

FREMONT UNIFIED SCHOOL DISTRICT

Measure "E" Bond Program

FREQUENTLY ASKED QUESTIONS (submitted at 10/7/15 CBOC Meeting)

Q. In the new classroom buildings at Azevada and Mattos Elementary School, since the classrooms have high ceilings, how is a comfortable temperature maintained during wintertime? (The concern is that heat will stay up in the ceiling, when it is needed at about 5 feet from the floor.)

A. This is a concern that has been studied during the building manufacturer's evaluation of HVAC systems and designs.

The heat pumps, manufactured by School Air, come in a variety of sizes based on the tonnage of air that the pumps would need to push around. The School Air units used for FUSD's new buildings at Azevada and Mattos Elementary schools, and Irvington High, were selected specifically for the volume of the classrooms, as designed. Though the heat will be distributed at the top of the classroom (which is generally not ideal), the heat pump system is designed that way to prevent air from blowing directly onto students and creating discomfort. The heat pump duct will also facilitate an even distribution of heat across the classroom.

Additionally, the building envelope designed by Project Frog has a high insulation value (aided by an airtight and watertight membrane), which will minimize heat loss and keep the warm air circulating within the classroom

Q. How energy efficient is the system? Does it take more energy to circulate the air for that larger volume?

A. The heat pump system is highly efficient. The heat pumps used in the Project Frog classrooms at Azevada and Mattos are, on average, 25% more efficient than (California Building Code) Title 24 minimum heating and cooling requirements. This efficiency is delivered through the integration of two compressors (typically, heat pumps of this size only have one compressor). The dual compressors work in tandem to ensure continuous heating and cooling (eliminating unnecessary energy loss due to the start-and-stop of a single compressor). The most important energy savings measure provided with the heat pumps is the ability to operate in 100% economizer mode. When the outdoor air is below the supply air temperature set point, the heat pumps will be able to draw in 100% outdoor air and cool the space without starting the compressor. Economizer mode is not required by Title 24 for heat pumps of our capacity, but has been specified for these projects for the energy savings benefit. Finally the heat pumps for Azevada and Mattos have been specified with door sensors that will deactivate the heat pumps if the door to the outside has been left open for longer than a prescribed period of time, preventing additional energy loss.