



Case Study

Customer
Archipelago Investment,
LLC

Location
Amherst, MA

Industry
Multifamily Housing

Product
Aegis A 500



Aegis Assists in Achieving First All-Electric Living Community in Downtown Amherst

What the Client Needed

Archipelago Investments, LLC, a building owner with a history of constructing LEED and carbon-neutral buildings, faced a pressing need to transition from utilizing centralized condensing gas boilers to electric water heating for the domestic hot water production. With the state of Massachusetts mandating an 80-percent reduction in greenhouse gas emissions and the nearby University of Massachusetts Amherst aiming for carbon-zero compliance by 2030, Archipelago Investments envisioned a solution that aligned with these goals when they developed Eleven East Pleasant, the first all-electric living community in downtown Amherst.

Despite exploring electric and heat pump water heating options, they struggled to find a suitable, market-ready solution that could reliably meet their requirements, especially considering the constraints of Massachusetts' design day temperature of 0°F.

The Solution

To enable the vision of Archipelago Investments to be realized, Lync provided an innovative domestic hot water solution for the new carbon-zero, all-electric apartment building on 11 East Pleasant Street in Amherst. Working in collaboration with T.J. Conway Co., Mechanical Contractors, Kyle Wilson of Archipelago Investments opted for Lync's heat pump solutions to make their vision for the building come alive. The chosen solution featured the Aegis A500 air source heat pump integrated with Bolt storage tanks totaling 750 gallons and 108kW of backup electric resistance. This system was designed to serve hot water needs for 90 apartments efficiently and sustainably.

The Aegis CO₂ heat pump boasts an impressive heating coefficient of performance (COP) of up to 4, making it significantly more efficient than traditional resistive electric systems. Moreover, the Aegis equipment surpasses Massachusetts' design day temperature criteria with a minimum operating temperature of -4°F which significantly reduces the need for





backup heating. Not only does Aegis operate at lower ambient temperatures than many alternative solutions, but it also maintains the ability to deliver hot water well above 140°F when the weather turns colder. CO₂ refrigerant also exceeds expectations when compared to other common refrigerants used in heat pump water heaters with a Global Warming Potential (GWP) of 1.

Recognizing the importance of storage capacity in an energy-efficient and cost-effective heat pump water heater system solution, Lync's Bolt storage tanks were available in various sizes and power configurations, with a 25-year warranty ensuring long-term reliability and peace of mind.

To optimize energy efficiency, the heat pumps are programmed to operate overnight where water usage is at a minimum and utility rates are the lowest, typically. The hot water is stored in the Bolt tanks ready to be drawn during the peak domestic demand periods, i.e. in the morning and evening.

A portion of the backup electric resistance has been allocated for compensating recirculation losses during low-demand periods, with the full 108kW capacity being activated only during high-demand situations or in the event of maintenance on the Aegis A500 unit.

Return on Investment

By implementing Lync's comprehensive solution, Archipelago Investments was able to make the new carbon-zero, all-electric apartment building happen. They stand to achieve substantial returns on their investment, and the transition to electric domestic hot water production aligns seamlessly with Massachusetts' emissions reduction goals and the carbon-zero aspirations of the nearby University of Massachusetts Amherst. With the impressive efficiency and reliability of the Aegis heat pump system, coupled with the durability of the Bolt storage tanks, Archipelago Investments can anticipate significant cost savings over the lifespan of the system.

Moreover, adaptability of the heat pump water heater system to varying demand scenarios ensures optimal performance and minimal operational disruptions, further enhancing the return on investment.

Lync Complete Solutions

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