



## VRF LIGHTENS ENERGY LOAD FOR COMMONS BUILDING, YACHATS OR

Getting the right heating, ventilation and air conditioning (HVAC) product for the right use is essential for successful facilities management. As the City of Yachats discovered, the wrong product in the wrong place is costly and inefficient. A custom project upgrade from residential mini-splits to a commercial variable refrigerant flow (VRF) system is now helping the city reduce one building's HVAC energy use by 52%.

Yachats, Oregon, is a small coastal town located three hours south of Portland. The city's Commons Building serves as a multipurpose community center for the town of less than 1,000 residents. The 12,400 square foot building provides space for an after-school program, gymnasium, and multiple community meeting rooms. It also functions as the City Hall and council chambers.

A diesel boiler provided heat to the 1920s-era space until 2012 and was replaced by 12 residential mini-split heat pumps. The mini-splits were seen as a low-cost way to keep the small commercial building functioning for a few years.

When Heather Hoen, community services coordinator, arrived in 2017 to take over facilities management, the mini-splits were beginning to decline. Deferred maintenance on the units, coupled with the corrosive effects of the coastal climate, caused mechanical breakdowns. Users of the community spaces had free access to temperature-changing controls, adjusting settings regularly based on their comfort level and causing further stress on the system. Further compounding the problem, some areas of the building were not served by the mini-splits and had no heat at all. Finally, this past winter, eight of the 12 original mini-splits failed.

"From a facilities management perspective, this was a no-win situation," said Hoen. "It was inefficient, wasting energy, and costing time and resources for repair and maintenance."

In exploring replacement options, Hoen was convinced a commercial system that could serve the entirety of the building was the best plan. Airrow Heating & Sheet Metal, an HVAC contractor serving the Oregon Coast, recommended a variable refrigerant flow (VRF) system, which allows for better zone control, improves occupant comfort and improves the efficiency of heating and cooling in the building. The new system has the capacity to add more zones in the future as the existing mini-splits are phased out. Plus, it has a longer lifespan, and is expected to last 15-20 years.

Installation was completed in July 2020. “We noticed the difference right away,” observes Hoen. “All the rooms are very comfortable and we’re not making multiple temperature adjustments throughout the day.”

The city earned \$5,910 in cash incentives from Central Lincoln PUD for the custom HVAC improvements. The upgrade is expected to save more than 23,500 kilowatt hours of energy annually and \$1,858 in yearly energy costs. They’ll also reduce their carbon emissions by 1,240 pounds per year. The city will reap further savings from the reduction in maintenance and repair costs, and staff time spent managing the system.

“This is one of the first energy-efficiency projects we’ve implemented” said Hoen. “As we continue to make modifications to the buildings, we’re determined to find environmentally-friendly and energy-saving solutions for our future projects.”