

## **FACILITIES READINESS HVAC ASSESSMENTS AND RECOMMENDATIONS**

### **ASSESSMENT PROGRESS UPDATE**

As the HVAC assessment of our buildings comes to a close, this document is intended to provide a brief guide in understanding the assessments summary pages.

#### **GENERAL OVERVIEW OF THE ASSESSMENTS:**

Buildings were prioritized by the colleges in April/May timeframe and represent (at that point in time) anticipated facilities with the most in-person instructional and student services offerings.

All of the Tier 1 Priority buildings have been assessed, as well as analyzed for specific ventilation and filtration improvement recommendations. All of the Tier 2 buildings have also been assessed at each site, but have not been completely analyzed yet and some are therefore not reflected yet as of this update. Nearly all of the “other” buildings at all of the sites have been assessed, but have not processed and updated in the “Summary of Recommendations” section yet. These tables are intended to show our baseline recommendations, as of July 17, 2021.

The following “**Summary of Recommendations**” tables are separated by campus. SRC is combined with DVC and Brentwood with LMC. The tables show the assessment outcomes and therefore improvement recommendations by prioritized buildings.

Each building has several building systems and the assessment is split by several key categories (columns). The two main categories are ventilation and filtration, with a couple of nuances explained below.

Starting this month, progress on the implementation of these recommendations will be captured in a “Dashboard: which can be located here:

[https://email4cd-my.sharepoint.com/:x/g/personal/tmarcial353\\_email\\_4cd\\_edu/ESfvdTQZGihEswLE-HbyTBUBegRYg8kSTVIK4KCxGJuqgw?e=jBSKn3](https://email4cd-my.sharepoint.com/:x/g/personal/tmarcial353_email_4cd_edu/ESfvdTQZGihEswLE-HbyTBUBegRYg8kSTVIK4KCxGJuqgw?e=jBSKn3)

It is anticipated that dashboard will be updated towards the end of July as contractors make progress on repair work. A districtwide email will be issued notifying all to review the dashboard.

#### **WHAT DO ALL OF THE NUMBERS MEAN IN THE SPREADSHEETS?**

A quantity in an assessment column represents an HVAC system that has that particular recommendation. For example, if there is a 2, under filters, that means that 2 HVAC systems need to have their filters upgraded.

Conversely, this could mean there are several other HVAC systems in the same building, whose filters are already MERV13 or higher and do not need to be changed. Therefore, the numbers in the table only show systems that have elements/areas that need to be repaired.

These tables are intended to show our baseline recommendations, as of July 17, 2021. Also, for the high priority buildings, you may see numbers shift (increase or decrease) as we move through the implementation phase, as some items require contractors to fix items before we can fully assess other issues. As an example, quantity in the Ceiling Fan or in the Portable HEPA column can be a mix of numbers, depending upon the phase/status of the assessment. Both of these require some room level

surveys/assessments. But, we don't know that until we do the systems level assessments. So when they first appear in the columns they likely represent one HVAC system that may need portable HEPAs in many rooms, but the quantity may only indicate 1. At other times, as we've done the room based assessments, the numbers indicate the number of rooms that require portable HEPA filters. This is another reason you may see the numbers shift over time.

### **Assessment Recommendations (Columns) Definitions:**

**Repair Econo (Repair Economizer) :** This column indicates that the mechanical device that allows the building to bring in more ventilation/fresh air during moderate temperatures needs to be repaired in order to function properly. This repair is typically a mechanical device, electrical device or something else that has physically broken or became loose. This repair will allow for additional fresh air to enter the building, but not allow too much. When too much outside air enters (either during super cold or super-hot outside temperatures), the heating and cooling devices are unable to provide enough heating or cooling, thus negatively impacting occupant comfort while simultaneously using excess energy.

**Re-balance OA (Re-balance Outside Air):** The mechanical device that allows the building to bring in more ventilation/fresh air that at times needs to be adjusted by a contractor, to set the minimum outside air to the code required minimum set-points. One of the more common issues and therefore recommendations for improvement.

**Econo Prog/Setpt (Economizer Program/Setpoint):** The controls/programming or set-point in the program, that operates the mechanical device that allows the building to bring in more ventilation/fresh air needs to be adjusted to optimize the fresh air, comfort and energy.

