



Commercial Case Study

Erickson Communities Offer Golden-Age Comfort

Erickson Retirement Communities is a national network of world-class continued care retirement communities (CCRC's) that wanted to provide comfort and flexibility for campus residents when choosing the heating and cooling system for their apartments within the "community neighborhoods." What began in 1983 on an abandoned Seminary in Maryland has grown into ten retirement campuses modeled to create a retirement experience that exceeds expectations.

Expansion Underway

Erickson began a multi-phase construction project in 1997, breaking ground on a new location every six months. Through 2005, grand-openings were scheduled encompassing over 30 million square feet of residential space. The scope of the project required Michael Sichel P.E., Erickson's Director of Engineering, to consider a heating and cooling system that ensured reliable equipment, flexible design and a long life cycle.

"We wanted a product that was flexible to resident needs, economical in first cost, but also reliable and

economical to operate. We knew that water source heat pumps could fit that bill. However, we needed to be assured that we could find a quiet product that took up little space within the apartment and was easy to maintain," said Sichel. "We also needed to be assured that the manufacturer was large enough to meet our increasing demand for product. ClimateMaster and their Vertical High-Rise Heat Pumps met our criteria to a tee."

Variety of Application Needs

The layout of the housing design is traditionally multi-





Riderwood Village began construction in 1998. This Erickson property is located in Silver Springs, Maryland, just minutes from Washington, D.C.

story garden apartment living space configurations. Most projects also include multiple types of Recreational, Living, and Wellness space (Health Clubs, Indoor Pools, Music Rooms, Class Rooms, Game Rooms, Woodshops, Resident Computer Labs, Craft Rooms, Beauty Salons, Banks, Stores, Medical Centers, as well as different Dining atmospheres [including the commercial kitchens that support them], Pubs, Creative Arts Theatres, and Worship Centers) with various heating and cooling demands. The need to cool some spaces while heating others presented challenges to facility management to provide comfort to residents and at the same time, maintain reasonable operating costs.

On properties built before 1997, Erickson had some heat pump systems and some four-pipe fan coil systems. The long-term demand for efficiency and comfort lead Erickson management to compare the four-pipe fan coil and water source heat pump (WSHP) systems. Erickson discovered:

- The water source heat pump cost less compared to the almost double piping and labor costs of the four-pipe fan coil design.
- The water source heat pump presented lower operating costs compared to higher costs affiliated with the four-pipe fan coil's energy demand utilizing gas-fired chiller-heaters.
- The water source heat pump featured fast and easy maintenance compared to the challenges of repairing central plant chillers and boilers.
- The water source heat pump system with its individual unit controls could heat and cool various living spaces simultaneously.

- The water source heat pump system has less impact on campus operations when there is a need to shut down for system repairs.

When it was all said and done, the water source heat pump system presented the cost effective solution Erickson wanted while satisfying their desire to provide an environment for an exemplary retirement lifestyle; and the bonus -easy equipment maintenance for facility technicians.

Large Campus Located in Virginia

The first Erickson new construction project to be designed with a water source heat pump system was Greenspring Village, nestled within a wooded campus in Springfield, Virginia. The campus upon completion will have over 1,400 independent living apartments and approximately 200 beds in the Renaissance Gardens, an Assisted Living and Skilled Nursing Facility.

Greenspring Village has three "neighborhoods" of approximately 650,000 square feet. These neighborhoods are made up of close to 500 multi-style studios, efficiencies, and one and two bedroom apartments, which average out to approximately 1,150 square feet each. The apartments are housed in four buildings of about 125,000 to 150,000 square feet each and connected to a "Club House" of nearly 50,000 square feet for each "neighborhood."

In the lower level of each Club House is a relatively small equipment room to support the approximately 1,000-ton capacity water source heat pump central plant. The total campus build-out borders on 3 million square feet representing over 4,500 tons of heating and cooling capacity or 5,000 water source heat pumps. This same concept is repeated on eight other Erickson campuses now under construction.





