



STATE OF HAWAII
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAII 96804

OFFICE OF FACILITIES AND OPERATIONS

July 26, 2022

Ms. Andrea Eshelman, Deputy Executive Director
Hawaii State Teachers Association
1200 Ala Kapuna Street
Honolulu, Hawaii 96819

Dear Ms. Eshelman,

This letter is in response to your inquiry regarding classroom ventilation. The Hawaii State Department of Education (Department) values its students, teachers, and staff; thus, we understand the urgency in having the appropriate safeguards in place to ensure the health and safety of all in alignment with the Hawaii State Department of Health and Centers for Disease Control and Prevention guidance. The Department's Office of Facilities and Operations has been assessing our classrooms to determine the actions needed for acceptable air quality.

The Department has taken steps to improve indoor air quality to reduce the risk of airborne spread of COVID-19. To facilitate outside air exchange, 20-inch box fans were centrally purchased and distributed for every classroom throughout the Department prior to School Year 2021-2022. Over 4,000 HEPA air cleaners have been distributed to schools to increase air exchange in air-conditioned spaces, especially in rooms with limited access to outside air (lack of windows or doors that open to outside). Schools were also given the opportunity to build their own Corsi-Rosenthal air cleaners with MERV-13 filters and box fans purchased by the Office of Facilities and Operations. Central air conditioners are maintained regularly to ensure optimal air flow. The Office of Facilities and Operations also purchased 600 carbon dioxide sensors and distributed them, with instructions for proper use, to schools statewide for schools to assess the carbon dioxide levels in their rooms.

The Office of Facilities and Operations assessed the classrooms with limited access to outside air to determine the need for additional resources to increase air exchange via increased ventilation and/or filtration. Classrooms with access to outside air (windows and doors) are able to naturally increase airflow in the classroom. Of the 12,000 classrooms in the Department's schools, 10% have central air conditioning or large packaged air conditioners. There are approximately 1,261 classrooms with limited access to outside air due to central air conditioning.

The Department conducted a contracted carbon dioxide sensor project to assess the carbon dioxide levels in classrooms identified as potentially having compromised ventilation. Of the classrooms identified, 335 rooms were equipped with carbon dioxide sensors feeding real-time data to the contractor. Data collection began in September 2021 and the data collected during operational hours (6:00 AM – 6:00 PM), excluding weekends, holidays, and intersessions, were used to determine the average carbon dioxide levels of the rooms. The average of the highest 5%

of all carbon dioxide readings determined the tier in which each classroom fell. The tier, based on ranges of carbon dioxide levels, prioritizes the classrooms that warrant further actions to increase ventilation. The carbon dioxide levels infer the probability of breathing in another's exhalation; the higher the levels, the greater the probability. The data collected informed the estimated carbon dioxide levels for 904 of the remaining classrooms; estimates were based on similar room configurations and air conditioning supply. The table below indicates the number of classrooms within each tier. Carbon dioxide levels are measured by parts per million (ppm), or 0.0001%.

Tier	No. of Rooms
1 (< 800 ppm)	337
2 (800 - 1100 ppm)*	525
3 (1100 - 1500 ppm)	304
4 (1500 - 2000 ppm)	70
5 (> 2000 ppm)	3

*1100 ppm approximates ASHRAE 62.1 HVAC design guidelines for 700 ppm above ambient carbon dioxide; ASHRAE 62.1 is used to guide the improvement of indoor air quality in existing buildings

The Office of Facilities and Operations will follow up on the classrooms identified in Tiers 3, 4, and 5 to ensure steps are being taken to improve air quality to the extent possible.

The Department has updated the section on ventilation in the COVID-19 Health and Safety Guidance for School Year 2022-2023. The update includes steps to take to improve ventilation in classrooms.

Should you have any additional questions, please contact me, at (808) 754-5000 or via email at randall.tanaka@k12.hi.us.

Sincerely,



Randall M. Tanaka
Assistant Superintendent

RMT:gb