

WOLF RIDGE CONDOMINIUM COMMUNITY

Savings Snapshot



Energy
Efficiency
Program



ENERGY EFFICIENCY PROJECT:

- Commercial gas heat pumps



INCENTIVES EARNED:
\$227,500



ANNUAL ENERGY SAVINGS:
7,238 therms

PROJECT OVERVIEW

Built in 2011, the Wolf Ridge Condominium Community is a six-story, 60-unit condominium located in Northlake, Illinois. When the Wolf Ridge board of directors wanted to maximize the heating capabilities of the complex's aging boiler system, it turned to its HVAC contractor for advice.

DISCOVERING COMMERCIAL GAS HEAT PUMPS

The building's HVAC contractor recently attended a Nicor Gas Energy Efficiency Program commercial gas heat pump (CGHP) demonstration, and was impressed by the innovative benefits of the technology. Because Wolf Ridge uses radiant floor heating, it was an ideal candidate and he recommended the system for installation.

HOW CGHPS WORK

A CGHP is a high-efficiency HVAC system that provides space heating and cooling, and can also supply domestic hot water (DHW) heating, for commercial and multi-family buildings. The system uses natural gas to fuel its engine and a heat pump to move thermal energy. For the Wolf Ridge project, only space and DHW heating were required.

CGHPs pull thermal energy from the outside air and move it indoors using natural gas combustion and a refrigerant (ammonia R717). The thermal energy offsets the amount of natural gas needed to run the system, allowing CGHPs to achieve efficiency levels great than 100% and outperform electric heat pump counterparts in colder climates.

SYSTEM DESIGN AND INSTALLATION

CGHP installations can be scaled to meet the requirements of any heating load. For the Wolf Ridge project, the heat load required four CGHPs be installed in an array, each with a capacity of 120,000 BTUs/hour. Rated 129% energy efficient, the Wolf Ridge CGHPs are being used in tandem with a much less efficient boiler system in order to achieve overall energy savings on space and water heating.

OPERATIONAL STRATEGY

During milder days of the heating season, CGHPs run exclusively to take advantage of their high-efficiency levels. During the coldest winter days, the boiler system is activated to ensure the comfort of condominium residents. This dual-source heating methodology is projected to save Wolf Ridge over 18% annually in natural gas usage, or more than 7,000 therms, for both space and water heating.



CGHP BENEFITS

- Up to 140% energy efficient
- Stable operation down to -40°F
- CO₂ emissions reduced by more than 40%
- 120,000 BTUs/hour capacity
- Single-phase power
- Uses a natural refrigerant (ammonia R717) with zero ozone depletion potential and zero global warming potential
- No fluorocarbons or nitrogen oxide (NO_x) emissions
- Remote monitoring ready
- Lower operating costs and reduced energy costs compared to existing equipment and electric heat pumps
- Easy maintenance, similar to gas-fired boilers
- Ideal for integration with existing boilers in new and retrofit applications



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