

GreenGov Presidential Awards 2010 Nominations

Deadline: July 29, 2010

Review & Submit Nomination

Nomination Date
07/29/2010

a. Project Description

In May 2009 a new Bachelor Enlisted Quarters, the Charles Luke Milam Bachelor Housing, became operational at Naval Station Everett (NSE) located in Everett, Washington. (Please see Figure 1 at this website:

https://portal.navfac.navy.mil/portal/page/portal/navfac/navfac_ww_pp/navfac_efanw_pp/tab33522/tab34368/nse_greenov_appendix_photos.pdf) The building has achieved Leadership in Energy and Environmental Design (LEED) Gold certification and is the first Navy building in the US to achieve that designation, the third for the Navy worldwide. The building is named after the late Hospital Corpsman Petty Officer 2nd Class Milam, a Special Amphibious Reconnaissance Corpsman killed in action September 25th, 2007, in Afghanistan. The lobby is a memorial to the life and character of HM2 Milam, exhibiting personal effects and memorabilia that testify to the courage, honor, and commitment of US war fighters. (Please see Figure 2 at this website: https://portal.navfac.navy.mil/portal/page/portal/navfac/navfac_ww_pp/navfac_efanw_pp/tab33522/tab34368/nse_greenov_appendix_photos.pdf)

The building was designed to be a comfortable offship home for homeported sailors, while incorporating environmental, water, and energy sustainability into its design and construction. The building consists of six stories, occupies 161,600 sq.ft., and contains 128 two-bedroom, 2 bathroom apartments, with a maximum capacity of 504 service members. Amenities include a washer/dryer combination and a full kitchen in every apartment.

The project was awarded on 30 March 2007 for \$61 million as a design-build project to Hoffman Construction Company of Washington. Hoffman teamed up with Belay Architecture as the lead designer. The NAVFAC project construction administration team was assembled from staff from NAVFAC NW - Public Works Everett Facilities Engineering Department. The first design phase was completed in July 2007 with foundation construction starting in August 2007. The design team also included a LEED AP professional who supervised compliance with energy and water efficiency and sustainability standards for LEED Gold from conception.

Throughout the contract performance period, from March 2007 to acceptance in April 2009, the construction contractor and the design team worked to ensure that the facility achieved LEED Gold status for the new building. The commitment of the contractor to obtaining LEED certification can be seen in its willingness to hire a LEED consulting firm at no additional markup to the original contract. While programmed to achieve a LEED Certified rating, the project ultimately received LEED Gold Certification after

earning all 45 of the credits applied for under the LEED for New Construction v2.2 rating system.

During construction, over 98 percent of the waste generated on site was diverted from disposal in landfills. This was achieved by partnering with the Naval Station Everett (NSE) Public Works Department to provide on-site recycling for metal, brick, concrete, plastic, wood, glass, and other construction materials. This created a mutually beneficial enterprise as the contractor was relieved of the refuse disposal cost and the Navy was able to recapitalize revenue from the recycled products. Other excess materials were donated to local charitable organizations or salvaged for use in other projects. Favorable siting, the use of recyclable materials, and advanced landscaping techniques minimized the impact of construction and the finished building on the environment. In order to reduce air pollution related to transportation, the building was located within walking distance to more than 20 different basic services, including stops for three different bus routes.

The following are specific methods and technologies employed in the facility to optimize energy efficiency: daylighting enhancement, lighting controls, condensing boilers, preferential free cooling with outside air, exhaust air waste heat recovery, variable speed drives to control fan and water pump motors, and enhanced commissioning to ensure the optimal performance of HVAC equipment and systems. An advanced direct digital control (DDC) system controls the HVAC systems in the building for sustainable energy efficiency.

Transportation Fleet.

