ATLANTA

OFFICE BUILDING & DATA CENTER

- *Reduced HVAC energy consumption **by over 30%***
- *Saving **1.6m kWh** annually*
- ***Increased delta T** while also improving comfort*

OVERVIEW

The property manager of a 13-story office building and data center required a balance of tenant comfort and critical cooling, but experienced drafty conditions, constantly running equipment and high operating costs. To address these concerns, an energy management partner provided a phased, system-wide approach involving energy modelling, equipment staging, precision control, piping modifications and new chiller controls. This comprehensive solution reduced energy consumption by 30%, improved comfort and provided better reliability for existing equipment with new insight into system operation.

"Control valves are not the largest dollar ticket item, but the most critical."

FAST FACTS

LOCATION
Atlanta, GA

BUILDING TYPE
Office building

FLOOR AREA
227,549 sq feet
1 floors

PROJECT DATE
Dec 2009 - April 2010

SIMPLE PAYBACK
>5 years

DELTA P VALVE

CASE STUDY

THE PROBLEM

A 13-story mixed-use development in Atlanta, Georgia required a delicate balance of tenant comfort and critical cooling. The building was performing well in comparison to other facilities in the property manager's portfolio, but fluctuations in temperature control were causing discomfort for the facility's 500 employees. On top of that, the building's two 350-ton chillers were running constantly to support the 24/7 mission-critical data center, and operating costs were increasing.

During a quarterly meeting to review energy performance and discuss potential energy conservation measures, an energy management partner proposed an initial project to test if they actually were getting the most out of their system. They repurposed a 120-ton air-cooled rooftop unit, designated for emergency scenarios, to be used as the after-hours chiller.

The results of this small-scale project offered significant savings, and showed how the facility could optimize the cost-effectiveness of their existing equipment even more by identifying further upgrades.

THE SOLUTION

The next step involved modeling and analyzing the building's energy consumption over several years to identify additional energy conservation measures. The result was a phased, system-wide approach focusing on precision control, with some additional piping modifications and new chiller controls. The solution utilized the building's existing major equipment, with a new strategy to manage it more efficiently.

The key retrofit was the installation of DeltaPValves to manage chilled water flow at each of the thirteen air handling units (AHUs). The DeltaPValves were added to precisely control the AHU discharge air temperature, improve heat transfer, and properly distribute water throughout the facility. By connecting the new pressure independent system with new chiller control panels, the cooling load was effectively matched between the production and distributions systems for more effective and efficient operation.

THE RESULTS

The comprehensive solution reduced energy consumption by 30% (saving 1.6m kWh annually), while improving comfort, providing better reliability for the existing equipment and adding new insight into system operation.

With the 120-ton air-cooled rooftop unit installed for the initial energy test, the property manager was able to supply cooling to two floors after-hours. After the addition of DeltaPValves throughout the facility, they could supply after-hours cooling to the whole building. By optimizing chilled water control at the coil, they achieved a higher delta T at part load conditions and corrected their delta T troubles, saving pump energy and reducing load on the chiller. While not the biggest-ticket item in the project, DeltaPValves had the most critical impact on the overall results, providing a stable system for other complimentary technologies.

The energy management partner continued to measure and verify system performance for several years after project completion and secured a simple payback in under 5 years. Their findings were so significant that property manager hired a third-party source to confirm the results. Upon verification, they moved ahead with implementing DeltaPValve® Systems at three additional facilities in the Atlanta area. They have now achieved LEED® Platinum or Gold certification for over 4 million SF of office property.

“The results of the comprehensive solution were so significant that property manager had to hire a third-party source to confirm the data.”

About Flow Control Industries, Inc.

Flow Control Industries, Inc. (FCI) is a specialty manufacturer of high-performance pressure independent control valves, delivering energy efficient products and services through a consultative process to increase building value and lower total cost of ownership (TCO).

The DeltaPValve®, FCI's flagship product, was developed by founder and Chairman Paul Skoglund, P.E. over 20 years ago when he realized that more effective valves could revolutionize mechanical system efficiency. As an industry pioneer, Paul was the first to create the patented design, development and application of pressure independent control valves.

Since the release of the first DeltaPValve®, FCI's team of world class engineers has worked to improve its design, efficiency and overall effectiveness. This focus and dedication has propelled the DeltaPValve® to the top of the industry, being the only variable flow hydronic system that GUARANTEES ΔT.

DeltaPValves are used in projects all over the world and are consistently saving customers millions of dollars in first costs, operating costs and deferred capital costs.