**ClimateMaster
VHS Unit**

The ClimateMaster VHS units were shipped with pre-piped supply, condensate, and return risers and valve packages. Unions, ball valves and interconnecting copper piping and hoses come completely factory assembled and quality controlled for rapid field installation.

The units were installed as two sections. First, the cabinet section containing the fan components and the factory installed water loop risers was built into the structure during construction. The risers were factory swedged at the top to accept riser piping from the floor above for quick, simple installation without the use of separate couplings.

Next, the heating and cooling chassis easily slid into the cabinet before system startup. After installation, the only visible components were the discharge grille and the return air/access panel. The unit virtually “disappeared” into the wall.

Maintenance made Easy

When the population of a campus involved over 1,500 residents,

the last thing Engineering Supervisor Dante Mercurio wanted was a complete system-wide shutdown for maintenance. The incremental design of the ClimateMaster VHS system allowed for direct service of individual units without inconveniencing other residents. The hinged access panel can be easily opened for checking operating codes and changing filters. The chassis, which incorporates the entire refrigeration circuit (air coil, water coil, and compressor), can be easily removed and replaced with a spare chassis in 30 minutes or less.

“Whenever we have a maintenance problem that can’t easily be fixed by following the diagnostics of the CXM boards in each unit, we simply pull the chassis out of the cabinet and replace it with another and then take it down to our maintenance shop for ease of repair.

However, almost all repairs can be easily addressed right in the apartment,” said Mercurio.

Comfort is Golden

When it came to comfort, the ClimateMaster water source heat pump offered Erickson residents the flexibility of individually zoned heating and cooling. Unlike other systems, the water source heat pump could heat and cool separate zones simultaneously. Residents had complete control of the air temperature in their environment independent of other units, just as they did in their own homes.

Another element of comfort was the inherent ability of the water source heat pump to dehumidify space as well as cool it. Some Erickson properties are located in climate zones where humidity is a consideration in living space comfort. Although the water source heat pump does not dehumidify differently than a conventional air conditioner, the colder evaporator coil temperatures of the system allowed more condensation to take place resulting in increased dehumidification.

Savings Are Real

The water source heat pump system not only granted the flexibility and comfort Erickson wanted to provide to campus residents, but offered long-term savings too. The energy efficiency alone of the water source heat pump presented savings ranging from 20 percent to 30 percent on heating and cooling expenditures. Partner those savings with the lower first cost and less maintenance and Erickson could realize a savings up to 25 percent within the first 36 months. Multiple campuses with significant savings translate into a superior rate of return for Erickson.

As Erickson Retirement Communities move forward to develop new campus locations, ClimateMaster’s design and manufacturing team will continue to provide support and the quality heating and cooling products for Erickson residents.



Erickson Properties

Director of Engineering:
Michael Sichel, P.E.

Mechanical and Electrical Engineer:
GHT Limited and Kibart Inc.

Electrical Contractor:
Northwest Electric

Mechanical Contractor:
Krick Plumbing and Heating Utility

Architect:
Marks, Thomas & Associates, Inc.
Wallace Roberts & Todd, L.L.C.

Manufacturer:
ClimateMaster, Inc.
www.climatemaster.com



ClimateMaster is the world's largest and most progressive manufacturer of geothermal heat pumps. The company is committed to innovation and dedicated to environmentally clean, economically sound and superbly comfortable home and business environments.

ClimateMaster has been designing and building equipment that enhances the environments we live and work in every day for more than 50 years. In addition to geothermal heat pumps, ClimateMaster offers the most extensive product line of water-source heat pumps for use in a wide variety of applications. ClimateMaster products are proudly built in the U.S.A.



ClimateMaster works continually to improve its products. As a result, the design and specifications of each product at the time for order may be changed without notice and may not be as described herein. Please contact ClimateMaster's Customer Service Department at 1-405-745-6000 for specific information on the current design and specifications. Statements and other information contained herein are not express warranties and do not form the basis of any bargain between the parties, but are merely ClimateMaster's opinion or commendation of its products.


CLIMATEMASTER
7300 S.W. 44th St.
Oklahoma City, OK 73179
Phone 405-745-6000
Fax 405-745-6058
climatemaster.com