**DCV/Occ (Demand Controlled Ventilation/Occupancy):** Some of the newer classrooms and high occupancy spaces are equipped with carbon dioxide (CO<sub>2</sub>) sensors that are integrated with our heating, ventilation and air conditioning (HVAC) systems. These devices measure the amount of CO<sub>2</sub> in a room to determine how occupied a room is at any point in time. As the room is more occupied, the CO<sub>2</sub> levels increase and as the space clears out, the CO<sub>2</sub> levels decrease. When CO<sub>2</sub> levels increase above a certain setpoint/level, the airflow and thus ventilation into the room increases in order to dilute the CO<sub>2</sub> levels and provide additional fresh air. When CO<sub>2</sub> levels decrease below a certain level, the airflow reduces, as it's not needed to dilute or provide fresh air to an empty space.

This measure will temporarily adjust the setpoints to provide additional ventilation, thus providing more dilution of the spaces, along with additional energy usage.

**Portable HEPA:** When an HVAC systems is unable to provide code required ventilation, or is unable to support MERV13 filtration, we are recommending that portable HEPA air filtration devices are placed in those spaces. Typically these are room by room numbers.

**EF (Exhaust Fan):** Ventilation is provided by both sucking air into the building, as well as sucking air out of the building. Some exhaust fans suck air out of spaces such as bathrooms and locker rooms, in order to provide the required ventilation air into those spaces. Numbers in this column represent the quantity of exhaust fans that are either not operating, or not operating as expected, or may have a mismatch on the controls system versus field observations.

**Ceiling Fan:** Ceiling fans are located in some spaces, such as gyms and workout rooms. They mix the air up in a space and provide additional cooling. The number in this column represents either the number of rooms or the number of HVAC systems that utilize ceiling fans in some spaces (similar to the portable HEPA numbers these numbers will shift as we transition from system level to room level numbers). We will be providing signage to help users operate the fans safely, during pandemic periods.

**Filter:** This column indicates that the existing filters are rated at a lower efficiency than what is recommended by the CDC/ASHRAE and by current building codes. This efficiency is designated by a MERV## rating, where the numbers at the end indicate the efficiency or ability to filter out certain size particles. A larger number means the filter is more efficiency and can filter out smaller size particles. The CDC/ASHRAE recommends MERV13 or higher for filtering out and diluting spaces to reduce the risk of COVID19 as well as handling some of the fire season smoke particles. If a filter is rated at MERV13 or higher, but is in poor condition, that is noted in this column as well and we will be changing the filter.

**Other:** This column is a catch all column for other issues that may impact ventilation and filtration, but don't fit nicely into one category. It can represent systems that require maintenance in order to operate, or it can represent graphics changes to controls systems to make their operation clearer to operating and maintenance staff.

**SUMMARY OF RECOMMENDATIONS - BY BUILDING**

	Ventilation						Ceiling Fan	Filter	Other	
	Contra Costa College	Repair Econo	Re-balance OA	Econo Prog / Setpt	DCV / Occ	Portable HEPA				EF
TIER 1 PRIORITY	LIBRARY	1	1	1	0	0	2	0	1	0
	VOC ARTS / COMPUTER TECH	7	14	14	0	0	3	0	16	12
	ART	2	2	2	0	0	1	0	2	0
	APPLIED ARTS & ADM.	0	1	4	0	0	2	0	4	0
	CHILD DEVELOPMENT CENTER	3	8	8	0	0	7	0	8	1
	STUDENT SERVICES	1	1	1	0	0	0	0	1	3
	GENERAL EDUCATION BLDG	1	3	3	3	0	0	0	2	0
	BIOLOGICAL SCIENCE	2	2	2	0	0	0	0	2	1
	PHYSICAL SCIENCE	0	5	2	0	0	0	0	14	2
	GYM ANNEX	0	0	0	0	0	0	3	0	0
TIER 2 PRIORIT	FIRESIDE HALL	0	1	1	1	0	0	0	1	0
	STUDENT & ADMINISTRATION	0	0	6	6	0	6	0	6	2
	MUSIC	0	0	0	0	0	0	0	3	0
	PERFORMING ARTS CENT	0	0	0	0	0	0	0	0	0
	CUSTODIAL OFFICES	0	0	0	0	0	0	0	0	0
	CAMPUS SAFETY CENTER	0	0	0	0	0	0	0	0	0
ALL OTHERS	GYMNASIUM	0	0	0	0	0	0	0	0	0
	MAINTENANCE SHOPS	0	0	0	0	0	0	0	0	0
<b>TOTALS</b>		<b>17</b>	<b>38</b>	<b>44</b>	<b>10</b>	<b>0</b>	<b>21</b>	<b>3</b>	<b>60</b>	<b>21</b>

