Hardin Medical Center
Performance contracting upgrades improve environment of care, reduce energy and operational costs 30 percent, result in a $11,500 energy rebate • Savannah, Tennessee

Since its founding in 1952, Hardin Medical Center (HMC) has been committed to progress and growth to meet the evolving health needs of the communities it serves. Adhering to its motto, “Quality Care … Right Here at Home,” HMC continually looks for opportunities to lead the way in healthcare within the region. The multi-specialty medical facility has an active staff that provides cardiology, family practice, obstetrics and gynecology, general surgery, pediatrics, internal medicine, orthopedics, and consulting physician services, including gastroenterology, pathology, radiology, urology, cardiology, and ophthalmology. HMC, including the hospital, nursing home, physician offices, and other services, currently employs approximately 450 persons.

Challenge
The aging, outdated systems at Hardin Medical Center provided inadequate cooling and insufficient humidity control. The medical facility sought to improve the environment of care, especially in its labor and delivery area, to increase patient, physician and staff comfort, while also helping to reduce the chance of medical errors and infection. HMC also wished to increase the efficiency of its systems in order to combat rising operational and energy costs.

Solution
Based on a longstanding relationship, Hardin Medical Center consulted with Trane regarding the needed upgrades. Trane provided an Energy Analyzer Report, benchmarking HMC against similar facilities. Hardin and Trane also completed an environment of care study to uncover building issues and identify ways to increase patient comfort, physician and staff satisfaction, and the bottom line. A computer model was created to simulate the effects of various energy conservation measures (ECMs).

HMC leaders used the energy modeling and physical environment study to determine the upgrades that would best meet their needs. The ECMs identified proved significant enough to cover the cost of a new HVAC system to provide reliable temperature and humidity control for the labor and delivery area. A Trane PACT™ (Performance Agreement for

Comfort from Trane) allowed the healthcare facility to leverage future energy and operational savings to finance the infrastructure improvements without upfront capital.

Increasing reliability and efficiency
To improve energy efficiency throughout the facility, an HVAC system was added to serve the labor and delivery area, and the boiler plant was replaced. The boiler plant consists of two domestic hot water boilers, two condensing boilers and one non-condensing boiler to provide the needed capacity and redundancy. Two 1000-gallon hot water storage tanks; a 50-ton nominal heat recovery chiller with chilled, heating and domestic hot water pumps; a double wall heat exchanger with a 500-gallon tank for domestic water preheat; hot water heaters and circulating pumps were also installed.
Providing a comfortable, healthy, relaxing environment
A Trane chilled water Performance Climate Changer™ air handling unit was installed on the low roof outside the labor and delivery operating rooms. Designed to address critical indoor air quality issues to improve comfort and aid in patient recovery, the air handler helps ensure optimal operating room temperatures and humidity levels, remove airborne contaminants and lower sound levels, providing a comfortable, healthy and relaxing indoor environment.

Saving energy, conserving resources
To reduce energy consumption, 2,135 lighting fixtures at HMC were replaced with new high efficiency T-8 lamps and ballasts; energy efficient, compact fluorescent lamps are now used instead of incandescent lamps; and exit signs were retrofitted with new LED signs. To conserve water, more than 350 fixtures were retrofitted with low flow plumbing systems, which meet or exceed the Energy Act water use requirements.

Managing energy, operations and comfort
The existing Tracer™ Summit direct digital control system was expanded to manage operation of the hot water system, the air handling unit on the labor and delivery wing, twelve variable air volume and two constant volume terminal units, as well as rooftop units serving the cafeteria, administration offices and conference room. The new digital controls enable precise management of the health care facility environment, while reducing energy and operational costs.

Hardin Medical Center facilities managers use Tracer™ ES, a web-based systems integration solution that provides an online, enterprise-wide view of all the medical center buildings and systems. With easy access from any PC or mobile device on the network, facilities managers are able to conveniently handle daily operations, such as scheduling, alarm management and troubleshooting. HMC also uses Tracer ES to monitor and control energy use, lighting and HVAC to improve efficiency and maintain optimal temperature, humidity and carbon dioxide levels.

Results
Administrators at Hardin Medical Center report that infrastructure improvements to the healthcare facility have reduced annual energy and operational costs by more than 30 percent, while increasing patient comfort and physician and staff satisfaction. The hospital also received an $11,500 rebate from the Tennessee Valley Authority (TVA) for reducing its load on the electrical grid.

“We’re pleased that we can provide a more comfortable environment for patients and a more satisfying workplace for physicians and staff,” said Nick Lewis, chief executive officer at Hardin Medical Center. “It’s even better that the improvements generate significant energy and operational savings each year, and that we were able to fund them through a performance contract without any capital outlay.”

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