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5005 3rd Avenue South
Seattle, WA 98134
800.669.6223 • McKINSTRY.COM

September 24, 2021

Chair Andrew Klein
Washington State Building Code Council
1500 Jefferson St SE
Olympia, WA 98501

RE: IN SUPPORT OF HEAT PUMP SPACE AND DOMESTIC WATER HEATING

Dear Recipient Name,

I'm a Professional Engineer in Washington State, working in the HVAC industry at McKinstry. This letter is intended to convey my strong support for the heat pump space heating and heat pump water heating proposal modifications to the 2021 Washington State Commercial Energy Code.

I've personally been involved in several projects over the last few years totaling 3.9 million gross square feet in various locations across the state that are voluntarily pursuing heat pump heating systems complying with the proposed amendment language. Heat pump technology has matured to the point where it is reliable and well understood, even in cold climates, and can be implemented cost effectively.

One specific case study is the Washington State University Everett Building. It's a 96,000 square foot, four-story higher education facility with labs, classrooms, and office spaces. It was delivered through a Washington State mandated public design competition that considered both energy performance and cost through the, and was permitted under the 2012 Washington State Energy Code.

Heat pumps and other energy saving measures were proven to be cost effective through the state required and peer reviewed Energy Life Cycle Cost Analysis process. The building heating is provided by an all-electric VRF heat pump heating central plant and DX heat pump dedicated outside air system (DOAS) air handling unit, neither of which have electric resistance backup heat. The project finished construction in 2017 and has proven to be a reliable system with very few maintenance issues. It has been operating with an energy use intensity (EUI) of 25 kBtu/sf-year in a pre-COVID, fully occupied operating condition even before additional savings from on on-site PV renewable energy generation is applied.

While that project's main heat pump plant was a VRF system, we've successfully designed and installed heat pumps of various configurations and sizes all across Washington state. These various heat pump deployments include air-to-water packaged DX heat pumps and water-to-water heat pumps utilizing several different heat sources. There are many different heat pump solutions that are available and reliable in the current equipment marketplace.

I urge the Energy TAG and Washington State Building Code Council to pass the proposed modifications expanding the requirements for heat pump space heating and water heating for the 2021 energy code cycle.

Sincerely,

Michael Hedrick, P.E.
Engineering Manager