



## U.S. Coast Guard Integrated Strategic Command (2005)

### Energy Savings Performance Contract (ESPC)



The United States Coast Guard (USCG) operates an Integrated Support Command (“USCG ISC”) in the North End of Boston, Massachusetts and needed to upgrade the bases’ facilities to achieve a higher energy efficiency level with a trustworthy, tested and qualified “partner.” This highly-secure, mission-critical facility is a multi-building campus comprised of offices, berthing areas for servicemen, boat maintenance facilities including sandblasting and painting operations, and recreational facilities.

Con Edison Solutions helped the Coast Guard achieve more energy-efficient heating and cooling of the buildings. The water-cooled centrifugal chillers installed to replace the DX cooling units help to reduce cooling costs by approximately 75%. This installation was done during normal business hours without disturbing the building occupants. Lighting fixtures were upgraded for improved energy efficiency. Inconsistency in water heating was addressed through the installation of three, more efficient DHW boilers. To centralize the monitoring and control of energy, remote control of all air handling and cooling units was established.



#### PROJECT DATA

##### LOCATION

Boston, MA

##### CONSTRUCTION DATES

Completed on time

##### CAPITAL COSTS

\$5,755,000

##### ANNUAL SAVINGS

\$369,661

##### ENVIRONMENTAL BENEFITS

2,933.49 tons of harmful greenhouse gas emissions reduced annually

Equivalent to:

- Preserving 19.7 acres of forest from deforestation\* or
- Conserving 5,627 barrels of oil\*

\*Sources:

- Leonardo Academy’s Cleaner & Greener<sup>SM</sup> Emissions Reduction Calculator: <http://www.cleanerandgreener.org/resources/pollutioncalculator.html>
- U.S. Environmental Protection Agency, Greenhouse Gas Equivalencies Calculator: <http://www.epa.gov/cleanenergy/energy-resources/calculator.html>

The Coast Guard's boat grit-blasting room was retrofitted with updated makeup air systems, exhaust systems, and heating systems to reduce energy use during non-production hours, and increase energy efficiency during grit-blasting and painting operations. The winter-cooling air handlers were upgraded to allow free cooling during winter operations. The compressed air systems were upgraded with improved controls, heat recovery for space heating, better compressed air storage and distribution, and leak repairs.

Con Edison Solutions provided all the energy savings performance contracting services to the USCG ISC under the Department of Energy's Super-ESPC Contract.



## PROJECT DATA

### Energy Conservation Measures

#### Lighting Upgrade

- Installed occupancy sensors in offices and common areas
- Converted incandescent exit signs to LED
- Installed T-8 lamps and electronic ballasts

#### Multi-building Central Chilled Water Cooling System

- Installed a high-efficiency central plant sized for four of the major buildings
- Installed a chilled water distribution system throughout the four buildings

#### High-efficiency Condensing Domestic Hot Water (DHW) Boilers

- Installed three innovative condensing DHW boilers
- Re-piped the entire DHW system eliminating the need to operate existing large boilers

#### Energy Management and Control System (ECMS)

- Installed a remote control system for all air handling and cooling units
- Replaced local thermostats with temperature sensors and enable/disable controls

#### Air Distribution Systems

- Installed new variable air volume dampers and updated controls for improved energy savings

#### Compressed Air System

#### Winter-Cooling Air Handling Unit Upgrades