Auto Compressor Bldg	Eliminated
Baseball Dugout #1	Eliminated
Baseball Dugout #2	Eliminated
Baseball Electrical Bldg	Eliminated
Baseball Equipment Bldg	Eliminated
BASEBALL PRESS BOX	Eliminated
FOOTBALL PRESS BOX	Eliminated
FOOTBALL CONCESSION BLDG	Eliminated
Maintenance Equip Bldg	Eliminated
Referee Trailer	Eliminated
Softball Dugout #1	Eliminated
Softball Dugout #2	Eliminated
Softball Office	Eliminated

**SUMMARY OF RECOMMENDATIONS - BY BUILDING**

	Ventilation						Ceiling Fan	Filter	Other
	Repair Econo	Re-balance OA	Econo Prog / Setpt	DCV / Occ	Portable HEPA	EF			
<b>Diablo Valley College &amp; San Ramon Center</b>									
ADVANCED TECHNOLOGY CNTR	2	2	2	0	0	0	0	2	0
HUMANITIES	0	4	4	0	0	0	0	4	0
MUSIC	1	4	4	0	4	0	0	5	1
KINESIOLOGY PE	1	1	5	5	0	0	0	5	5
LIFE & HEALTH SCIENCE	0	2	2	0	2	0	0	3	0
SCIENCE CENTER 1	0	0	1	1	1	0	0	1	0
PERFORMING ARTS	2	5	6	7	0	6	0	15	5
TEMP 14 ORNAMENTAL HORT	0	0	0	0	0	0	0	0	0
LIBRARY	0	1	6	6	0	2	0	19	0
ENGR TECHNOLOGY CNTR	7	9	9	0	0	0	0	9	0
EARLY CHILDHOOD EDUC SOUTH	1	1	1	0	2	0	1	3	0
LIBERAL ARTS	1	10	10	0	5	0	0	10	0
SCIENCE CENTER 3	1	1	0	0	0	0	0	1	1
WAREHOUSE/MAINTENCE	0	0	0	0	0	0	0	0	0
MATH BUILDING	2	3	3	0	8	0	0	3	1
PHYSICAL SCIENCE	2	2	2	3	0	0	0	3	1
BUSINESS/FOREIGN LANGUAG	1	5	5	0	0	0	0	4	0
CULINARY ARTS/FOOD SERVICE	0	0	0	2	0	0	0	0	0
ART BUILDING	2	5	5	0	0	0	0	5	2
SAN RAMON CAMPUS	4	2	5	0	0	0	0	7	2
PUMA CENTER	3	0	3	0	0	0	0	3	0
LEARNING CENTER	2	2	7	0	0	0	0	5	0
FACULTY OFFICE	0	0	0	0	0	0	0	0	0
ADMINISTRATION BLDG	1	0	7	0	6	0	7	8	0
SCIENCE CENTER 2	0	0	0	0	1	0	0	0	0
SCIENCE CENTER 4	0	0	0	0	0	0	0	1	1
SCIENCE CENTER 5	0	0	0	0	0	0	0	1	1
SCIENCE CENTER 6	0	0	0	0	0	0	0	0	0
SCIENCE CENTER 7	0	0	0	0	0	0	0	0	0
EARLY CHILDHOOD EDUC NORTH	1	0	2	0	0	0	0	2	1
OFFICE ANNEX - WLC	0	0	2	0	0	0	0	0	0
STUDENT UNION	0	5	0	0	0	0	0	7	0
POLICE SERVICES	0	0	0	0	0	0	0	2	0
BOOKSTORE	2	0	2	0	0	0	0	2	0
SCIENCE CENTER 8	0	0	0	0	0	0	0	2	0
COMMUNITY SERVICE CENTER	0	0	0	0	0	0	0	0	0
PE 1	0	0	0	0	0	0	0	1	0
PE 3	0	0	0	0	0	0	0	1	0
STUDENT SERVICES	0	0	0	0	0	0	0	1	0
ATHLETICS TRAINING CENTER	0	0	0	0	0	0	0	0	0
ATHLETICS TRAINING OFFICE	0	0	0	0	0	0	0	0	0
MENS LOCKER	0	0	0	0	0	1	0	0	0
WOMENS LOCKER	0	0	1	0	0	0	0	2	0
GYMNASIUM	0	0	0	0	0	0	0	0	0
DIST/DVC STORAGE BUI	0	0	0	0	0	0	0	0	0
TEMPORARY 13	0	0	0	0	0	0	0	0	0
SCIENCE CENTER 9 - UTILITY	0	0	0	0	0	0	0	0	0
HORTICULTURE GREENHOUSE 1-2	1	0	1	0	0	0	0	2	0
POLICE-ET STORAGE BUILDING	0	0	0	0	0	0	0	0	0
TOILET BUILDING - PE	0	0	0	0	0	0	0	0	0
TEMPORARY 29	0	0	0	0	0	0	0	0	0
PRESS BOX	0	0	0	0	0	0	0	1	0
PE 2	0	0	0	0	0	0	0	1	0
Central Plant	0	0	0	0	0	0	0	0	0
<b>TOTALS</b>	<b>37</b>	<b>64</b>	<b>95</b>	<b>24</b>	<b>29</b>	<b>9</b>	<b>8</b>	<b>141</b>	<b>21</b>

