

Bristol Hospital

CASE STUDY



Challenge

Bristol Hospital sought to upgrade its aging infrastructure to improve comfort, increase efficiency of its operation, and combat high energy costs. With limited capital available, the hospital was challenged to initiate needed improvements, including replacement of its fifty-year-old air handlers. Infrastructure upgrades had been postponed to address other priorities.

Solution

Having worked with Bristol Hospital on a variety of turnkey projects, Trane was familiar with the organization and its challenges. Based on this experience, the hospital engaged the company as their strategic partner for a comprehensive upgrade project. Working together, the hospital and Trane began by identifying areas of critical need to uncover opportunities to improve operations, save energy, and maximize utility incentives.

Investigating financing options

Trane initiated conversations with a bank mortgage lender regarding the hospital's financing needs. Bristol Hospital, Trane, and the lender evaluated the potential upgrade options to prioritize the measures that would best address infrastructure needs and enable the hospital to apply savings, resulting from the upgrades, to help pay for other needed improvements. The bank mortgage lender also proposed a unique financing option that would allow the hospital to move forward with the project, while adhering to its tight budget parameters. "Rather than providing a typical loan, the lender outlined an equipment lease agreement," said Kurt Barwis, president and CEO, Bristol Hospital. "That gave us the option to lease the equipment for our immediate use and purchase it at a later date."

Implementing upgrades without interruption

Frequent and effective communication with the hospital and subcontractors was key as Trane moved ahead with upgrades at the living, working hospital. Coordinating and scheduling, Trane carefully engineered and executed the demolition, installation, and change-over process to replace air handlers and rooftops that served patient areas and critical operations of the hospital. Cognizant of the fact that the air handlers were located above the maternity ward, Trane replaced the five air handlers one at a time, alternating demolition of the old units with cross-over connections to the new equipment, ensuring no interruption to the 24/7 operation.

"We had a lot of aging equipment; it was time to do something."

- Tom Roche, Construction Director, Bristol Hospital

Bristol Hospital Bristol, CT

PROJECT HIGHLIGHTS

CHALLENGE

- Aging infrastructure
- High energy costs
- Limited available capital

SOLUTION

- Unique financing
- Performance Climate Changer™ air-handlers
- Horizon™ Dedicated Outdoor Air Systems
- LED lighting retrofit
- Building envelope upgrades
- Water conservation

RESULTS

- More than 20% utility cost savings
- \$454,888 annual energy and non-energy savings
- \$1.1M utility incentive



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Improving air quality and efficiency

Trane selected Performance Climate Change™ units to replace the hospital's aging air handlers, located in a congested, fifth floor mechanical room. Trane® Horizon™ Dedicated Outdoor Air Systems were chosen to condition and dehumidify 100 percent outdoor air year-round. The updated, resized equipment is helping to increase efficiency and comfort, while reducing maintenance costs. In addition, with the new air handlers running at 50 percent speed of the old ones, noise levels for the maternity ward and throughout the hospital have been reduced. "With our old inefficient equipment, there was a lack of humidity and temperature control," said Roche. "Plus, the air handlers were so noisy that you couldn't talk to anyone when you were near them."

Reducing energy and water consumption

To further reduce energy consumption, lighting fixtures throughout the hospital and in parking lots were retrofitted with LEDs. Building envelope upgrades included reinsulating of the roof and windows, adding door sweeps, and installing steam traps and pipe insulation. In addition, Trane identified areas for improvement and worked with the hospital's energy management system provider to expand and modernize their controls system.

Water efficiency was important to the hospital, as well as the City of Bristol, which at times experienced water supply issues. To reduce consumption, sterilizers were replaced with more water-efficient equipment and low-flow fixtures were installed. Trane's exceptional communications again enabled a smooth transition, with installation of the fixtures occurring in occupied rooms of the busy hospital, while patients rested in their beds.

Results

Working together, Trane and Bristol Hospital implemented infrastructure upgrades to optimize operations, lower energy costs, provide better patient and staff comfort, and reduce equipment noise levels.

In addition, new LED fixtures have improved lighting levels throughout the hospital, providing better illumination where needed and soft lighting where appropriate. A tighter building envelope has helped reduce leakage and downsized air handlers have enabled the hospital to take advantage of additional floor space. Replacing the aging equipment has helped eliminate the hospital's potential risk of having to relocate patients in the event of equipment failure. The reduction in water usage is also benefiting the drought-prone City of Bristol.

"We have fewer hot/cold complaints, and rather than spending time replacing light bulbs and doing continuous maintenance, our facilities staff now has time to address other issues," said Roche. "But, the best part of the project was that the team talked to leadership, to physicians, to the nursing staff upfront. They bought into what we were doing and worked with us. They all wanted to make the planet better."

"Trane's effective communication was definitely key. There were a lot of moving parts, a lot of opportunity to improve our operations and reduce costs. But our number one priority was the care and comfort of our patients. Trane helped us achieve our objectives."

- Kurt Barwis, President & CEO, Bristol Hospital

The upgrades have resulted in an overall utility cost savings of more than 20%, which includes approximately:

1.7 million kWh of electricity

130,000 CCF of natural gas

3.1 million gallons of water saved a year

Total energy and non-energy savings amounts to \$454,888 per year. Utility incentives were approximately \$1.1 million.



About Bristol Hospital

Founded in 1921, Bristol Hospital has earned national recognition for its commitment to providing outstanding patient care.

The hospital has 154 licensed beds and offers a complete range of patient services, including a first-rate emergency center that cares for more than 40,000 patients each year.

The medical facility is home to the Bristol Hospital Sleep Center, and the Center for Orthopedic and Spine Health. Bristol Hospital also has a 50,000 sq. ft. state-of-the-art surgical center; a family-centered, single-room-model maternity unit; an award-winning ICU; behavioral health services; and an advanced diagnostic imaging department.



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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