



Information Fact Sheet: Sustainable Design & Construction

FORT BELVOIR



SUSTAINABILITY AT FORT BELVOIR

In January 2006, the Department of the Army issued an update to its Sustainable Design and Development Policy that announced a transition to the use of the U.S. Green Building Council's Leadership in Energy & Environmental Design (LEED®) Green Building Rating System™. The policy requires all vertical building projects in the Army's military construction program that are climate-controlled (except for Army Family Housing projects) to achieve enough points to reach the Silver level of the LEED for New Construction and Major Renovations (LEED-NC) rating system, starting with the 2008 fiscal year program. Although a project delivery team may seek independent, third-party certification through the Green Building Certification Institute, the Army does not require certification.

The Base Realignment and Closure Act of 2005 (BRAC) projects that are being constructed on Fort Belvoir property in Virginia are utilizing LEED-NC version 2.2, which measures projects on a 69-point scale and includes four possible certification levels -- Certified (26-32 points), Silver (33-38 points), Gold (39-51 points), and Platinum (52-69 points). Points are assigned on the basis of whether a project achieves specified credits within six categories, including Sustainable Sites, Water Efficiency, Energy & Atmosphere, Materials & Resources, Indoor Environmental Quality, and Innovation & Design Process. The BRAC projects are being managed by the U.S. Army Corps of Engineers (USACE).

FORT BELVOIR COMMUNITY HOSPITAL

USACE, Norfolk District

A new, state-of-the-art community hospital is being constructed on Fort Belvoir's Main Post. Evidence-based design will meet patient-family centered care in a culture of excellence at this premiere military medical facility. The 1.275 million square foot hospital complex will include 120 inpatient beds and capacity for the delivery of comprehensive healthcare services.

The complex is being designed and constructed to achieve 37 points and meet LEED Silver certification. Compared to a typical hospital, the Fort Belvoir Community Hospital will consume approximately 30% less energy through the use of a multistack heat recovery chiller system for reheating, high efficiency variable speed drive chillers, variable air volume devices, an energy efficient lighting design that includes daylight harvesting, and a rainscreen system. Several strategies will be employed to reduce water consumption, including the use of a rainwater and condensate collection system, which will direct water from the swooped roofs to two underground cisterns that will hold a combined total volume of 160,000 gallons. The water will be reused to irrigate the on-site landscaping.



Rendering courtesy of the U.S. Army

The Fort Belvoir Community Hospital's swooped roofs were designed to collect rainwater and condensate, which will be used to irrigate the on-site landscaping.

A majority of the construction waste from the project is being recycled. To date, approximately 90% of the construction debris, including concrete, wood, cardboard, paper, and drywall, has been diverted from disposal in landfills and incinerators to recycling facilities. A strong emphasis is also being placed on indoor environmental quality. Several features, including the use of ultraviolet technology, carbon dioxide monitoring, high-efficiency particulate arresting filtration, individual lighting and thermal controls, low volatile organic compound materials and furniture, and green cleaning procedures will promote health and comfort for patients, families, and staff.

BASE REALIGNMENT AND CLOSURE ACT OF 2005

The implementation of the Base Realignment and Closure Act of 2005 at Fort Belvoir includes 20 separate projects with a total of nearly 6.3 million square feet of building space, 7 million square feet of parking structures and areas, and an overall construction cost of approximately \$4 billion. The renovation of existing facilities and construction of new facilities are well under way to support a net gain of approximately 19,300 military and civilian employees at Fort Belvoir. The law requires implementation of the BRAC Commission's decisions by Sept. 15, 2011.

NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY CAMPUS EAST, USACE, Baltimore District



Photo by Marc Barnes, USACE

The two wings of the NGA Campus East's main office building will be connected by a 50,000 square foot central atrium, which will be covered by an ETFE skylight.

The National Geospatial-Intelligence Agency (NGA) Campus East project is being constructed in the Fort Belvoir North Area. The 2.4 million square foot facility will include a main office building, technology center, central utility plant, visitor control center, and remote inspection facility.

At this time, the project is on track to achieve 38 points and officials intend to seek LEED Silver certification, which would make it the largest LEED-certified federal facility in the country. The project includes innovative technologies, such as the use of a chilled beam heating and cooling system and an Ethylene Tetrafluoroethylene (ETFE) transparent roofing system, which will reduce the amount of energy consumed. Other energy efficient and environmentally responsible strategies include the collection and reuse of stormwater runoff for irrigation, which will reduce the amount of water consumed, as well as the incorporation of sustainable materials, vegetative or green roofs, and water-efficient landscaping.

BRAC 133 PROJECT, DOD OFFICE COMPLEX, USACE, New York District

A 1.8 million square foot facility is being constructed at the Mark Center in Alexandria, Va., for Department of Defense (DoD) personnel who currently occupy leased space elsewhere in the National Capital Region. The facility will include two multi-story office towers, a public transportation center, and ancillary facilities.

Although the application of stringent antiterrorism/force protection requirements presented certain challenges relative to the integration of green building measures, the project intends to achieve 43 points and meet LEED Gold certification. Upon completion, the facility will consume approximately 30% less energy and 50% less water than a traditional building of the same size. In addition to energy efficiency and water savings, certain measures related to indoor environmental quality and sustainable site design are also being incorporated. Examples of the strategies include the use of light-emitting diode and fluorescent lighting, which are more energy efficient than typical lighting, the installation of green roofs, which will provide insulation and help alleviate the heat island effect, and a green screen. The use of low-flow plumbing fixtures and drought tolerant native plants, as well as the absence of landscape irrigation, will help promote water efficiency.



Rendering courtesy of the U.S. Army

The BRAC 133 project's north parking structure will include a green screen.

JOINT-USE INTELLIGENCE ANALYSIS FACILITY, USACE, Norfolk District



Photo by Marc Barnes, USACE

The Joint-Use Intelligence Analysis Facility project is currently tracking 38 points, three points above the LEED Silver certification level.

A 170,500 square foot facility in Charlottesville, Va., will provide enhanced capabilities to the Defense Intelligence Agency and its partners in the intelligence community. The Joint-Use Intelligence Analysis Facility is a sensitive compartmented information facility that includes a new access control point and visitor center.

The current LEED assessment indicates that the project is tracking 38 points, three points above the LEED Silver certification level. Green building strategies incorporated in the design and construction of the project include the reduction of wastewater, optimization of energy performance, and recycling of virtually all construction waste. Examples of some of the measures taken under the LEED envelope include the application of dense spray-on foam applications to the exterior structural walls and wall panels to provide a better infiltration, thermal, and moisture barrier protection to the building envelope, and the "no mowing" planting of wildflowers over extensive areas of the grounds that would normally have been turf. Each of these measures will save consumable energy and enhance overall sustainability and maintainability.

MISSILE DEFENSE AGENCY, USACE, Baltimore District

A 99,000 square foot Headquarters Command Center is being constructed for the Missile Defense Agency on Fort Belvoir's South Post. The project is currently tracking 35 points and intends to pursue LEED Silver certification. Some of the methods for achieving the credits include the installation of an underground stormwater retention system, the provision of 12 parking spaces for low emitting and fuel efficient vehicles, and the diversion of approximately 86% of construction waste from landfills. The site will not contain a permanent irrigation system. The current energy model shows 14% energy savings and the project aims to reduce water use by 30%.



Photo by Marc Barnes, USACE

The Missile Defense Agency project site includes an underground stormwater retention system.

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