	2110	
System Enhancements:	None	
Supply System	Outdoor Air	Cleanliness and Observations
Type <ul style="list-style-type: none"> • Supply System - Unknown • 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 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>
Filter Type - Mixed <ul style="list-style-type: none"> • Pre-filter: None • Main filter: Pleated, MERV 8 	<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 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 not present.</p> <p>The general condition of the unit is good.</p>

Unit Designation:	UV 0004	
Location of Unit:	1106	
Areas Served:	1106	
System Enhancements:	None	
Supply System	Outdoor Air	Cleanliness and Observations
Type <ul style="list-style-type: none"> • Supply System - Unknown • 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 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>
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 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 not present.</p> <p>The general condition of the unit is good.</p>

Unit Designation:	UV 0007	
Location of Unit:	1303	
Areas Served:	1303	
System Enhancements:	None	
Supply System	Outdoor Air	Cleanliness and Observations
Type <ul style="list-style-type: none"> • Supply System - Unknown • 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 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>
Filter Type - Mixed <ul style="list-style-type: none"> • Pre-filter: None • Main filter: Pleated, MERV 8 	<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 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 not present.</p> <p>The general condition of the unit is good.</p>

Unit Designation:	UV0020	
Location of Unit:	3110	
Areas Served:	3110	
System Enhancements:	None	
Supply System	Outdoor Air	Cleanliness and Observations
Type <ul style="list-style-type: none"> • Supply System - Unknown • 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 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>
Filter Type - Mixed <ul style="list-style-type: none"> • Pre-filter: None • Main filter: Pleated, MERV 8 	<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 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 not present.</p> <p>The general condition of the unit is good.</p>

Unit Designation:	UV 27	
Location of Unit:	3103	
Areas Served:	3103	
System Enhancements:	None	
Supply System	Outdoor Air	Cleanliness and Observations
Type <ul style="list-style-type: none"> • Supply System - Unknown • 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 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>
Filter Type - Mixed <ul style="list-style-type: none"> • Pre-filter: None • Main filter: Pleated, MERV 8 	<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 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 not present.</p> <p>The general condition of the unit is good.</p>

Unit Designation:	UV 22	
Location of Unit:	3108	
Areas Served:	3108	
System Enhancements:	None	
Supply System	Outdoor Air	Cleanliness and Observations
Type <ul style="list-style-type: none"> • Supply System - Unknown • 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 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>
Filter Type - Mixed <ul style="list-style-type: none"> • Pre-filter: None • Main filter: Pleated, MERV 8 	<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 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 not present.</p> <p>Return damper is not present.</p>

Unit Designation:	AHU-05	
Location of Unit:	Mechanical room 2204	
Areas Served:	See attached map Administration	
System Enhancements:	None	
Supply System	Outdoor Air	Cleanliness and Observations
Type <ul style="list-style-type: none"> • Supply System - Unknown • 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 roof.</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 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 clean.</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>Air handling room is free of trash/chemicals.</p> <p>Outside damper is open, and its condition is good.</p> <p>Return damper is closed, 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 	<p>Outdoor air intake is in good condition.</p>	

Unit Designation:	AHU-07	
Location of Unit:	Door #6 (only accessible via exterior)	
Areas Served:	See attached map 1999 S Addition	
System Enhancements:	None	
Supply System	Outdoor Air	Cleanliness and Observations
Type <ul style="list-style-type: none"> • Supply System - Unknown • 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>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 somewhat dirty and on the border of needing replacement (scoring 4 out of 5) and fit well. Mixed air pre-filters are installed correctly. 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>
Filter Type - Mixed <ul style="list-style-type: none"> • Pre-filter: Pleated, MERV 11 • Main filter: Pleated, N/A 	<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 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 closed, and its condition is good.</p> <p>Return damper is inaccessible, and its condition is good.</p>

