



AAPS Ventilation Study Overview

In accordance with AAPS' commitment to health and safety for students and staff, we are preparing our classrooms and buildings across the district for a COVID-informed return to in-person learning. To that end, and concurrent with robust building preparation work in accordance with CDC guidelines and other resources, the AAPS has completed a number of steps to improve indoor air quality, including:

Building Controls Programming, Filter Replacements and HVAC Systems Commissioning

- Programmed a new sequence of operations for the HVAC controls system (Enhanced Indoor Air Quality Mode (EIAQ)) to provide increased ventilation, intake of outside air, and filtration above our typical operating mode, and well beyond code minimum.
- Replaced all filters and increased their density as much as the equipment will allow
- Commissioned all HVAC units (approximately 1,000) including opening the unit, cleaning everything, and verifying the proper operation of items like dampers and actuators.

Room by Room Ventilation Rate Study and Mitigation Actions

- The district has commissioned Fishbeck, a professional engineering firm, to conduct a detailed room-by-room ventilation study for all AAPS buildings. The deliverables of this study include floor plans indicating air changes per hour (ACH) levels by room as well as a summary in the form of an Excel chart. Air changes per hour (ACH) is a measure of how many times the air in a room is replaced, by either outside air or recirculated filtered air, within one hour.
- The Harvard School of Public Health sets ACH levels of five (5) and above to have excellent ventilation.
- Those spaces that fall below 5 ACH will be provided portable air cleaners and/or fans to provide additional air changes to raise the ACH above 5.

Below you will find the results of the ventilation engineering study conducted at your school. The report documents existing ventilation rates in Air Changes per Hour (ACH) as well as any mitigation actions that will be completed prior to a return to in-person instruction.