HIGH PRIORITY

ALL OTHERS

ATHLETICS TRAINING STORAGE	Eliminated
PHYSICAL EDUC OFFICE	Eliminated
BASEBALL STORAGE	Eliminated
BASEBALL PRESS BOX	Eliminated
EAST DUGOUT BASEBALL	Eliminated
GALLERIA	Eliminated
HORTICULTURE GREENHOUSE 3	Eliminated
NORTH DUGOUT SOFTBALL	Eliminated

**SUMMARY OF RECOMMENDATIONS - BY BUILDING**

		Ventilation					Ceiling Fan	Filter	Other	
		Repair Econo	Re-balance OA	Econo Prog / Setpt	DCV / Occ	Portable HEPA				EF
<b>Los Medanos College &amp; Brentwood Education Center</b>										
TIER 1 PRIORITY	COLLEGE COMPLEX	4	16	27	11	0	8	0	15	13
	CORE BUILDING	0	1	1	1	0	0	0	1	0
	CHILD STUDY CENTER	5	8	9	0	0	12	0	9	1
	MATH	0	2	2	2	0	0	0	0	0
	SCIENCE	0	2	3	3	0	1	0	2	0
	KINESIOLOGY/ATHLETICS COMPLEX	0	0	3	3	0	7	4	3	0
	NEW BRENTWOOD EDUCATION CENTER	0	0	3	3	0	0	0	0	2
TIER 2	GYM	0	0	2	0	0	0	0	8	0
	LIBRARY	0	0	0	4	0	0	0	0	0
	STUDENT UNION	0	0	1	0	0	0	0	1	0
ALL OTHERS	MUSIC ADDITION	5	6	8	0	0	0	0	8	1
	EE TEC PORTABLE CLASSROOM	0	0	0	0	0	0	0	2	0
	CAMPUS SAFETY CENTER	0	0	0	0	0	0	0	0	0
<b>TOTALS</b>		<b>14</b>	<b>35</b>	<b>59</b>	<b>27</b>	<b>0</b>	<b>28</b>	<b>4</b>	<b>49</b>	<b>17</b>

PRESS BOX	Eliminated
UTILITY & VOCATIONAL TEC	Eliminated
POOL EQUIPMENT	Eliminated
CONCESSION	Eliminated
TRAINING	Eliminated
OFFICES OF INSTRUCTION	Eliminated
OFFICE ANNEX	Eliminated
STUDENT LIFE	Eliminated
HONOR LEARNING & RESEARCH CTR.	Eliminated
DANCE	Eliminated
WEIGHT	Eliminated
MENS LOCKER	Eliminated
WOMENS LOCKER	Eliminated
Baseball Dugouts	Eliminated
Baseball Trailer	Eliminated
Softball Dugouts	Eliminated
Softball Trailer	Eliminated