

Siemens Delivers Infrastructure Improvements and Energy Savings for Crittenden Regional Hospital

Client Objectives

Serving the citizens of West Memphis, Arkansas Crittenden Regional Hospital (CRH) has provided quality healthcare for over 50 years. As with all aging hospitals, it needed several infrastructure and capital improvements to continue to provide an environment conducive to quality care and service for its patients. Faced with rising energy costs and operational expenses, finding room in the capital budget to make these improvements was a major obstacle and challenge.

Siemens Solutions

In October 2006 CRH issued a Letter of Intent to investigate the opportunity for reducing its utility usage while improving occupancy comfort and staff productivity. In a proactive effort, CRH's staff selected Siemens Building Technologies (SBT) to perform an energy and infrastructure analysis of their facilities. Over the course of several months, SBT interviewed staff, conducted site evaluations, took measurements, and came up with creative and innovative ideas to reduce energy costs, increase productivity, and improve infrastructures, all while working within CRH's current operating budget. Through this process, the Siemens team was able to propose a performance contract that allowed CRH to make several infrastructure upgrades and energy efficient retrofits designed to save more than 1.8 million kilowatt hours per year. The capital improvements, totaling \$2.57 million, will be paid for through guaranteed energy and operational savings equivalent to \$3.9 million over 15 years. The CRH project included a multitude of improvements including:

- Lighting Retrofits
- New Chiller and Chilled Water Piping
- New Chilled Water Pumps and Variable Frequency Drives
- New Cooling Tower
- New Heat Exchanger
- New Boiler
- New Energy Management Controls System

Lighting

Siemens replaced existing lighting with new 30 watt energy saving T8 lamps and high efficiency electronic ballasts that utilize low ballast factors, both provided by leading lamp manufacturer Osram Sylvania (a Siemens Company). The lighting retrofit is expected to save more than 656,000 kilowatt hours per year. Also, due to the long life of the new bulbs and ballasts, additional material savings will be realized with the lighting retrofit.

Heating and Air Conditioning

In regards to patient and staff comfort, Siemens replaced the older inefficient 500-ton chiller located in the main mechanical room with a 700-ton McQuay variable speed chiller. The new chiller is more efficient than the older unit and provides the hospital with much needed back-up for its cooling system. This measure will save over 120,000 kilowatt hours per year in energy. In addition to the chiller, Siemens installed a new cooling tower with a variable frequency drive and replaced various chilled



Crittenden Regional Hospital

water pumps and piping. Siemens installed a new high efficiency boiler coupled with a plate frame heat exchanger. The plate frame heat exchanger provides "free cooling" in the winter months by using the cooling tower to directly lower the temperature of water used for cooling the building.

Energy Management Control System

In an effort to increase productivity and occupancy comfort, Siemens installed an APOGEE® energy management controls system (EMCS) in the hospital. The addition of the APOGEE EMCS allows for remote monitoring, control, scheduling and operation of the facilities mechanical equipment. The new EMCS, complete with a graphical user interface, gives CRH staff greater control of the central plant and all of its equipment, as well as control of air-handlers located throughout the hospital and the adjacent professional office building. Not only will staff have a greater control of the building's environment, but will save money by controlling HVAC equipment to tighter standards.

Client Results

James Carter, Jr., Chief Executive Officer of CRH, was very satisfied with Siemens and it's overall performance, quick response time, and ability to resolve issues with positive results. He explains, "I have been in this business for over 15 years now, and John Hemenway (Siemens Project Manager) is wonderful to work with. His attention to detail and responsiveness was beyond my expectations." In conjunction with his staff, Mr. Carter was actively looking for ways to enhance the image of the hospital, improve services, and reduce rising operating and energy costs. Carter explains, "We are excited about the anticipated annual savings that the upgrades and new technology installations will provide. We have already seen the morale of the staff improve and heard the positive feedback from patients. This creative and innovative concept of performance contracting allowed CRH to provide a more comfortable and healthier environment for all its occupants." The total project guarantees an annual energy and operational savings equivalent to \$260,000 per year for 15 years.