Unit Designation:	MAU-01	
Location of Unit:	Loading Dock, kitchen inside door 19	
Areas Served:	See attached map Kitchen MAU	
System Enhancements:	None	
Supply System	Outdoor Air	Cleanliness and Observations
Type <ul style="list-style-type: none"> Supply System - Unknown Heating - Hot Water Cooling - None Energy Recovery Unit (ERU) - None Filter Type - Outdoor <ul style="list-style-type: none"> Pre-filter: None Main filter: Pleated, Larger filters m11, smaller filters NA 	<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 intake is in good condition.</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 filters are not present.</p> <p>Drain pans are not plugged. Drain pan condition is good.</p> <p>Heating coils are dirty.</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 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>

Unit Designation:	2208 UV	
Location of Unit:	2208	
Areas Served:	2208	
System Enhancements:	None	
Supply System	Outdoor Air	Cleanliness and Observations
Type <ul style="list-style-type: none"> Supply System - Unknown 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 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>
Filter Type - Mixed <ul style="list-style-type: none"> Pre-filter: None Main filter: Pleated, MERV 8 	<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 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 not present.</p> <p>The general condition of the unit is good.</p>

Recommendations

Dirty Coils were observed on units AHU-01 and MAU-01 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 accessible ductwork for unit AHU-01 was visibly dirty, damaged, or had evidence of moisture at the time of the site inspection.

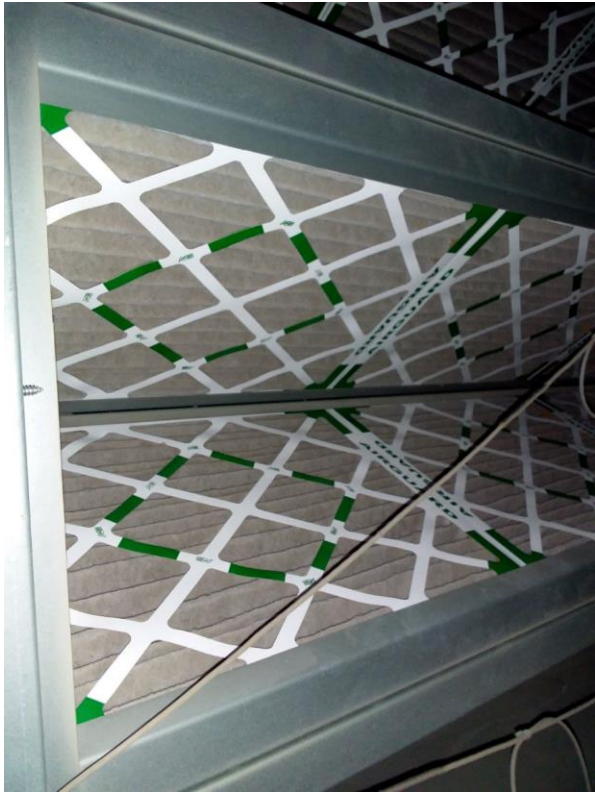
Recommendation: IEA recommends further inspection into the overall condition of the interior ductwork and level of dirt/debris quantified. If deemed a concern, it is recommended that the interior ducting be cleaned by a professional contractor to improve the impact on the IAQ for the supply spaces.

The general condition of unit AHU-02 was poor.

Recommendation: The units should be repaired or cleaned as needed.

