

Skokomish Tribe Community Center



CASE STUDY

THE BUILDING

"This building was a dream of the Skokomish people for a very long time, over 50 years. They knew right from the beginning that they wanted it to be culturally and environmentally sustainable. From the very beginning they wanted a building that would be a place for their communities to come together but they also wanted a building that wouldn't become a burden on them financially. There really was a big focus on how this building can use as little energy as possible and it really became a focus up to the point where we created an energy net zero project. We accomplished this through a number of efforts."

- Daniel Glenn, AIA, NCARB
Principal, 7 Directions

We are probably one of the largest solar projects in the state, if not the West Coast."

- Yvonne Oberly, Skokomish Tribe, CE



SYSTEM CONFIGURATION

This system uses four (4) Mitsubishi City Multi heat pumps for HVAC and DHW systems.



ENERGY SAVINGS

There is a 30% annual energy savings for the 25,000 sq ft Skokomish Tribe Community Center.



RETURN ON INVESTMENT

With an installation cost of \$18 per sq ft, the estimated project payback period is 15.9 years.



ENVIRONMENTAL SAVINGS

The Mitsubishi City Multi heat pumps use R-410a refrigerant and a rooftop solar array, resulting in an energy efficient net positive building.

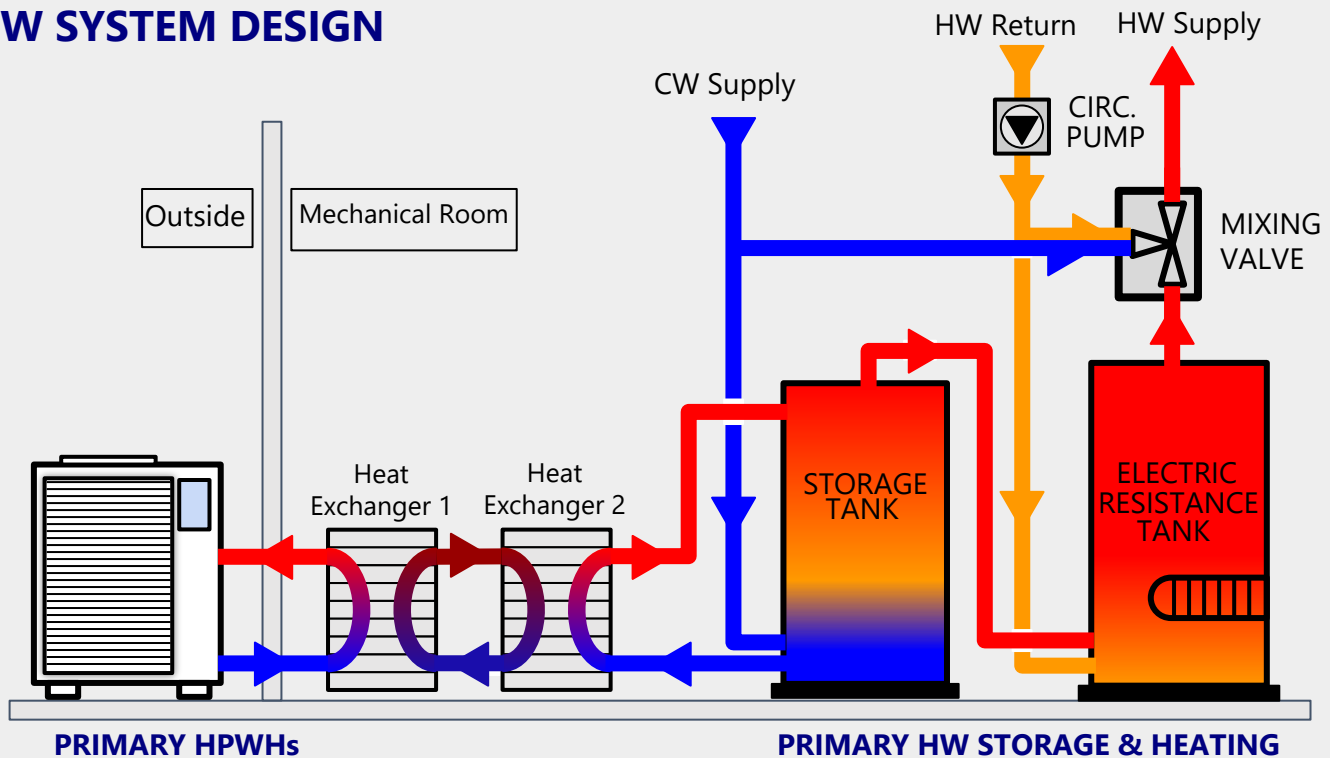


SYSTEM DESIGN

The Skokomish Tribe Community Center was built to provide a gathering and recreation space for community members that celebrated the culture and traditions of the Skokomish people. Designed with sustainability at the forefront, an ultra efficient VRF heat pump system was implemented.

At the heart of the system lies four (4) Mitsubishi City Multi VRF heat pumps which provide the heating and cooling for both the HVAC and domestic hot water systems. Powered by solar arrays mounted atop the building roof, the VRF system contributes to the building's net positive status.

DHW SYSTEM DESIGN



A HYBRID SYSTEM

The Skokomish Tribe Community Center does not house a traditional commercial heat pump water heating system. Rather, the hybrid system uses heat pumps to tackle both the HVAC and domestic hot water needs.

Outside are four Mitsubishi City Multi heat pumps. These equipment are very efficient at collecting heat from the surrounding air. Refrigerant is pumped throughout the building to wall mounted units and to the heat exchanger of the DHW system. The dual heat exchangers serve as protective barriers between refrigerant and potable water.

Cold city water passes through a second heat exchanger. The resulting hot water enters the primary storage tank at ~113°F. The electric resistance tank serves as the final heat source in this system, heating the water to 120-130°F. When a building draw occurs, hot water exits the electric resistance tank and passes through a mixing valve before entering the distribution system.

