Department of Facilities and Operations
ACPS HVAC FAQ (*Offices of Educational Facilities and Maintenance and Custodial Services*)

Proper HVAC operation and maintaining acceptable Indoor Air Quality (IAQ) in a facility is a collaborative effort between the offices of Educational Facilities and Maintenance and Custodial Services. ACPS has implemented certain CDC and ASHRAE guidance regarding ventilation to help reduce the risk for exposure to coronavirus.

Schools are designed to ventilate outdoor air throughout the day to reduce the buildup of pollutants and odors by approximately 35% outside air. Both Contractor and internal Maintenance staff conduct routine and preventative maintenance on interior and exterior of the facilities, mechanical, electrical, HVAC, and plumbing systems – including replacing air filters, deep cleaning and disinfecting throughout. Custodians and building engineers conduct regular complete building checks, to include identifying any areas of potential concern (e.g., areas that collect dust, checking exhaust fans in restrooms for proper operation, etc.).

What general steps have been taken to improve Indoor Air Quality at the facilities?
Our HVAC contractor(s), environmental contractor(s) as well as internal staff (MCS and Educational Facilities) continue to improve indoor air quality at our schools by working to mitigate/eliminate sources of potential pollution and/or to reduce their amount of emissions. Specific activities completed include removal of noted asbestos in certain schools, cleaning /replacing diffusers, changing of filter type to Minimum Efficiency Reporting Value (MERV) in select systems, condenser coil cleaning and replacement of degraded actuators.

What has been done since school closure to maintain/update HVAC systems?
ACPS has continued with quarterly preventative maintenance activities on all HVAC systems. Preventative maintenance service includes:

- Filter Changes
- Cleaning of condenser coils
- Replacement of degraded actuators
- Cleaning of diffusers/grills/vent covers
- Replacement of diffusers that were stained
- Cleaning of Fan Coil Units (FCUs)
- Verifying appropriate operation of unit(s) and system components

In addition, we have continued with planned Capital Improvement HVAC projects for FY2021.

Why transition to Minimum Efficiency Reporting Value (***MERV) 13 Filters?***
MERV 13 filters are effective at controlling airborne bacteria, most tobacco smoke and pollutants released through sneezing or coughing. MERV 13 filters are designed to improve indoor air quality within the space. It is a pleated filter that utilizes an electrostatic charge to remove very fine particles from the air, as well as potential allergens like mold, pet dander,

bacteria—even particles that carry viruses. It doesn't allow mold, fungus, or mildew to grow in the space.

Why not open windows to assist with ventilation?

Some of our schools have older systems and equipment that have to be closely monitored and balanced. It is essential that these systems are balanced to provide clean, filtered air into interior classrooms and other spaces. Any deviation from air volume rates and temperature ranges has an impact across portions of the system and the area that it is serving. Thus, temperatures should be maintained through specific set point ranges to ensure the fans, motors, etc. are keeping up with air flow and outside temperature fluctuations. Based on these noted considerations, we are not recommending opening windows within classrooms/throughout the facility, as this brings in unfiltered air with more particulates, pollens, etc. into the interior spaces and destabilizes the air balance and relative humidity levels. This cross contaminates the filtered and outside air and can elevate moisture levels, increasing the risk of mold growth.

What site-specific improvements have been made to HVAC systems that will assist in ventilation and air flow?

In addition to Preventative Maintenance activities (at all schools), a number of schools have had site-specific repairs or updates since last spring. Please note that some activities are in-progress (i.e. procurement solicitations) and that some schools have had more activity due to the age and/or type of HVAC system:

School	Action(s) Taken/In Progress
Charles Barrett Elementary School	**<u>Maintenance Updates</u>** ● **Performed quarterly preventive maintenance activities on all HVAC systems. Systems required no responsive maintenance**
Cora Kelly Elementary School	**<u>Maintenance Updates</u>** ● **Installed additional thermostats.** ● **RTU 13 Replaced Heat Exchanger.** **<u>HVAC Projects</u>** ● **Insulated roof ductwork from RTUs** ● **Installed flashing on RTUs steel dunnage**
Douglas MacArthur at Taney Avenue	**<u>Maintenance Updates</u>** ● **Roof Top Unit (RTU) 1 Repaired Circuit 1** ● **RTU 3- Replaced compressor and condenser fan.** ● **RTU 4- Replaced compressor and condenser fan.** ● **RTU 5- Repaired supply fan motor.** ● **RTU 6- Repaired Circuit 1** ● **RTU 8- Replaced condenser fan.** ● **RTU 9- Repaired Evaporator coil and replaced compressor** ● **RTU 10- Identified location and repaired compressor leak** ● **RTU 12- Replaced condenser fan relay** ● **RTU 13- Replaced expansion valve** ● **RTU 16- Replaced condenser fan and capacitor** ● **Utilized negative air machines to fully remove all air in four classrooms and replace with new filtered air**

