American Association of Port Authorities (AAPA) Biannual Harbors, Navigation, and Environmental Seminar

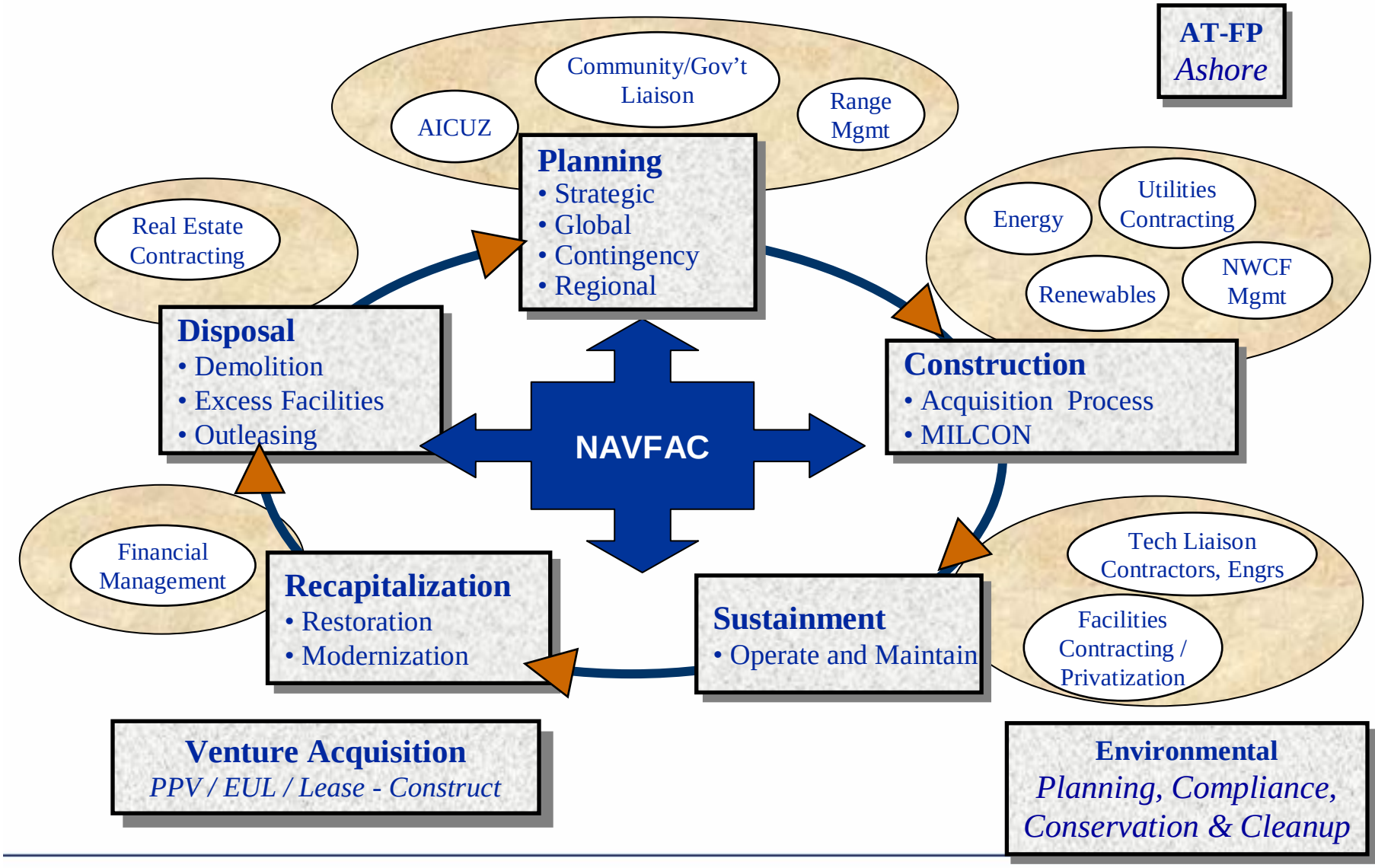
Vancouver, British Columbia, Canada
June 6-8, 2006

James W. Wright, Ph.D., P.E.
Chief Engineer and
Director, Capital Improvements

Who we are...

- Global Engineering / Acquisition Command
- 615 Active / 170 Reserve CEC Officers
  13,721 Civilians
  558 Contractors
- FY06: $9.1B Funds Flow
- Department of Navy's Facilities Engineering Systems Command
- Department of Defense Construction Agent

Our Business…Facilities Engineering



NAVFAC Execution

- **Expanded use of streamlined Design-Build (DB) processes**
  - **Performance-based, minimally prescriptive RFPs**
  - **Goal: 75% of all MILCON and 95% BRACON design-build**
  - **Maximizes flexibility for contractors**
- **Maximize energy savings and lower life cycle costs through sustainable design focus**

