

COLINA EAST APARTMENTS

Nestled atop Beacon Hill of Seattle, and right next to the light rail station, the Colina Apartment complex features two buildings that showcase a minimal carbon footprint and emphasis on energy efficient living. Colina East, the newest addition, includes EV charging stations, solar arrays and high efficiency insulation.



Colina East is more than a great living experience, it's a project that reflects the evolution of ultra energy efficient domestic water heating technology. Tucked into the underground parking garage is a commercial heat pump water heating system that boasts 3.5 times the energy efficiency of gas water heating systems.

CASE STUDY

THE BUILDING



With 140 apartments in total, the Colina Apartment complex also contains 6000 sq. ft of retail space. Colina West is composed of 40 units while Colina East is made up of 100 housing units.



Both Colina West and Colina East are LEED Gold certified and include sustainability supporting features such as EV charging stations, solar arrays and commercial heat pump water heating systems.



Third party controls for the commercial heat pump water heating system direct the sequence of operations. The controls can also send alarms/notifications in case of system or equipment malfunction.



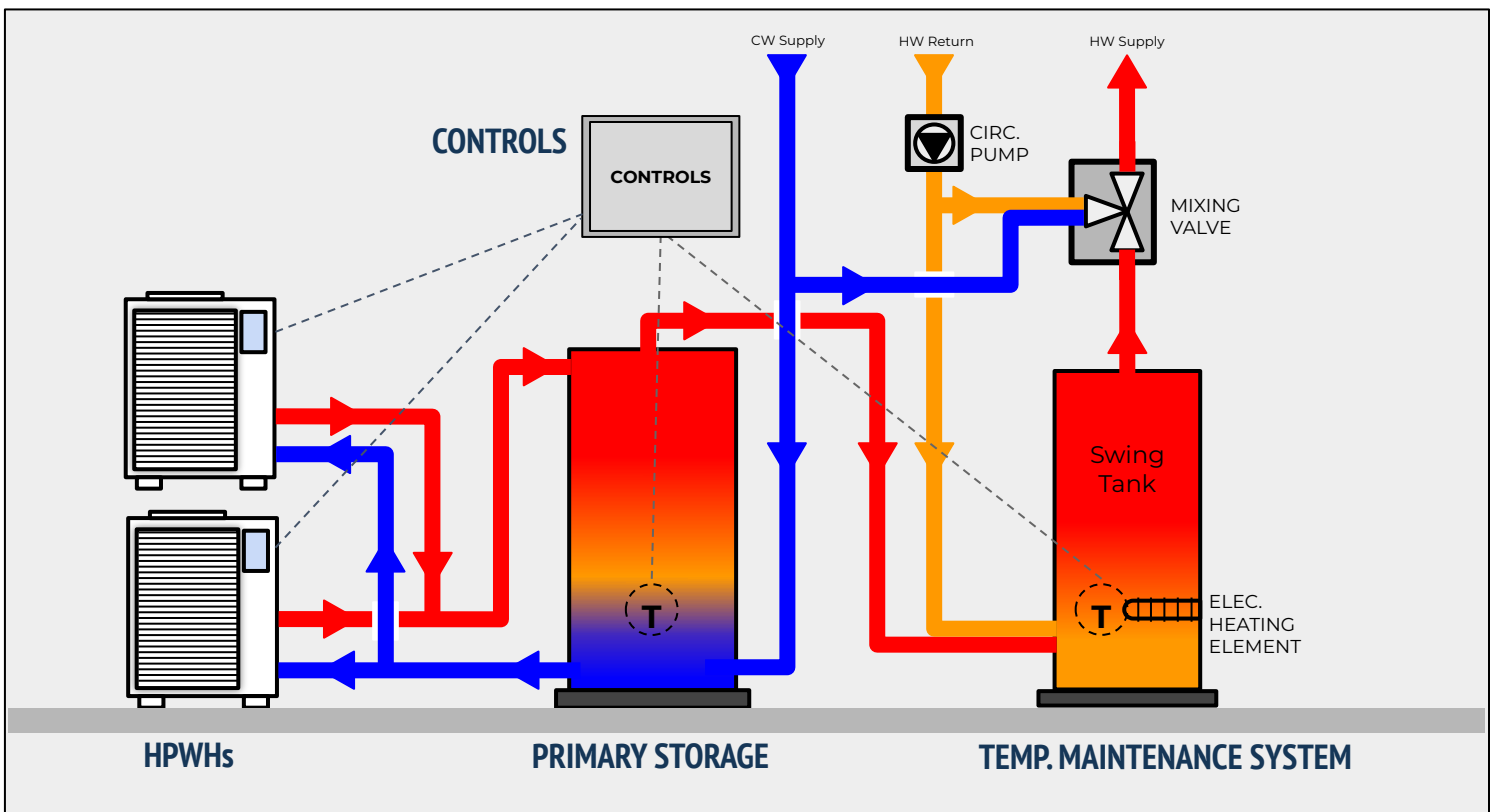
The Colina East domestic hot water system utilizes 10 SanCO2 heat pump water heaters.



SYSTEM DESIGN

Utilizing the newest generation of SanCO heat pumps, the Colina East commercial heat pump water heating system is located in the underground parking garage. Although the SanCO heat pumps can operate at temperatures as low as -20°F, the natural air buffering provided by the underground parking garage ensures that the heat pumps operate at optimal efficiency year-round. Additionally, the Colina East CHPWH system includes an in series swing tank. This temperature maintenance system stores and reheats the slightly cooled water returning from the hot water distribution system.

SINGLE-PASS PRIMARY HPWH SYSTEM W/SWING TANK



THE SWING TANK

The swing tank configuration, one of several system configurations outlined in the Advanced Water Heating Specification, v.8.0, utilizes an in series tank with a backup electric resistance element. In this configuration, hot water returns from the distribution system to the swing tank. When a call for water occurs, water is drawn from the swing tank and mixed with hotter water from primary storage. If water in the swing tank cools, the electric resistance element turns on. The swing tank configuration is a great design strategy for buildings that have a low temperature maintenance load when compared to building use.

"Striving for sustainability is an effort Colina is committed to. Features like solar panels, a green roof, bio-swale, and EV hook-ups help keep the building's footprint to a minimum."

- Pacific Housing Northwest