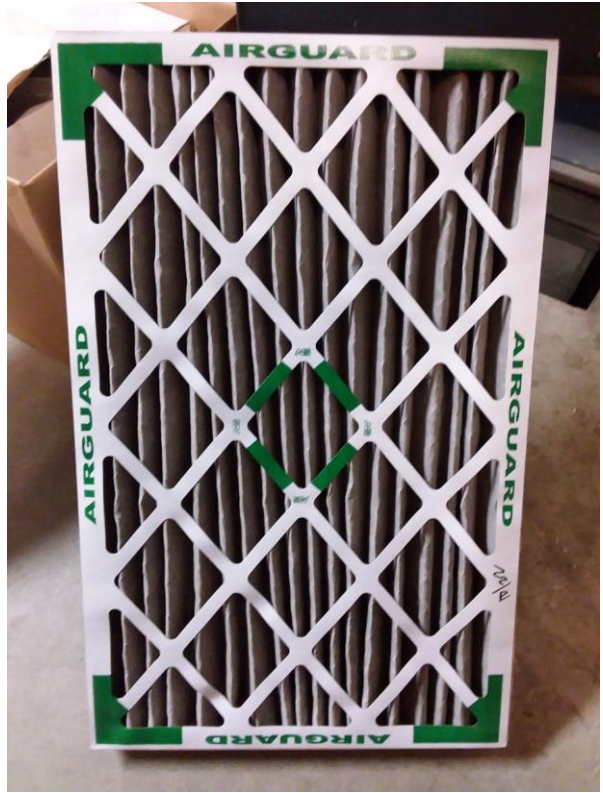
Appendix A

Photo Documentation



AHU-1

Mixed Main Filter Cleanliness



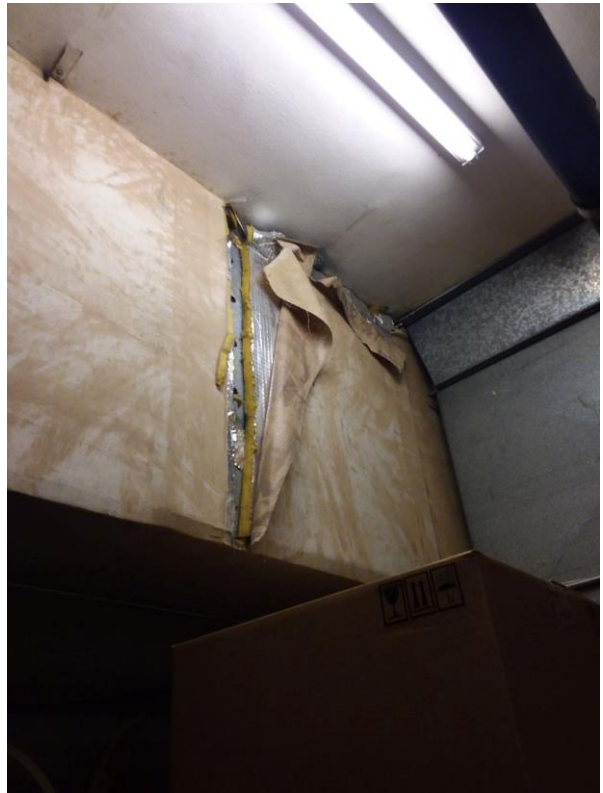
AHU-01

Mixed Main Filter Cleanliness



AHU-01

Heating Coils



AHU-01

Exterior Ducting



AHU-02

Mixed Main Filter Cleanliness



AHU-02

General Condition



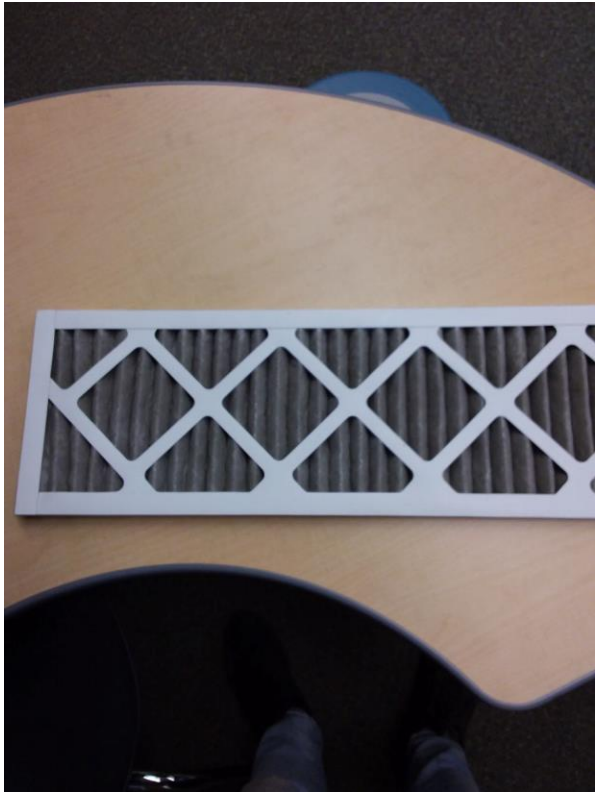
AHU-04

Mixed Main Filter Cleanliness



