

the SMCCCD, through local bonds and state funding, has engaged in Capital Improvement Plans that have supported modernizations and new construction to provide for safe, comfortable, efficient and modern learning environments. Each project has, at minimum, followed the stringent guidelines of the California Building Code. All new construction in CIP 2 and CIP 3 have exceeded code requirements and achieved at least “Silver” designation in the Leadership in Energy and Environmental Design (LEED) rating system. This third-party rating system requires advanced [Indoor Environmental Quality \(IEQ\) and Indoor Air Quality \(IAQ\)](#) measures. Even where LEED designations have not been achieved, each modernization and new construction project has followed the District’s advanced sustainable design and construction criteria. Buildings have been designed, constructed, commissioned and are now operated by highly qualified and certified professionals.

HVAC SYSTEMS

To paraphrase the US Environmental Protection Agency: ‘Heating, Ventilation and Air-Conditioning (HVAC) systems are designed, built and operated to accomplish two critical objectives: 1) help maintain indoor air quality through adequate ventilation with filtration and, 2) provide thermal comfort³.’ Increasingly, to accomplish these objectives, HVAC systems require highly technical knowledge and expert integration of technologically advanced hardware and software. The FPMO team is equipped with both.

Providing outside air to spaces and ensuring that that air is clean and healthy does not always require advanced systems. In many cases, natural ventilation – supplied through operable windows or doors - is adequate and appropriate for both air quality and comfort. This is especially true in the Bay Area’s temperate climate but is increasingly complicated by extreme weather events and the local or regional impacts of the global climate crisis⁴. With ongoing fire and risk of poor air quality, an outside air monitoring sensor has been installed on each campus. When the Air Quality Index (AQI) reaches unhealthy levels, adjustments to campus schedules and systems operations are made accordingly.

Air filtration is a necessity of any functional air handling unit ([AHU](#)) and broader HVAC system. Design professionals go through rigorous training to ensure that a balance of appropriate filtration and ventilation rates is accomplished. Since filters work to catch particles, they impede air flow. The finer the filter medium (or higher the MERV rating) the harder a system must work to push and pull air through the filter. Minimum Efficiency Reporting Value (MERV) 13, while effective for slightly finer particulate, is not appropriate in some cases⁵. SMCCCD’s Facilities team has replaced filtration medium with the highest MERV value possible for the given building and system, including the installation of MERV 13 filters where safe and appropriate. This level of filtration has historically been appropriated for health care facilities, while MERV 8 has been used for commercial/school buildings.

Regardless of the filter density, filters are replaced regularly and the mechanical devices that serve each building space undergo cleaning and preventative maintenance on a regular schedule. The Facilities team also procures and provides reactive maintenance services as required. The characteristics of each building and its mechanical system are further detailed in [Appendices A-D](#).

SMCCCD FACILITIES STAFF

Customer Service, Professionalism, Teamwork, and Communications are the principles of the “Facilities Excellence” mantra. A team of over 100 people prepare the physical campuses for learning and working each day with these values in mind. Each member of the team has professional development goals appropriate for their trade and craft. All engineering staff, responsible for the upkeep of HVAC systems, must participate in Building Operator Certification courses. These courses, along with other specialized training, help ensure that SMCCCD Facilities staff members are qualified and prepared to deliver safe, comfortable, efficient buildings.

³ <https://www.epa.gov/iaq-schools/heating-ventilation-and-air-conditioning-systems-part-indoor-air-quality-design-tools>

⁴ <https://oag.ca.gov/environment/impact>

⁵ <https://smacna.org/resources/business-management/hvac-systems/what-is-merv>

