New Jersey's Clean Energy PROGRAM™

Your Power to Save

Success Stories

Princeton Windrows:

A Whole Community Approach to Energy & Savings

PROJECT INFORMATION

Organization

- Princeton Windrows

Location

- Princeton

Project Contact

- Thomas Jennings, Director of Facilities

Technologies

- High efficiency HVAC
- Makeup air distribution plenum
- Variable control drives
- High efficiency lighting

NJCEP Incentives

- $256,761 Pay for Performance Program

Total Project Cost

- $625,000

PROJECT SAVINGS

Estimated Annual Savings

- Nearly 500,000 kilowatt hours of electricity
- 4,507 MMBtu of natural gas
- $144,346 energy expenses

Project information, savings and environmental benefits were provided by the project contact.

Princeton Windrows' main community facility showcases convenient amenities and advanced energy efficiency improvements.

"The level of job oversight and verification by *New Jersey's* ***Clean Energy*** *Program* gave me more confidence about the engineers' work. I believe that every large commercial building has the potential for substantial savings in operating costs if the owners are willing to bring in the right people."

Thomas Jennings
Director of Facilities
Princeton Windrows

Background

Built in 1999, Princeton Windrows is an independent living community for residents 55 years or older. The complex consists of 102 single family homes and a five-story main building that houses 284 condominiums and community amenities such as a pool, beauty parlor, bank, health suite, activity rooms and several eateries as well as administrative offices.

Challenge

With active adult community construction continually on the rise, Princeton Windrows needed to streamline its operational and maintenance expenses to remain competitive in the market.

And, although the community's heating and air conditioning equipment was far from outdated, it was terribly inefficient. Engineering studies determined that HVAC units on the main building's rooftop were working to satisfy corridor temperature set-points by pumping hot or cold air through each condominium unit. Meanwhile, the thermostats in each resident's unit were counteracting this operation to maintain the set temperature within the unit. This created comfort problems, both in terms of temperature and noise.

Another problem detected was that the building was being over-ventilated and, therefore, wasting energy. The rooftop units were designed to use 100% outside air and the amount of exhaust exceeded the minimum code by a factor of three.

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One of Princeton Windrows' high efficiency rooftop HVAC units

Solutions

Princeton Windrows took some immediate steps to reduce costs by repairing faulty equipment, installing compact fluorescent lighting (CFL) bulbs where possible and scheduling rooms to be unheated when unoccupied. These efforts resulted in significant cost savings, but decision makers at Princeton Windrows wanted to take it further by investing capital for energy efficiency projects that would produce even greater gains.

Princeton Windrows' first step was to participate in Pay for Performance, a component of ***New Jersey's Clean Energy Program™***. They contracted with a Pay for Performance-approved partner to address their energy issues and receive financial incentives to help fund the project.

As part of the Pay for Performance initiative, a whole-building energy audit and assessment were performed to recommend the most appropriate energy efficiency measures for implementation. To meet mechanical code requirements and reduce the volume of the building's existing exhaust fans, it was decided that the number of air conditioners could be reduced from four to two higher efficiency models and that two of the supply ducts would be converted into return ducts to effectively re-circulate inside air instead of using 100% outside air.

In addition to these equipment replacements, Princeton Windrows had a makeup air distribution plenum installed on a kitchen hood with variable control drives and associated controls as well as having its lighting systems de-lamped and retrofitted.

Moreover, Princeton Windrows has successfully implemented a "green" culture among its staff and residents. For example, if the dining room starts serving meals at 5 p.m., the staff keeps the lights and air conditioning off until the space is occupied and food is being prepared.

Benefits

Princeton Windrows is projected to save 499,106 kilowatt hours of electricity and 4,507 MMBtu of gas in the first year of the new equipment's operation. This translates to energy cost savings of $144,346 annually, which is nearly a 30% reduction from previous years.

The total cost of the project was estimated at $625,000. By participating in Pay for Performance, Princeton Windrows is scheduled to receive $256,761 in incentives from *New Jersey's* ***Clean Energy*** *Program*, covering approximately 42% of their project's cost. This brings the simple payback of Princeton Windrows' capital investment in the project to just over 2.5 years.

PRINCETON WINDROWS

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