

SHOWCASE PROJECT: GENERAL SERVICES ADMINISTRATION (GSA): HOTEL MONACO

SOLUTION OVERVIEW

Originally completed in 1842 and once serving as the US General Post Office, the Hotel Monaco is GSA-owned and designated as an historic property. All work associated with the energy and water efficiency improvements in the 196,800 square foot building were required to meet the GSA's requirements for mechanical design, NAFTA compliance, and historic preservation. This not only increased the cost for many of the upgrades, but added layers of approval and paperwork to each step of the process.

Additionally, all front-of-house lighting, water fixtures, and comfort equipment had to meet the discerning requirements of hotel management. When it came time to implement the upgrades, all work was performed without interrupting hotel operations. Because hotels are 24/7 operations, the work had to remain relatively quiet and utility shut-downs lengths had to be kept to a minimum to avoid damaging the hotel's reputation.

Given all the complexities of the project, annual energy savings of 28%, annual energy cost savings of \$447,000, annual water savings of 41% and annual water cost savings of \$37,000 were achieved, including opportunities to procure lower cost electric and gas supplies. At a cost of \$1.8 million, the project was initiated in July of 2011 and completed in October of 2012.

SECTOR TYPE

Local Government

LOCATION

Washington DC, District Of Columbia

PROJECT SIZE

196,800 square feet

FINANCIAL OVERVIEW

Project Cost \$1.8 million

SOLUTIONS

Hotel Monaco's mechanical systems, chiller and water fixtures suffered from both value engineering

during renovation and years of deferred maintenance. The team sought to identify all equipment and fixture upgrades whose conservative energy savings estimates would yield a simple payback of 5 years or less. The process began with an ASHRAE Level II assessment and a review of energy procurement opportunities by SOL VISTA, a building performance services and technology company that specializes in hospitality. Projects at or below threshold then moved into a scoping and bidding stage in order to validate the initial estimates.

Through a combination of competitive bidding, innovative design, advanced controls sequencing, and attention to hotel guest satisfaction considerations, the team compiled a comprehensive suite of impactful retrofit opportunities. Each component project was justified on its own merit for savings potential and its ability to support the guest experience expected of a high-end hotel.

As the Better Buildings Challenge showcase project, the following energy and water efficiency upgrades (including expected savings) were performed at the Hotel Monaco:

Energy Measures:

- MagLev Chiller Upgrade – 5%
- District Steam to Gas Boiler Conversion – 2%
- Building Automation System – 2%
- Attic AHU and Exhaust Fan Refurb – 7%
- Atrium AHU Upgrade – 1%
- Restaurant Chiller Water Repair – 8%
- Lighting Updates - Back of House – 7%
- Lighting Updates - Front of House – 2%
- Water Fixture Upgrades – 1%
- Chilled Water Pump VFDs – 1%
- Guestroom Thermostat Occupancy Sensors – 6%
- Cooling Tower Fan VFDs – 1%
- Kitchen Hood Controls – 2%

Water Measures:

- Kitchen water fixtures and sprayer nozzles
- Restaurant chiller water repair – reconfiguration of condenser water loop
- Water fixture upgrades – aerators in public and guest rooms
- Guestroom showerheads
- Cooling tower refurbishment

When a new energy incentive authority was formed in the District during the course of the work, the team applied for and received over \$100,000 in rebates for projects that had previously been excluded due to excessive payback length. Before this, no such body existed to incentivize the owner to take measures to reduce energy consumption.

OTHER BENEFITS

As per Ed Virtue, General Manager of the Hotel Monaco, “following the upgrades we made in energy efficiency, we started to see benefits as an additional bonus that we didn’t necessarily anticipate going in to the projects. For instance, complaints about inadequate guestroom lighting are down more than 5% from the same period last year. We have also seen an 11% reduction in room temperature complaints from our guestrooms. This follows a general trend of increased guest comfort and an improved employee experience as we gain better control of our energy management systems.”

As a result of the upgrade project, the Hotel Monaco received the DC Mayor's Sustainability Award Commercial Building Category – 2012.

Annual Energy Use

(Source EUI)

Baseline(2011)



Actual(2013)



Energy Savings

28%

Annual Energy Cost

Baseline(2011)



Actual(2013)



Cost Savings

\$447,000



Hotel exterior



Chiller replacement



Twin, dual-compressor Turbocor chillers



Hotel lobby