In 2009, NAVFAC Northwest issued an instruction to provide goals for conversion of installation transportation fleets in the region to alternative fuels. NSE has long been committed to acquiring alternative fuel vehicles and expanding its alternative fuel infrastructure. As early as 1999, NSE began the process of replacing its light transportation needs with all-electric vehicles. Additionally, NSE and NAVFAC Northwest partnered with the Naval Facilities Engineering Service Center to construct a 5,000-gallon ethanol fuel aboveground storage tank (AST) at NSE. The ribbon cutting ceremony for the finished project occurred on 24 April 2009, and pumping of E85 gas commenced in May 2009.

b. Project Results & Achievements

BEQ IV, in operation for over year, is saving energy, and utility costs. The new facility is realizing energy reductions of 28 percent below the baseline building performance standards set by state and federal laws, resulting in a savings of 727.6 metric tons of CO₂ per year in greenhouse gas emissions. The building is projected to save 2,550 MBTU per year in combined electricity and natural gas consumption avoidance, \$37,000 per year in energy utility costs and \$6,642 per year in water and sewer costs. As regards renewable energy, the building is primarily powered by clean energy with over 2 million kilowatt hours or 70 percent of the building's electricity for the next two years coming from renewable energy sources. Thus far the energy use intensity [(BTU)/(sq.ft.-yr)] is half that of the other three Bachelor Enlisted Quarters (BEQ) at Naval Station Everett.

At the end of FY 2009, 100 percent of NSE's light transportation needs were served by 39 all-electric vehicles. During FY 2009, NSE acquired ten E85 (85 percent ethanol) passenger/utility vehicles and 15 electric vehicles. As of the end of FY 2009, 100 percent of NSE's Navy-owned civil engineering support equipment (CESE) uses B20 biodiesel fuel and over 80 percent of NSE's gasoline powered fleet (greater than 93 GSA-leased vehicles) operates exclusively on E85 fuel. The new ethanol tank along with the existing 4,000-gallon B20 biodiesel AST enabled NSE to increase its alternative fuel usage by 11,778 gallons per year. As the result of these efforts, NSE has essentially converted its entire transportation fleet to alternative fuels, and has far surpassed NAVFAC Northwest goals for alternative fuel use. (Please see Table 1 at this website:

https://portal.navy.mil/portal/page/portal/navfac/navfac_ww_pp/navfac_efanw_pp/tab33522/tab34368/nse_greenov_appendix_photos.pdf)

It is also important to note that because the NS Everett NEX has installed and made readily available E85 alternative fuel with a 20% lower price than comparable petroleum products, more military-associated consumers will be encouraged to buy vehicles capable of using ethanol as an alternative fuel. (Please see Figure 3 at this website:

https://portal.navy.mil/portal/page/portal/navfac/navfac_ww_pp/navfac_efanw_pp/tab33522/tab34368/nse_greenov_appendix_photos.pdf)

Both of these projects are part of a long range plan for Naval Station Everett to achieve net-zero carbon emissions. There is a close collaboration between FEAD, Public Works, and the base maintenance shops that seeks to design and implement projects to create sustainability in energy and water consumption base wide. Improvements in existing building energy efficiency, the installment of small scale photovoltaic projects, enhancements in wasted recycling, the adoption of alternative and renewable fuel sources, and the design and construction of new energy and water efficient buildings are all part of the ongoing effort to reduce energy and water consumption at Naval Station Everett.

c. Project Replication History/Potential

The design and construction of the new LEED Gold BEQ provides a pattern for all new building design and construction at NS Everett. Construction of a new Fleet Region Readiness Center at NSE was completed in March 2010, and LEED Gold certification for this building is being pursued. If successful, this building will become the Navy's fourth building to be certified LEED Gold. Moreover, new buildings at other regional installations are being designed and constructed to meet LEED Gold standards. At NSE, the energy management program works closely with the Public Works Everett Facilities Engineering Department and maintenance staff to ensure that energy efficiency is incorporated into base building design, construction, operations, and maintenance. As the result of the Navy's need and requirement for energy and water efficiency, operations to improve the efficiency of new and existing buildings and transportation infrastructure are institutionalized into all facilities and installations. NSE's leading role in the implementation of alternative fuels has paved the way for other naval bases in the region. NSE's innovation and expertise in alternative fuels has supplied the technical basis for a similar E85 storage system at Naval Base Kitsap.

In seeking guidance for more efficient design engineering, design personnel from Naval Station Everett serve as mentors and trainers to advise personnel at Naval Base Kitsap in design and contracting techniques. It is hoped that these types of interactions will result in more sustainable design and construction practices throughout Navy Region Northwest.