



## 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.***

TAPPAN MIDDLE SCHOOL

Equipment	Space	Area (ft <sup>2</sup> )	Ceiling Height (ft)	Supply Air Flow (cfm)	Supply Air Changes per Hour (ACH)	Supply Air Changes per Hour (ACH) with Corrective Actions
RTU-1	Media Center	3,008	9	6000	13.3	13.3
RTU-288	288 - Music	1,672	9	2700	10.8	10.8
RTU-289	289 - Music	1,663	9	2500	10.0	10.0
AHU-1	1,2,3 Floor Ventilation	22,297	9	32300	9.7	9.7
AHU-2	1,2,3 Floor Ventilation	29,846	9	33330	7.4	7.4
AHU-3	Auditorium	6,134	22	16200	7.2	7.2
AHU-4	Gym	8,169	22	12000	4.0	5.0
AHU-5	Pool	5,540	22	9500	4.7	6.2
AHU-6	Cafeteria	10,234	9	11300	7.4	7.4
AHU-7	Locker Rooms	6,316	9	7740	8.2	8.2
AHU-8	Multi-Purpose Room	5,696	9	13200	15.4	15.4
ACU-Main Office	Main Office	1,517	9	2400	10.5	10.5
FCU-153 (FCU-1)	Teachers Lounge	522	9	690	8.8	8.8
MAU	Kitchen	677	9	4300	42.3	42.3
UV-1	Classroom 106 (Typ.)	1,000	9	1000	6.7	6.7
	Office (Typ. near Classroom 102)	174	9	100	3.8	14.0
UV-2	Classroom 104 (Typ.)	894	9	1500	11.2	11.2

**Corrective Action(s)**

AHU-4	Gym	8,169	22	12,000	4	
<b>Add (1) 24" 3,000 CFM Industrial Fans In Exterior Door(Stairwell Exit)</b>		8,169	22	15,000	<b>5.0</b>	
AHU-5	Pool	5,540	22	9500	4.7	
<b>Add (1) 24" 3,000 CFM Industrial Fans In Exterior Door</b>		5,540	22	12,500	<b>6.2</b>	
	Office (Typ. near Classroom 102)	174	9	100	3.8	
<b>Add (1) 265 CFM Trio Portable Air Cleaner</b>		174	9	365	<b>14.0</b>	