

# San Mateo Union High School District

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To: SMUHSD Board of Trustees

From: Linda Carlton, Director of Maintenance, Operations and Facility Use

Re: Ventilation in District Classrooms and Other Indoor Spaces

Date: February 25, 2021

## **Introduction**

COVID-19 is an airborne virus. Because of this, SMUHSD must make sure all indoor spaces have high quality ventilation and proper air flow. The District has carefully reviewed all spaces and has created a dataset. This data has been forwarded to Costa Engineers for review and use as the basis for engineering calculations to confirm classroom air cycles. The four exceptions noted below with recommended mitigations, we believe that the ventilation provided meets those recommended by the Center for Disease Control (CDC) and The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE). Our Heating Ventilation and Air Conditioning (HVAC) systems will provide in excess of six air changes per hour, or four air changes per hour with 30% outside air and enhanced filtration, and 15-to-30-minute air purging between classes, when possible. The District has worked closely with Costa Engineering in this analysis as they have been involved in the HVAC installation for the last 12 years.

## **Areas of Concern**

On the agenda tonight are construction items related to four spaces identified by district staff and Costa Engineering that, in an abundance of caution, need mitigation if students and staff are to be in these areas in numbers envisioned by our reopening plan. There are a limited number of other areas that we are examining and we will bring these back at the March 11 Board meeting. Below is the situation in these four areas and our mitigation plans for them.

### **Mills Math Hallway**

The Mills Math Building was constructed about 10 years ago. At that time there was not an expectation that the interior hallway would have a ventilation system. The classrooms in the math building are not a problem. Staff recommends that the doors to this building be left open to allow adequate ventilation. We are currently working on a design to address this issue and hope to have the improvements outlined in the Board agenda item implemented by the end of summer.

### **Mills Ceramics Room**

This area was not modernized in any of the bond programs. The plan is to improve the HVAC system over the summer. During the time this room is open this spring, staff recommends that we install an air scrubber and a CO2 monitor.

### San Mateo Music Building

This building contains three classrooms -- one for choir, another for band, and a third for orchestra. The plan is to add air conditioning to this building in the summer. In the meantime, the classrooms would have a permanent CO2 monitor and a HEPA air filter installed.

### Burlingame A Building

For a complete analysis of the Burlingame system, see the attached memo that was prepared for BHS principal Paul Belzer in response to his concerns and staff concerns. Most of this building is not air conditioned, but relies on a forced air system. Unlike other buildings, the areas without return air receive 100% outside air. There is, however, no cooling, so when the classrooms are full of students and/or it is hot outside, the heat can be excessive. As staff have noted, opening the windows causes other problems.

Staff believes that the rooms receive adequate ventilation to meet expectations. It is recommended, however, that air scrubbers are selectively installed in rooms without return air systems, and that CO2 monitors are deployed.

### Other Steps

The District has committed to extending the operations of HVAC systems two hours before school begins and after school ends to further ventilate the rooms. In addition, systems will begin operation one week before Phase 3, and all bathroom ventilation systems will operate 24 hours a day.

A good proxy for real-time air handling efficiency is the level of Carbon Dioxide found in a room. CO2 monitors have been ordered for all the spaces of concern identified above. Further, we have ordered hand-held devices that will be used by staff daily to monitor classrooms and other spaces.

### CONCLUSION

High air quality in our classrooms and proper ventilation are vital to a healthy return and our collective work in this area will build confidence among staff and the families we serve that we can open our schools with a very high level of safety. We are committed to this work as we prepare for the return of staff and students.