

FALL RIVER,
MASSACHUSETTS

SOUTH WINDS APARTMENT COMMUNITY



CHALLENGE

Saving a highly inefficient multifamily property from obsolescence by installing efficient, all-electric heating and cooling systems

SOLUTION

M-Series systems with H2i plus® technology and controls from Mitsubishi Electric

RESULT

A fully revitalized property, saving three million kWh of energy annually

Built in 1972, the South Winds Apartment Community has been home to many residents in Fall River, Massachusetts, an established city just south of Boston. The 28-acre garden-style property has 27 three-story buildings with 404 tenant units.

Having held onto many of the original building materials and systems, the property was dated, uncomfortable for residents and a cost burden for the owner, [Taurus Investment Holdings](#) (Taurus). Taurus enlisted the help of its internal energy services subsidiary, [RENU Communities](#), to revitalize the property by replacing the expensive electric-resistance heating, unreliable, through-the-wall air-conditioning units, single-pane windows and poor insulation with modern, efficient systems.

The team at RENU works to decarbonize the built environment by delivering turnkey energy retrofits for Taurus projects. "Our goal is to find the most cost-effective solutions to retrofit properties for efficiency with our investors, landlords and tenants in mind. We want everyone to benefit," said Chris Gray, chief technology officer, RENU.

The South Winds property was the ideal candidate for RENU's carbon

reduction program. After assessing the buildings' systems, the team identified the essential upgrades. For heating and cooling, the team chose variable-capacity, all-climate heat pumps from [Mitsubishi Electric Trane HVAC US](#) (METUS).

LAYING THE GROUNDWORK FOR EFFICIENCY

"This property had a pre-retrofit HERS rating of about 170. 100 is baseline for today's standard new construction," explained Gray. "Each of these apartments had about 70 percent greater energy consumption on an annual basis than a single-family house based on 2006 code compliance construction." With HVAC playing a large role in South Winds' inefficiency, RENU enlisted the help of the engineers at [Salas O'Brien](#) to help make the selection.

"There were several factors to consider with this project. The decarbonization of the site and comfort for residents were first and foremost," said Brian Urlaub, director of geothermal operations, Salas O'Brien. "But New England's cold climate was also a large consideration, as well as the buildings themselves – there's always a few surprises with every retrofit."

After ruling out a geothermal system for South Winds, the project team landed on air-source variable-capacity heat pumps. Specifically, Mitsubishi Electric's M-Series Deluxe Wall-mounted System with H2i plus® technology. This compact, all-electric system features hyper-heating technology designed to provide year-round comfort in any climate and boasts 100 percent heating performance down to -5° F.

"When we removed the original electric baseboard heating and installed the variable-capacity heat pumps, we had more heating capacity at 0° F than we did with the previous system," said Gray. "Residents have enjoyed the new systems installed," said Adam Clarke, director of asset management, Taurus. "They've provided a significant amount of feedback on the improved heating and cooling over the past two years." Urlaub added that heat pumps are gaining adoption in multifamily properties as well. "Mitsubishi Electric's variable-capacity technology has become our preferred brand to work with. The controls options are extensive and very compatible with geothermal, which our company does quite a bit of."



SUBSTANTIAL ENERGY AND COST SAVINGS

Additional upgrades to each tenant unit included installing efficient doors and windows, LED lighting, weatherization and adding a rooftop solar array to every building. "Combined with the HVAC updates, all the renovations led to HERS scores averaging in the 30s. That's three million kWh saved annually, equivalent to 2,800 tons of carbon dioxide," said Gray.

Tenants were also pleased with the coordinated effort of the renovation. The project took a total of 18 months, with work completed on each apartment in five, one-day phases. This ensured residents did not need to vacate their homes and minimized disruption.

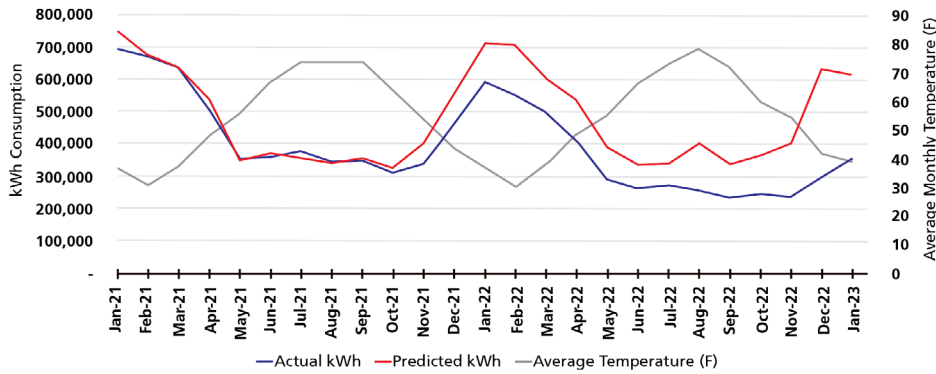
In terms of energy costs, Taurus and property management noticed a significant difference in monthly costs as the heat pumps were installed, to the tune of 50 percent energy savings across the property. Because of RENU's commitment to decarbonization, project costs were also offset by hefty rebates and incentives. National Grid, the local utility, provided a \$2 million



rebate for installing the all-climate heat pumps. The state provided \$400,000 for the heat pumps through the Massachusetts Clean Energy Act Program. "Since heat pumps move heat rather than create heat, heat pumps qualify under the state utility's renewable portfolio standards," said Gray. As of November 2022, the project has been fully completed with compelling energy savings and a projected 1.4 million kWh produced annually through solar. "South Winds is master metered, so tenants aren't responsible for their direct energy consumption," explained Clarke. But the cost savings allows Taurus to reallocate those funds in other areas, ultimately benefitting the residents.

This is another successful project for the RENU team, ensuring all parties are reaping the comfort, cost, efficiency and safety benefits of decarbonization. "We ultimately had to future-proof this property and avoid obsolescence; its carbon footprint is now competitive in the future with other highly efficient buildings," said Gray. And for others on the project team, the property demonstrates how full electrification with all-climate heat pumps is the path forward for the industry. "South Winds' original systems, through-the-wall units and strip heat, were electric but highly inefficient and holding this property back," explained Urlaub. Heat pumps are the best technology to move us forward to maintain efficiency and be carbon-free."

South Winds Site Energy Consumption



Since the heat pumps were installed, the systems have outperformed RENU's predictions for energy consumption.

PROJECT TEAM

Owner:

Taurus Investment Holdings, Boston, MA

Energy Consultant:

RENU Communities, Boston, MA

Distributor:

Homans Associates, Edison, NJ

Engineer:

Salas O'Brien, Bethesda, MD

Mechanical Contractor:

New England Air, Foxboro, MA

EQUIPMENT LIST

- ▶ (1,200) MSZ-FS Wall-mounted Indoor Units
- ▶ (1,200) MUZ-FS Outdoor Units with H2i plus® technology
- ▶ (1,200) kumo touch™ controllers