

JOHNSON COUNTY COMMUNITY COLLEGE, KANSAS

Annual Utility and
Maintenance Savings

\$402,452

IMPROVEMENT DETAILS

- Retro-Commissioning
- HVAC systems in 46,505 gsf Commons and 94,645 gsf General Education Building
- Two chilled water plants, each with two 1,280 ton water-cooled centrifugal chillers, primary/secondary pumping. West Plant includes 600,000 gallon chilled water tank, respective chilled water distribution systems serving a total of 15 buildings
- Development of No Cost/Low Cost enhancements and capital intensive energy-saving projects that can be accomplished with in-house resources or through turnkey implementation

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GOALS AND CHALLENGES

The Johnson County Community College 243-acre campus in Overland Park, Kansas, opened in the fall of 1972 with six buildings. Over the years the campus has expanded to include 23 major buildings, serving more than 20,000 credit students and about 15,000 continuing education students each semester, making JCCC the largest undergraduate institution of higher education in the State of Kansas.

Campus buildings and infrastructure systems had been well-maintained and in-house energy conservation strategies were implemented, but both facilities and sustainability at JCCC were seeking additional reductions in energy consumption and system performance enhancements. Different options for energy conservation and facilities improvements were evaluated and retro-commissioning was determined to be the most appropriate option.

SOLUTIONS AND OUTCOME

Willdan was selected to provide retro-commissioning services as an on-going campus-wide energy conservation program. The original plan included the Commons and General Education Building, both with mechanical systems consisting of variable air volume air handling units connected to the campus chilled water loop, VAV terminal boxes with electric reheat, and electric perimeter heating.

In addition, both campus central chilled water plants and respective distribution systems were evaluated consisting of two 1,280 ton Trane water-cooled centrifugal chillers, primary/secondary pumping (serving 15 buildings), and a 600,000 gallon chilled water storage tank for the West Plant.

Functional performance testing and air and water TAB were performed on all systems to identify deficiencies and recommend improvements that represented no-cost/low-cost energy saving opportunities. Capital intensive projects with 10 year paybacks or less were also evaluated, such as converting the campus to gas-fired hot water heating. Recommendations included options for both in-house or turnkey implementation, and energy savings tracked using IPMVP Option C: Whole Facility.

The rigorous system testing and energy analysis by Willdan identified more deficiencies than expected, resulting in a more thorough analysis of operational issues and opportunities for energy savings than would have been possible through standard commissioning or performance contracting. Additionally, significant issues were discovered and corrected to provide immediate operational benefits.