



Advanced Reliability, Savings, and Guest Comfort at the Sheraton–Raleigh Hotel

The Sheraton–Raleigh Hotel plays an important role in hosting the more than 16 million people who visit the City each year. Located in the heart of downtown Raleigh, the Sheraton's 90,000 square feet of space includes 353 well-appointed guest rooms and 18 event rooms for conferences, banquets, weddings, and other gatherings.

Challenge

The Sheraton has a top-notch facilities team that works hard to ensure the comfort of hotel guests. So when environmental comfort issues began to occur, they knew corrective action was needed. "Our rooms were experiencing temperature and humidity control problems," explains Todd Lowe, Director of Engineering for the hotel, "which was leading to guest discomfort and unfavorable reviews online."

The hotel turned to Brady for help identifying and solving the environmental system insufficiencies at the facility. They were also interested in improving their energy efficiency throughout the hotel. Brady recommended a comprehensive equipment assessment and energy audit of the facility as the logical first step

Solution

Brady set to work establishing a baseline for the facility by completing an equipment inventory and condition assessment, identifying runtime hours and operations that were deviating from the design intent, and compiling historic energy use data. The inventory included the chilled and hot water systems, air handlers, guest room fan coil units, lighting, laundry, coolers and freezers, and building automation systems.

"We have not needed the backup chiller and have not had any downtime thanks to the recommissioning."

*Todd Lowe,
Director of Engineering*

The inventory identified components that were reaching their end-of-service points, systems operating outside their design specifications or otherwise inefficiently, outdated controls that were less than effective, and other operational problems



and inefficiencies. The equipment and energy use data was used to build a baseline energy model utilizing the Trane® TRACE™ 700 program. TRACE™ 700 is an award-winning design-and-analysis software program that enables optimization of the design of a building's HVAC system based on energy utilization and lifecycle costs.

The baseline model was then calibrated to historic energy consumption for the facility. The facility-specific model was used to compare the energy and financial impacts of changes being considered, such as new HVAC equipment and operating parameters, installation of energy efficient lighting, changes in space use within the hotel, and others.

Using the model to evaluate different alternatives, Brady worked with the Sheraton ownership and facilities teams to design a Phase I scope of work that would dovetail with the hotel's operations and financial plan. The design and scope of work completed by Brady included:

- Replacement of two aging boilers used for comfort heating with three high-efficiency boilers and inline primary pumps
- Replacement of four aging domestic water heaters with two condensing domestic water heaters and associated circulating pumps
- Replacement of a 35-year-old, 300-ton backup chiller with a new 450-ton Trane® CVHE centrifugal chiller
- Modification of chilled and condenser water piping for parallel operation of chillers

Results

The retrofitting completed at the Sheraton–Raleigh has improved guest comfort, enhanced HVAC system reliability, and decreased energy consumption—all of which were top priorities for the hotel.

Mr. Lowe reports that guest comfort is much improved thanks to the building-wide HVAC retrofitting and guest room FCU upgrades. They now have a new primary chiller and a reliable backup chiller, although as Lowe explains, “we have not

needed the backup chiller and have not had any downtime thanks to the recommissioning.”

The hotel received utility rebates for the retrofitting which offset a substantial portion of the project costs. Energy savings from ongoing operations contribute even more cost savings. “Now it's actually fun to write and present my monthly reports to the ownership team” says Lowe, who receives kudos for the savings being realized on the facilities side of operations! The energy efficiency of the retrofitted systems also makes the Sheraton–Raleigh stand out in sustainability advancement among the hotel ownership's portfolio of properties.