Francis C. Hammond Middle School	**<u>Maintenance Updates</u>** • **Air Handler Unit 4- Bearing replacement** • **RTU-5: Replaced the Supply Fan VFD** • **RTU-14: Replaced the Supply Fan Motor** • **RTU-11: Replaced the Supply Fan Motor and VFD** • **RTU-18: Replaced the Inducer Fan Motor, DP Switch, Igniter and Flame Sensor for one (1) side.** • **RTU-19: Replaced both Supply Fan VFD's and associated fuses** • **RTU-16: Replaced the Supply Fan VFD, Condenser Fan Motor and Inducer Fan Motor** **<u>HVAC Projects</u>** • **Completed assessment of entire HVAC system** • **Designed renovation / replacement of system and prepared construction drawings** • ***In progress:*** **Solicited Invitation to Bid (ITB) for phased construction of HVAC renovation / replacement**
Ferdinand T. Day Elementary School	**<u>Maintenance Updates</u>** • **Replaced Variable Air Volume (VAV) Supply Fan Motor on 6th floor**
George Mason Elementary School	**<u>Maintenance Updates</u>** • **Performed quarterly preventive maintenance activities on all HVAC systems. Systems required no responsive maintenance**
George Washington Middle School	**<u>Maintenance Updates</u>** • **Installed RTU Building Automation Systems (BAS) controls** **<u>HVAC Projects</u>** • **Replaced chilled water piping insulation throughout the building** • **Completed assessment of entire HVAC system (existing system as well as system for supply / return air for four classrooms behind cafeteria)** • **Designed renovation / replacement of system and prepared construction drawings** • **Solicited Invitation to Bid (ITB) for phased construction of HVAC renovation /replacement as well as new system for 4-classrooms**
James K. Polk Elementary School	**<u>HVAC Projects</u>** • **Replaced Variable Refrigerant Flow (VRF) system including piping, heat pump for four classrooms** • **Conducted retro-commissioning assessment to analyze system and deficiencies**
Jefferson-Houston K-8 School	**<u>HVAC Projects</u>** • **Replaced Variable Refrigerant Flow (VRF) system throughout entire school**
John Adams Elementary School/Early Childhood Center	**<u>Maintenance Updates</u>** • **Rewired condenser units and the thermostats to facilitate communications.** • **Reprogrammed classroom controls to enable communications with the BAS. Replaced a sensor in Condenser Unit 6A**
Lyles-Crouch Elementary School	**<u>Maintenance Updates</u>** • **Installed additional thermostats.** **<u>HVAC Projects</u>** • **Solicited Invitation to Bid (ITB) for phased construction of HVAC renovation / replacement from previously completed construction drawings**

	• **Installed seventeen (17) roof top units and two split system units to upgrade entire school HVAC system** • **Incorporated UV Light Disinfection Apparatus in all new RTUs**
Matthew Maury Elementary	**<u>Maintenance Updates</u>** • **Installed communication wire between units** **<u>HVAC Projects</u>** • **Replaced twelve (12) roof top units (RTUs) - now all 16 units have been replaced (4 RTUs replaced in 2019)**
Mount Vernon Community School	**<u>Maintenance Updates</u>** • **Installed RTU Building Automation Systems (BAS) controls** **HVAC Projects** • **Replaced chilled water piping insulation throughout the building** • **Conducted assessment of cooling system** • **Completed design for replacement of cooling tower and associated circulation pumps**
Patrick Henry K-8 School	**<u>Maintenance Updates</u>** • **Performed quarterly preventive maintenance activities on all HVAC systems. Systems required no responsive maintenance**
Samuel Tucker Elementary School	**<u>Maintenance Updates</u>** • **Repaired 30RB 250 Ton Chiller** **<u>HVAC Projects</u>** • **Replaced chilled water pumps and VFDs (variable frequency drives) to control motor-driven cooling systems**
TC Williams High School (King Street)	**<u>Maintenance Updates</u>** • **Chiller 2 Repairs** • **Cooling Tower - Repaired supply fan motor and VFD1** • **Cooling Tower 2- Repaired supply fan motor and Variable frequency drives (VFD)** • **RTU 2- Repaired supply fan motor and VFD** • **RTU 3- Replaced Enthalpy** • **RTU 11- Repaired supply fan motor and VFD** • **RTU 16- Repaired supply fan motor and VFD**
TC Williams High School (Minnie Howard)	**<u>Maintenance Updates</u>** • **Performed quarterly preventive maintenance activities on all HVAC systems. Systems required no responsive maintenance.**
William Ramsay Elementary School	**<u>Maintenance Updates</u>** • **Chiller repaired** **<u>HVAC Projects</u>** • **Replaced four (4) roof top units (RTUs) serving cafeteria, classroom and auditorium**

Once back in the facility, how do I report a HVAC or facility- related concern?

If you have a concern, please advise your respective administrative personnel so a work order can be submitted. Please note that a work order must be submitted in order for the concern to

be routed to the appropriate office (Educational Facilities and/or Maintenance and Custodial Services).