Bonneville POWER ADMINISTRATION

Emerging Technologies

HOPEWORKS STATION

CASE STUDY

THE CAMPUS

Located in the growing Everett Station District, the HopeWorks campus is comprised of two buildings. HopeWorks Station South includes administrative offices and the HopeWorks Station enterprises: GroundWorks and Renew Home and Decor. HopeWorks Station North is home to Kindred Kitchen and 65 affordable housing apartments dedicated to empowering disadvantaged veterans, families, and youth through sustainable pathways towards self-sufficiency. The HopeWorks Station goal is to transform the way energy is used, produced and consumed through social programs, education and sustainability values.

HopeWorks Social Enterprises helps low-income, Snohomish County residents, achieve self-sufficiency through social enterprises that provide training and pathways to living-wage jobs.

HOPEWORKS STATION NORTH

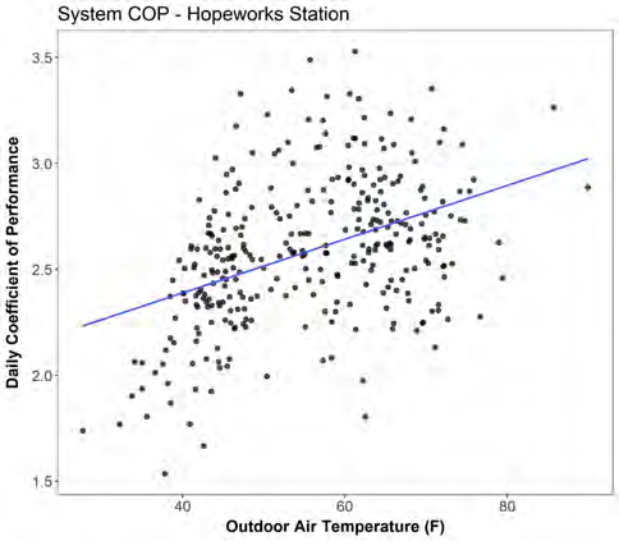
A participant in the Living Building Challenge, HopeWorks Station North is the first building in Everett, WA to achieve LEED Platinum certification. With a mindset on environmental stewardship, HopeWorks Station is leading the charge in affordable, green housing by incorporating energy efficient water systems, LED lighting, triple pane windows and solar arrays.

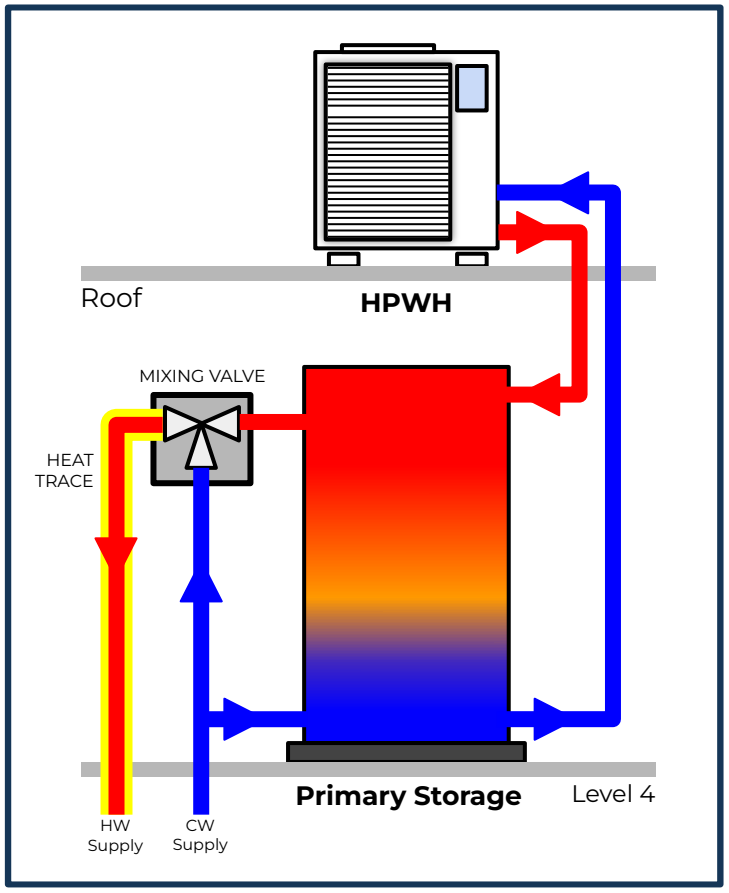
- Solar arrays produce 105% residential energy. HopeWorks Station is contributing to the grid!
- On-site electric vehicle charging is available to residents and visitors to promote use of EVs.
- 57 apartments are dedicated to people coming from homelessness. The remaining 8 are affordable housing.
- Ultra energy efficient SanCO2 heat pumps serve domestic hot water needs at a fraction of the energy cost.

RECIRCULATION CONFIGURATION

HopeWorks Station North houses 65 apartments with a goal to promote environmental stewardship amongst tenants and the community. To reach these goals, designers worked to implement a commercial heat pump water heating system that utilizes the SanCO$_2$ ultra energy efficient heat pumps. Separated by building level, small commercial systems are designed to provide domestic hot water to localized clusters of 4-6 apartments.

- SanCO2 heat pumps are mounted on the rooftop. Utilizing R-744 refrigerant, these heat pumps can operate at temperatures as low as -20°F.
- Hot water is stored in 120 gallon tanks housed in maintenance rooms beneath rooftop heat pumps. When storage water temperatures drop, tank sensors signal the heat pumps to cycle on.
- Hot water travels a short distance to the apartments, so there's no dedicated temperature maintenance system. Instead, heat trace is applied to keep water warm in distribution piping.
- In this simple system design, the internal controls of the SanCO2 heat pump carry out the sequence of operations. Temperature sensors in the storage tank signal simple on/off commands.





THE VALUE OF M&V

For HopeWorks Station North, energy efficiency is top priority. Implementation of a measurement and verification (M&V) system was essential for reporting system function, effectiveness and efficiency. The M&V system collects and sends data to engineers, who then measure the system efficacy, monitor function and attend to alarms/notifications. Currently, the system reports heat pump energy usage at 76 kWh/day with a per person usage rate of 1.22 kWh.

"Hopeworks Station has a triple bottom line. In essence, it's about people, prosperity and planet."
- Cynthia Eichner, Director of Community Development