PIONEER HIGH SCHOOL

Equipment	Space	Area (ft2)	Ceiling Height (ft)	Supply Air Flow (cfm)	Supply Air Changes per Hour (ACH)	Supply Air Changes per Hour (ACH) with Corrective Actions
RTU-2 & 3	Auditorium	12,359	34	61,036	8.7	8.7
RTU-4	Little Theatre	2,232	18	4,200	6.3	6.3
RTU-1	North Dining	3,513	16	9,100	9.7	9.7
RTU-1	South Dining (east half)	2,055	20	8,045	11.7	11.7
RTU-2	South Dining (west half)	2,055	20	8,045	11.7	11.7
RTU-2	South & Staff Dining	3,425	16	11,975	13.1	13.1
RTU-4	Kitchen Facilities	5,776	16	12,000	7.8	7.8
RTU-3	Servery	4,528	16	8,400	7.0	7.0
RTU (4Ton)	Fitness	2,560	9	1,600	4.2	12.0
Split Units *	Dance Room	1,600	9	0	0	12.5
E-AHU-1 & 2	Pool	17,920	23.5	37,578	5.4	5.4
AHU-F1 & F2	Main Gym & Area Below	16,600	44	57,580	4.7	5.0
RTU-C103	Annex	4,561	20	12,300	8.1	8.1
RTU-C103	Book Depository (adj. to Annex)	1,339	10	3,000	13.4	13.4
UV-C126	Room C126 (typical)	1,018	9	1,500	9.8	9.8
UV-C124	Room C124 (typical)	334	9	540	10.8	10.8
UV-C122	Room C122 (typical)	1,009	9	1,500	9.9	9.9
UV-C129	Room C129 (typical)	1,036	9	1,500	9.7	9.7
UV or AHU-3?	Room E109A (typical)	535	10.5	1,200	12.8	12.8
UV-D117	Room D117 (typical)	717	9	1,000	9.3	9.3
UV-C125	Room C125 (typical)	1,161	9	1,250	7.2	7.2
UV-C125	Room C125B	364	9	680	12.5	12.5
AHU-1	E107	3,136	10	4,695	9.0	9.0
AHU-2	Robotics	500	10	2,230	26.8	26.8
AHU-3	E109 (typical)	1,818	10	1,625	5.4	5.4
UV-E108 E & W	Rec & ED E108 (typical)	1,110	9	2000	12.0	12.0
UV-E114	East Cubes	705	9	500	4.7	7.2
UV-E112A	E112A	539	9	860	10.6	10.6
UV-5	Room C127 (typical)	700	9	750	7.1	7.1
PAHU-3	Media Center	8,738	16	11700	5.0	5.0
RTU-8	Orchestra	2,457	17	4,750	6.8	6.8
RTU-7	Band Room	2,380	16	4,350	6.9	6.9
UV-E114	Room E114 (typical)	703	10	730	6.2	6.2
UV-E104E	E104E	539	10	860	9.6	9.6
HV-1	Aux Gym	10,409	32	12,000	2.2	5.8
HV-2	Locker Rm Boys	1,507	9	2,500	11.1	11.1
TF-1	Locker Rm Boys adjacent to gym	1,042	9	2,000	12.8	12.8
TF-2	Locker Rm Girls	2,418	9	2,800	7.7	7.7
TF-3	Shower Rm boys	1,964	9	3,300	11.2	11.2
HC-1	Athletic Office	1,085	9	1,500	9.2	9.2
UV-1	A133 W.R.	1,026	9	1,500	9.7	9.7
HC-2	Training Room and adjacent	2,105	9	2,000	6.3	6.3
RTU-S1	Student Services (total)	18,335	9	20,000	7.3	7.3
RTU-S1	Admin N Corner Ext. Office (typ)	226	9	450	13.3	13.3
RTU-S1	Admin NW Wing Open Area	1,277	9	1,200	6.3	6.3
RTU-S1	Principal Office	417	9	650	10.4	10.4
RTU-S1	Counseling Wing Open Area	1,407	9	1,400	6.6	6.6
RTU-S1	Counsel. N Corner Ext. Office (typ)	118	9	200	11.3	11.3
RTU-S1	Counseling Interior Office	145	9	150	6.9	6.9
RTU-S1	Restrooms Admin.	375	9	1,075	19.1	19.1
UV-104 B & C	Restrooms NW of Auditorium	785	9	2,000	17.0	17.0
HP-1	Room 117	157	9	50	2.1	13.4
HP-1	Room 115	130	9	50	2.6	16.2
HP-1	Room 113	60	9	50	5.6	5.6
HP-1	Room 111	60	9	50	5.6	5.6
HP-1	Room B118	216	9	200	6.2	6.2
HP-1	Room B120	190	9	400	14.0	14.0
HP-1	Room B122	164	9	250	10.2	10.2
HP-1	Room B124 (typical)	65	9	100	10.3	10.3
HP-1	Room 116A	110	9	200	12.1	12.1

Corrective Action(s)

RTU (4Ton)	Fitness	2,560	9	1,600	4.2
Add (1) 24" 3,000 CFM Industrial Fans In Exterior Door		2,560	9	4,600	12.0
Split Units *	Dance Room	1,600	9	0	0
Add (1) 24" 3,000 CFM Industrial Fans In Exterior Door		1,600	9	3,000	12.5
AHU-F1 & F2	Main Gym & Area Below(Pit)	16,600	44	57,580	4.7
Add (12) 265 CFM Trio Portable Air Cleaner (6 in Gym/6 in Pit)		16,600	44	60,760	5.0
UV-E114	East Cubes (E-114)	705	9	500	4.7
Add (1) 265 CFM Trio Portable Air Cleaner		705	9	765	7.2
HV-1	Aux Gym	10,409	32	12,000	2.2
Add (2) 10,000 CFM Industrial Fans In Exterior Doors		10,409	32	32,000	5.8
HP-1	Room 117	157	9	50	2.1
Add (1) 265 CFM Trio Portable Air Cleaner		157	9	315	13.4
HP-1	Room 115	130	9	50	2.6
Add (1) 265 CFM Trio Portable Air Cleaner		130	9	315	16.2