

Case study

August 2012



Municipal Square

*System upgrades result in 35 percent energy savings, improved tenant satisfaction
West Orange, NJ*

Built in 1972, Municipal Square is a five-story, 100,000 square foot commercial office building located in West Orange, New Jersey. The building's prime location, near transportation routes, Newark Liberty Airport and the courthouse, makes it a desirable location for approximately thirty-five tenants including law firms, architects, accountants, a bank and cafeteria. Municipal Square is managed by Municipal Square Associates, a real estate company principally owned by Drill Construction Company, which is also located in the building. A third-generation, family-operated firm, Drill Construction Company prides itself on making client and tenant satisfaction a top priority.

Challenge

The original HVAC system in the Municipal Square building was nearing the end of its useful life. In addition, inefficiently operating HVAC systems and controls were resulting in wasted energy and comfort issues. Committed to making tenant satisfaction a top priority, Municipal Square Associates sought to replace its aging systems with today's more efficient technologies. The building owner's goals were to combat rising utility costs, reduce equipment maintenance expenses, improve system reliability and ensure the comfort of its employees and tenants. "The building was built at a time when nobody thought about operating costs," said Larry Drill, Municipal Square Associates managing agent. "It had single-glazed windows and was entirely electric. With utility bills around \$300,000 per year, we are always looking for ways to save energy."

Solution

Before beginning the upgrade, Municipal Square Associates opted to take advantage of the New Jersey Pay for Performance, a program designed by the NJ Board of Public Utilities to provide incentives to building owners to reduce energy usage. The Pay for Performance program provides initial funds to cover the cost of a detailed energy audit and incentive dollars based on the number of kWh in electric, and therms of gas that will be saved by the energy conservation measure (ECM) upgrades implemented in the building.



Owners of the forty-year-old Municipal Square building sought to combat rising energy costs, while ensuring tenant comfort.

Identifying energy saving opportunities

After discussions with building owners, Municipal Square's HVAC consultant contacted Trane, an Approved Pay for Performance Partner, to discuss the building's high energy costs. Benchmarking Municipal Square against other like-kind facilities, Trane discovered that it was using a lot more energy than a typical office building of the same size. Trane worked closely with the building owner to complete a detailed audit of the facility, evaluating not only the HVAC, but also the building construction, envelope, controls, windows and lighting. Using the Trane Trace™ 700 program, a base model of the building was created and ECMs were evaluated, comparing their cost versus the potential energy savings they could provide.

Increasing efficiency, improving performance

Two packaged 70-ton IntelliPak™ rooftop systems were installed, with work being completed on weekends, so as not to disrupt tenant business. The IntelliPak systems are designed to provide superior indoor air quality, while minimizing energy consumption. The building's constant volume system was converted to a variable air volume (VAV) system and twenty-six VAV units and smaller duct heaters were installed. The VAV system increases the building zones from two to twenty-six to meet tenants' individual comfort needs and significantly reduces energy consumption.

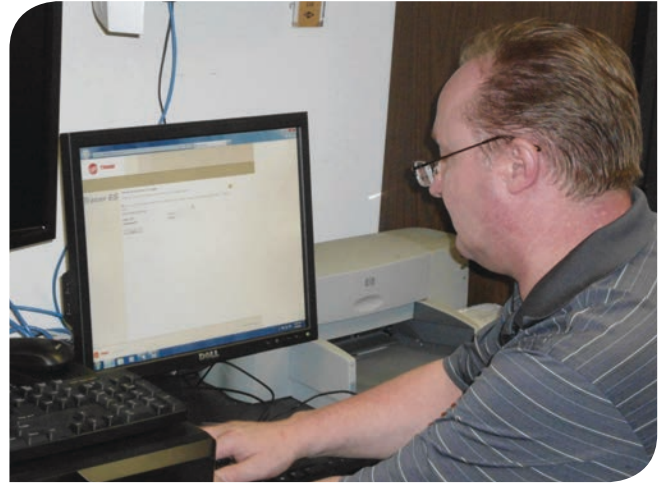
Implementing energy-saving control strategies

Using a Tracer ES™ building automation system (BAS), systems were integrated and energy saving control strategies, such as static and fan pressure optimization, supply air reset and optimal stop/start, were implemented. The BAS gives facility managers online control of their HVAC systems, enabling users to perform daily operations tasks remotely such as troubleshooting, scheduling and data analysis.

Monitoring to ensure performance

Engineers at Trane Intelligent Services™ (TIS) central monitoring station review monthly utility costs, evaluate areas of excessive energy use and identify energy saving opportunities. Abnormal conditions are red flagged so issues can be corrected before problems occur.

With TIS Active Monitoring, technical specialists monitor critical alarms twenty-four hours a day, perform remote diagnostics and initiate a course of action. Able to resolve many issues remotely, the specialists allow the building owner to avoid both tenant interruptions and costly onsite service calls. If service is needed, technicians are provided



The Tracer ES building automation system gives building owners online control of HVAC systems.

information regarding the potential issues and are quickly dispatched to the site.

Results

Taking a holistic approach to building performance improvement, Trane implemented upgrades at Municipal Square to improve efficiency, increase comfort and provide substantial energy savings. "From the reports we're getting and the electric bills, we're using about 35 percent less electricity than we were before the upgrades," said Drill. "We think we can achieve 40 percent and the people at Trane are monitoring and tweaking to get to that goal."

The more reliable systems are improving the overall indoor comfort, reducing tenant complaints and increasing satisfaction levels. Lower energy costs are also making the building more attractive to potential future occupants.

"Trane has been a terrific contractor, and they are few and far between," said Drill. "The communication, the organization, just the way they approached the job were terrific. Peace of mind is something I look for, and Trane gives it to me."



Ingersoll Rand (NYSE:IR) is a world leader in creating and sustaining safe, comfortable and efficient environments in commercial, residential and industrial markets. Our people and our family of brands—including Club Car®, Ingersoll Rand®, Schlage®, Thermo King® and Trane®—work together to enhance the quality and comfort of air in homes and buildings, transport and protect food and perishables, secure homes and commercial properties, and increase industrial productivity and efficiency. We are a \$14 billion global business committed to sustainable business practices within our company and for our customers. For more information, visit www.ingersollrand.com.