

Design **saves \$350,000/year** which equates to **14.6% below** ASHRAE baseline

Building integrated stormwater system will capture **160,000 gallons**
of reusable irrigation water

SUSTAINABLE HEALTHCARE



Community Hospital at Fort Belvoir

Fort Belvoir, Virginia

Cost:

Hospital - \$649 million

Dental Clinic - \$19 million

NARMC Building - \$17.5 million

Square Footage:

Hospital - 1,270,000 SF

Dental Clinic - 23,000 SF

NARMC Building - 50,000 SF

Responsibility: Full AE Services, Sustainable Design

Building Components: 120 Inpatient Beds, 536,000 SF Clinical Space, Heliport, Ambulance Shelter, Two Parking Garages with 3,500 Spaces, Dental Clinic and NARMC

The Army Corps of Engineers, in conjunction with the US Health Facility Planning Agency (HFPA), Tri Care Management Agency (TMA) and Medical Facilities Center of Expertise, selected HDR to design the new Tri-Service Community Hospital at Fort Belvoir. The new 1.27 million SF hospital complex at Fort Belvoir is envisioned as a world-class medical facility and will become the premier military community hospital in the country. In keeping with the Army Corps of Engineers commitment to sustainability, energy efficiency was of the utmost importance in the facility design.

Solutions

- The lighting design optimizes the use of efficient fixtures and straightforward control measure that both enhance the controllability of lighting and reduce energy use. Lighting controls will be used throughout the interiors as are occupancy sensors.
- Photocells are used where light fixtures are adjacent to windows in public space, ensuring that they are off during daylight hours in rooms with windows to harvest natural light.
- Public spaces are designed on a central low voltage control system to automatically sweep off lighting in buildings during non-business hours, such as the clinics.
- A rainscreen system will be used to reduce thermal bridging and to increase the insulation effectiveness in the exterior walls. Using this system will improve the wall's R Value, reducing energy consumption.
- High efficiency variable speed drive chillers reduce energy consumption.
- Multistack heat recovery chiller systems used for reheating

Results

A whole building energy model, comprehensive energy analysis, and assessment of building systems and configuration has been performed for the hospital. The current design saves approximately \$349,494/year (14.6%) when compared to the ASHRAE Performance Rating Baseline. The design saves approximately 23,337 MBtu (25.0%).



Courtyards between the outpatient facilities emphasize stormwater treatment and the collection of rainwater for later use. Rain barrels funnel and capture water running off the roof, providing a visible manner in which hospital employees and patients can understand the beginning of the hydrological cycle. Two rain barrels and two underground cisterns per courtyard hold a combined total volume of approximately 160,000 gallons. This system will provide the majority of water needed for irrigation throughout the year.



HDR is committed to reducing our environmental impact through increased use of recycled post-consumer materials.

For additional information regarding HDR's Sustainable Solutions, visit www.hdrgreen.com.

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