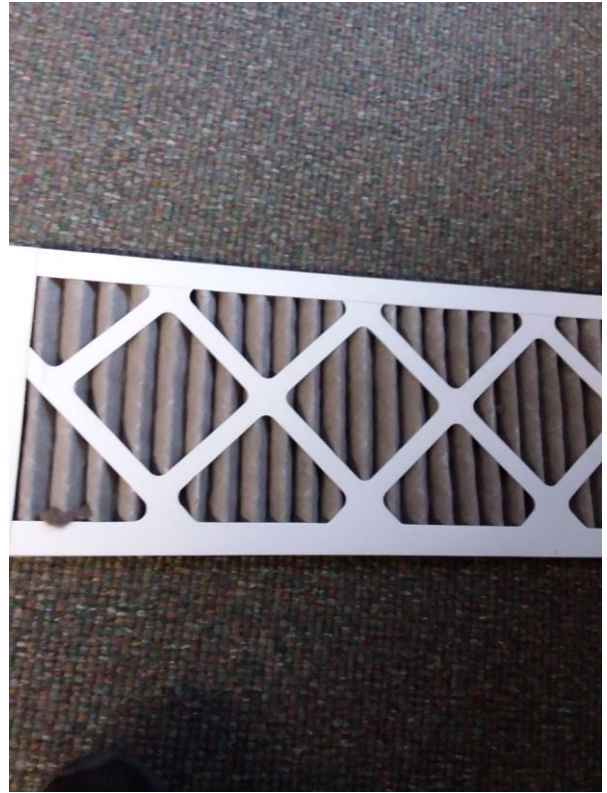
UV 11

Mixed Main Filter Cleanliness



UV 10

Mixed Main Filter Cleanliness



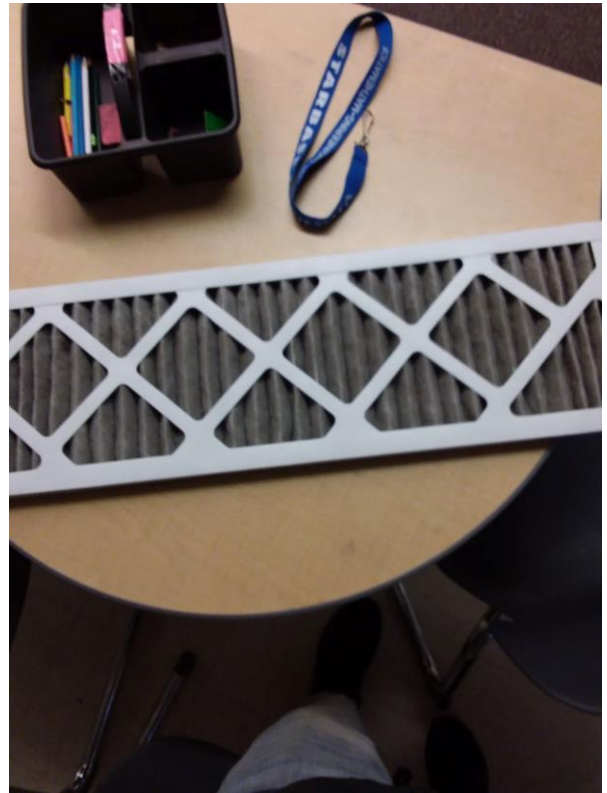
UV 0008

Mixed Main Filter Cleanliness



UV 0004

Mixed Main Filter Cleanliness



UV 0007

Mixed Main Filter Cleanliness



UV0020

Mixed Main Filter Cleanliness



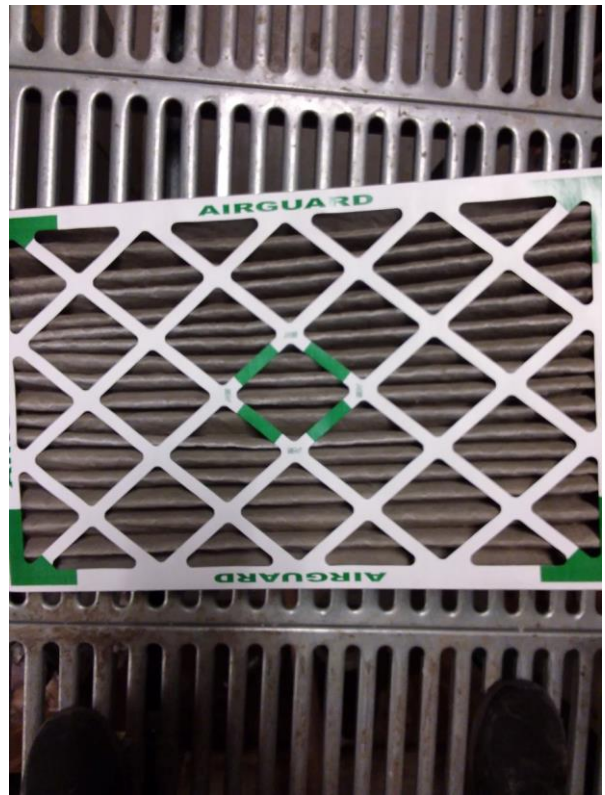
