

# Hyatt Regency Princeton

## Central Plant Equipment Replacement



### Facility

323,900 square foot hotel

### Construction Cost

\$1.3 million

### Project

Hyatt Regency Princeton is a 348 room hotel located in Princeton, NJ. The purpose of the project was to replace the hotel's aging central plant equipment, including chillers, heating boilers and domestic hot water heaters. A secondary goal was to improve the energy efficiency of the systems.

- Construction was phased over a six month period from October 2012 through March 2013. This allowed the work to be completed without impacting service delivery or guest comfort.
- The chilled water plant upgrade consisted of the installation of two 325 ton centrifugal chillers and chilled water pumps. Equipment was selected based on a life cycle cost analysis which considered first cost, refrigeration energy, pump energy and maintenance costs. Features of the system include:
  - Variable speed chillers with an NPLV rating of 0.393 kW/ton
  - Conversion to variable primary chilled water pumping
  - Chilled and condenser water temperature reset
  - Continuous calculation of plant operating efficiency (plant kW/ton tracked hourly, daily, weekly and monthly)
- The heating boiler plant upgrade consisted of the installation of two high efficiency condensing boilers with stainless steel heat exchangers, modulating burners and an efficiency as high as 95%.
- The domestic hot water plant upgrade consisted of the installation of three high efficiency condensing boilers with stainless steel heat exchangers and modulating burners and an efficiency as high as 98% along with four insulated hot water storage tanks.
- The hotel's existing building automation system was outdated and could not support the new central plant equipment. A new vendor was utilized to install a building automation system to control the central plant equipment. Cost savings of over \$100,000 were realized compared to upgrading the existing building automation system.
- Gas savings of approximately 20% of the hotel's total usage have been realized through the first 4 months of operation of the new high efficiency heating boilers and water heaters.
- Electric savings of approximately 12% of the hotel's total usage have been realized through the first 3 months of operation of the new chilled water plant.
- The hotel was awarded approximately \$55,000 in incentives from the local utility due to the energy efficiency measures incorporated in the design of the new systems.
- Key contributors include:
  - Davidson Hotels and Resorts
  - Hyatt Regency Princeton Engineering Department
  - PJM Mechanical
  - Jersey State Controls
  - New Jersey's Clean Energy Program

