Childress Klein

CASE STUDY

Challenge

Managing a thirteen-story building with both offices and a data center required Childress Klein to perform a balancing act between keeping the facility's 500 employees comfortable, while maintaining the cooling required by the building's 24/7, mission critical data center. With 40 percent of the building's budget consumed by mechanical systems, the company also sought ways to lower operating expenses and energy costs.

> "With AdaptiView, we can check every part of the chiller, temperature set points, when the compressor starts, and how long it's been running." "Plus, if there is an issue, an alarm is sent directly to our phones."
>
> - **Juan Bedoya**, General Maintenance Mechanic, Childress Klein

Childress Klein

Atlanta, Georgia

PROJECT HIGHLIGHTS

Chiller controls enable implementation of energy strategies, resulting in annual savings of approximately 30 percent

Solution

Two 350-ton Trane® CenTraVac™ centrifugal chillers in the chiller plant were operating 24 hours a day, although evening load was lower. To save energy, a strategy was devised to use a smaller 120-ton Trane air-cooled rooft op unit, designated for emergency scenarios, as the aft er-hours chiller. While the solution off ered some savings, Childress Klein sought more control to optimize the cost-eff ectiveness of the equipment and worked with Trane to identify potential upgrades.

Developing an energy strategy

Leveraging Trane Building Advantage™ energy management services, a Trane Energy Assessment from the Intelligent Services portfolio was conducted. Using Energy Optics* and Energy Analyzer tools, Trane analyzed energy consumption over several years, benchmarked the facility against other likekind buildings, and identifi ed potential energy conservation measures (ECMs). The Trane solution involved using the building's existing equipment, but managing it differently.

Increasing comfort and reliability

The building's two existing chillers were retrofi tted with Tracer® AdaptiView™ control panels. Intuitive and customizable, the touchscreen displays on the AdaptiView provide a snapshot of building systems. Facility managers use AdaptiView to access and control chiller operations to improve reliability and identify energy saving opportunities. AdaptiView also interfaces with the building's Tracer Summit™ building automation system to trigger alert notifications.

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Implementing the new chiller plant strategy

Pressure independent control valves were installed on the thirteen air handlers in the building to improve system efficiency, allowing Childress Klein to regulate discharge air to extract as much heat as possible. The plant was converted from constant fl ow to variable-primary flow technology to effi ciently distribute water throughout the facility and connect building load to the production and use of chilled water. As the load profi le drops, operators use AdaptiView™ to reduce the flow, and control the refrigeration inside the centrifugal chiller, removing inconsistencies and reducing energy costs. "AdaptiView gives us the ability to vary the water flow and control the chillers in a different way to enable energy savings," said Jack Kennedy, director of engineering services, Childress Klein. "By doing this, we can utilize pressure independent valve technology to achieve more stable coil temperatures to remedy the draft y conditions that have been inherent to the building since it was constructed."

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>
> - **Jack Kennedy,** Director of Engineering Services, Childress Klein

Gaining knowledge to enable active energy management

AdaptiView helps building managers gain insight into chiller operating patterns, energy use and system performance over time, provides customizable graphs to display data for analysis of variations and trends, and helps operators deploy energy saving strategies. "We use information from AdaptiView to incorporate into our strategy the most cost-efficient method to cool the building," said Kennedy. "AdaptiView collects active tonnage data, so we can calculate when to use the smaller rooft op unit. Information taken from the panel helps us know how to vary the evaporator flow, and we use AdaptiView pressure ratings to make decisions on air pressure control."

Results

Energy strategies implemented at the Atlanta office and data center building managed by Childress Klein include variable flow technologies, installation of pressure independent control valves, increased utilization of a third chiller, and retrofi tting of existing chillers with AdaptiView control panels. The project is resulting in energy savings of approximately 30 percent annually as verified by a third-party engineer, and has a payback of less than fi ve years. The reliable, quiet operation of the systems, as enabled by the AdaptiView, is also helping enhance comfort for individuals working in the building. "We require a lot of Trane," said Kennedy. "Our account manager and his team have always been responsive, and always prepared for any request we've ever made."

About Childress Klein

Childress Klein is a full-service firm offering a range of products and services covering all aspects of commercial real estate. The company manages approximately 40 million square feet of office, industrial, retail and multifamily properties in major markets throughout Virginia, Tennessee, North and South Carolina, Georgia and Florida.

TRANE

Trane – by Trane Technologies (NYSE: TT), a global climate innovator – creates comfortable, energy efficient indoor environments through a broad portfolio of heating, ventilating and air conditioning systems and controls, services, parts and supply. For more information, please visit *trane.com* or *tranetechnologies.com*.

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