UV 27

Mixed Main Filter Cleanliness



UV 22

Mixed Main Filter Cleanliness



AHU-05

Mixed Main Filter Cleanliness



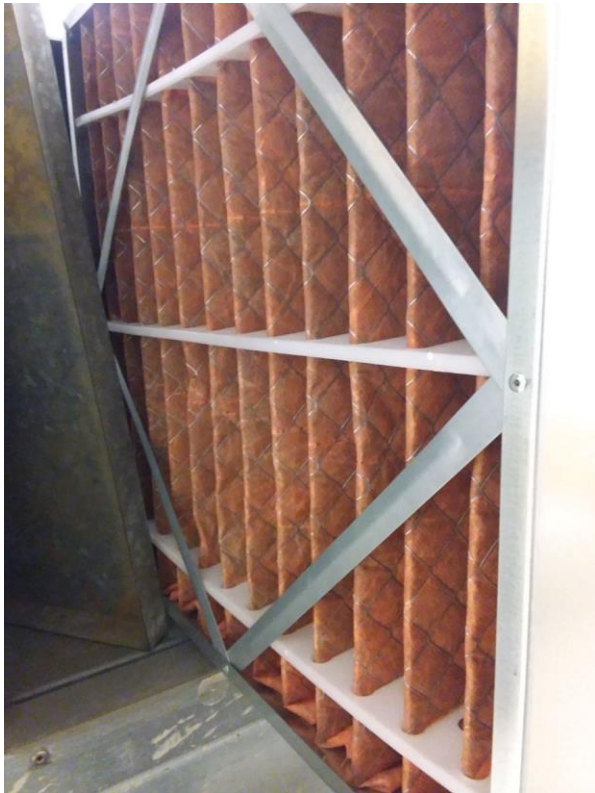
AHU-07

Mixed Pre-Filter Cleanliness



AHU-07

Mixed Main Filter Cleanliness



AHU-07

Mixed Main Filter Cleanliness



MAU-01

Outdoor Main Filter Cleanliness



MAU-01
Heating Coils



2208 UV
Mixed Main Filter Cleanliness