

GREEN SECURITY

Joanne Hensley, LEED Green Associate,
US Army Corps of Engineers

Crystall Merlino, LEED AP
Washington Headquarters Services

June 14, 2010



®

US Army Corps of Engineers
BUILDING STRONG®



Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE 14 JUN 2010		2. REPORT TYPE		3. DATES COVERED 00-00-2010 to 00-00-2010	
4. TITLE AND SUBTITLE Green Security				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) U.S. Army Corps of Engineers, 441 G Street NW, Washington, DC, 20314-1000				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES Presented at the NDIA Environment, Energy Security & Sustainability (E2S2) Symposium & Exhibition held 14-17 June 2010 in Denver, CO.					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 12	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

Green Security

BRAC 133 at Mark Center

- Recommendation #133 of the 2005 Defense Base Closure and Realignment Commission Report called for the co-location of miscellaneous DoD, Defense Agency, and Field Activities currently located in leased facilities within the National Capital Region (NCR).
- The recommendation meets two important DoD objectives with regard to future use of leased space and enhanced security for DoD
 1. Eliminates leased administrative space within the NCR
 2. Locates these activities within a secure fence-line.



Green Security

Project goals:

1. Meet the BRAC Statutory deadline of September 15, 2011.
2. Support the mission, objectives and program requirements of the various Government agencies
3. The site, as developed, must satisfy the requirements for the threats and levels of protection (medium threat/medium level protection) in accordance with UFC 4-020-02FA by employing cost effective strategies and optimizing site development using the principles of Crime Prevention Through Environmental Design
4. Enable clear and easy access for authorized persons to every building and common amenity within the complex.
5. Establish a strong “campus-like” atmosphere by protecting and enhancing the natural environment and defining common open spaces that define the character of the Campus.
6. Incorporate a sustainable design that reduces the impact on the environment, reduces energy consumption, and creates savings over the life of the Campus. The Campus shall be required to achieve USGBC LEED Silver certification.
7. Efficiently design and construct the Campus and Buildings to allow for flexibility in meeting changing office configurations and technology requirements in the future.



BRAC 133 Site Plan



BRAC 133 Department of Defense · WHS · Mark Center
Mark Center · Alexandria, VA

LANDSCAPE DESIGN SITE PLAN

L1-03 R1
November 20, 2009



BUILDING STRONG®

Project Facts

- The Authority Having Jurisdiction (AHJ) for Security on this project was given to the Pentagon Force Protection Agency (PFPA) with involvement by Army.
- Registered under LEED version 2.2 and currently has targeted LEED Gold certification with 43 credits.



Project Facts

- Site has 2 access control points for screening vehicles and one a major pedestrian access control area to screen personnel and the main facility is surrounded by a tall security fence.
- The facility has minimum UFC required standoff and the shell of the facility is hardened, structure is designed for progressive collapse and the windows are blast resistant



BRAC 133 Department of Defense · WHS · Mark Center
Mark Center · Alexandria, VA

NORTH PARKING: AERIAL CAMPUS VIEW RENDERING

AO-11 R1
October 19, 2009



BUILDING STRONG®

Security Versus LEED

- **SS 4.2 Alternative Transportation, Bicycle Storage and Changing Rooms,** The original location of the bike racks was moved from inside the secure perimeter due to the congestion of the site, and also the 30 ft clear zone security requirement. We then had to ensure the path of travel was less than 200 yards. And that the shower facilities provided were close to the entrance inside.
- **SS-8 Light pollution reduction** was not feasible due to the higher exterior lighting requirements. The higher sight lighting required by security also hurt the energy budget.



Security Versus LEED

- **SS 7.1 Heat Island Effect –Nonroof.** LEED encourages the use of shade however, security wants a clear zone and low growing plantings for visibility.
- **Green Screen** added around the large parking structure that is outside the secure perimeter
- **ASHRAE 189.1** asks for buildings to be shaded up to 20 feet off the ground, but security concept has nothing within the setback clearances around buildings



BRAC 133 Department of Defense · WHS · Mark Center
Mark Center · Alexandria , VA

NORTH PARKING & TRANSPORTATION CENTER RENDERING

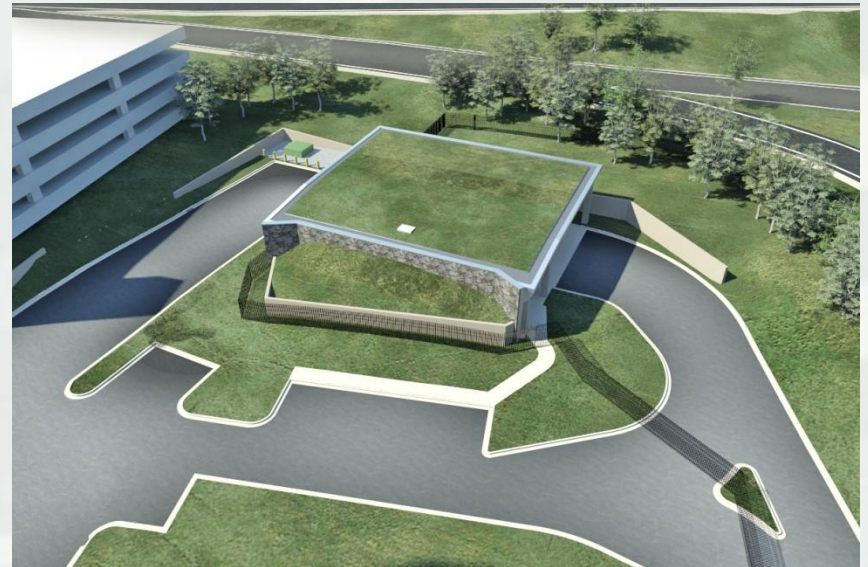
AO-09A R1
October 19, 2009



BUILDING STRONG®

Security Versus LEED

- **SS 7.2 Heat Island Effect Roof.**
LEED encourages the use of green roofs and we have green roofs in several locations, but these roofs are a security risk.
- **MR-1 Building Reuse not pursued.** It is very difficult to renovate an existing structure to comply with ATFP and UFC standards especially for progressive collapse



Security and the Energy Performance

- **Chemical/Biological/Radiation filter units are energy intensive due to high pressure drops and longer operating periods of time**
- **Mission Critical Requirements- Air cooled towers for the chiller plant could require approximately 250 gpm for large facilities, including evaporation and blow down, possibly resulting in large storage tanks. Air cooled option uses more energy per ton of cooling so this typically results in dual mission critical plants and added costs.**



Blast Resistance Contradictory to Energy Efficiency

- The blast resistant window frame allows 15% more heat transfer than a thermally broken aluminum frame.
- Steel doors with stronger frames have lower thermal values.
- Concrete mass buildings have different characteristics to lighter frame wall construction as a result, energy loss may occur at elements such as windows, personnel or roll up doors.
- The security requirement of floor to ceiling turnstiles, which added to the blast resistant doors reduced infiltration.



Future Buildings

- Buildings will be required to take advantage of
 - ▶ daylighting,
 - ▶ exterior light shelves/shading devices
 - ▶ double shell for energy reduction
- How will external components be viewed regarding progressive collapse design and external security views/obstructions?



BUILDING STRONG®