



Case Study

Washington Naval Yards Arlington, VA



PROJECT HIGHLIGHTS

Capital Costs

\$1,523,916

Annual Savings

\$392,008

Schedule Compliance

Completed on time

Budget Compliance

Completed within budget

Contact:

David Capozzoli
Utilities & Energy Product Line
Coordinator
NAVFAC Washington
1314 Harwood Street, Bldg. 212
Washington Navy Yard, DC 20374
Phone: 202.685.8600
Email: david.capozzoli@navy.mil

PROJECT DESCRIPTION: Lighting/HVAC

The Washington Naval Yards, located in Arlington, VA, consists of a number of different types of buildings, including office space, training facilities, recreational areas, and residential areas. This project covered nine buildings totaling 1,308,216 square feet, including upgrades on the “Barry” (circa 1956–1982), a historic naval destroyer that was used during the Cuban Missile Crisis and the Vietnam War. It is docked at the yards and is now operating as a museum.

PROJECT SCOPE

ConEdison Solutions provided continuous energy analysis, cost analysis, facility auditing, engineering design and construction measures, and measurement and verification of project savings. Building-wide energy management control systems for scheduling lights in open common areas were installed. Runtime of the lighting fixtures was reduced through the installation of occupancy sensors, saving energy and lowering costs.

Building controls and control systems were upgraded. Control improvements included: a demand ventilation control which used the CO₂ sensors, using enthalpy control sequences to provide cooling, moving outdoor air temperature sensor controlling chillers to a more efficient location, optimizing the chiller system, optimizing the chiller system and the three way valves involved in the hot water reset, and optimizing the set point for static pressure in the air handlers

Two chillers, a York and a Trane, which provide cooling for five of the buildings were examined and a few measures were done to improve the effectiveness of the chillers. Some adjustments were also made to the cooling towers. A computerized system that monitors scale development and other problems was installed to improve water treatment.

ENERGY CONSERVATION MEASURES

Lighting upgrade

Installed energy efficient lighting measures like LED exit signs and replaced downlight fixtures with compact fluorescent bulbs

Building Controls

- Installed CO₂ and relative humidity sensors to help determine the amount of ventilation provided
- Improved performance of controls for air handler fans, heating and cooling systems and variable air volume (VAV) boxes by programming them to operate during times of occupation, providing heating/cooling to areas prior to occupation, adjusting temperature points during unoccupied times, and by maintaining air handler supply air discharge temperature or adjusting it based on the warmest zone.

Heating Ventilation and Air Conditioning

Installed supply and return dampers on air handler units and DDC VAV controllers for the VAV boxes

Chiller replacement

- Installed a variable speed drive on the York chiller
- Developed an improved water treatment program reducing the risk of Legionella, microbiological growth and to eliminate scale formation
- Upgraded Siemens control system minimizing water over flow