NAVFAC Sustainable Policy

- **Projects must comply with NAVFAC Sustainable Development Policy**
- **Reduce the total cost of ownership of shore facilities by implementing sustainable design concepts and principles**
- **Use LEED as a tool in applying sustainable development and as a metric to measure the sustainability achieved**
- **All applicable projects shall meet the LEED Certified level unless justifiable conditions exist**

Note: NAVFAC rarely pays to have buildings certified – occasionally developers provide part of the funding for certification

Sustainable Development - Progress

FY05 – 50% of Military Construction Projects LEED Certifiable

<u>Total Savings for 18 sample buildings</u>

- Sustainable Cost: $2 M
- Annual savings: $230 K
- ROI: 9%
- LCC savings: $3.9 M
- Energy saved: 23% / 3.9 M kWh/yr
- Water saved: 2.6 M gal/yr

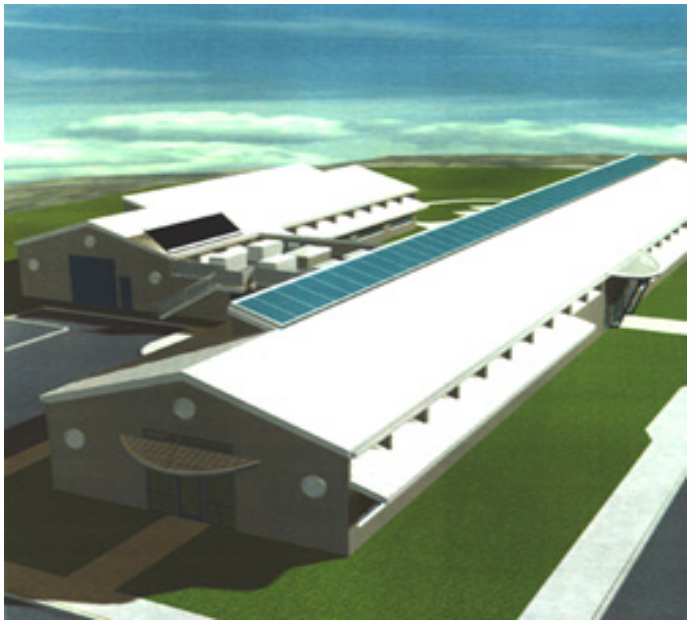
Personnel Support Facility
NAB Little Creek, VA

- **37,754 SF Educational/Admin Bldg**
- **Construction Cost $7,500,000**
- **Sust. Cost $150,000 = 2% of Construction Cost**
  - **21% reduction in energy usage**
    - Energy savings = 146,910 kWh/yr > $11,370/yr
  - **50% reduction in water usage**
    - Water savings = 517,458 gal/yr > $3,000/yr
  - **Over 75% construction waste diverted from landfill**
  - **ROI/Simple payback = 10% / 10 yrs**

LEED
LEADERSHIP IN ENERGY & ENVIRONMENTAL DESIGN

"Silver"

Building 850
Port Hueneme, CA



Public Works Department Admin building
10,000 SF renovation & 7,000 SF addition

Sustainable Features

- **Prototype natural gas heat pump**
- **Variable Air Volume (VAV) under floor distribution system**
- **High efficiency pulse boilers**
- **Natural ventilation**
- **Solar space & domestic water heating systems**
- **Photovoltaic power generation system**
- **Daylighting**
- **Shading & innovative glazing elements**
- **Fluorescent lighting**
- **Occupancy & photo sensors controls**

AIA/COTE 2002 Top Ten Green Project

2006 White House Closing the Circle Award

Defense Intelligence Analysis Center (DIAC) Addition
Bolling AFB, District of Columbia

Six story office building – 450,000 SF addition

Integrates SD with DoD ATFP Standards

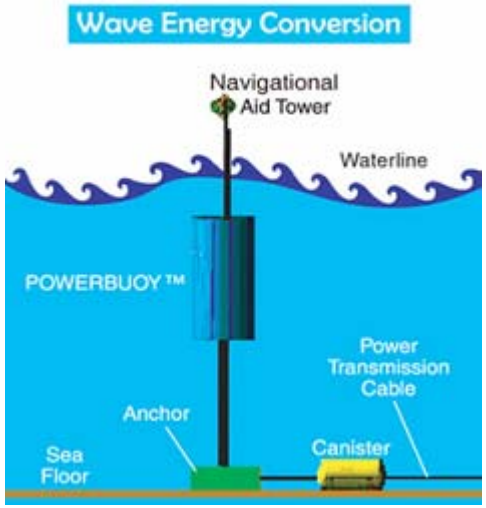
Defense Intelligence Analysis Center (DIAC) Addition
Bolling AFB, District of Columbia

- Utilized excess capacity of existing chiller plant
- T-8 pendant lighting in offices w/ occupancy sensor
- Metal Halide lights in garage
- Bio-retention pond – protect Anacostia River & Chesapeake Bay
- Indigenous low-maintenance plants
- Sun control – shading devices w/ high reflective glass
- Low-flow toilets
- Recycle 80,000 Cubic Meters (CM) excavated soil. Saved Navy $400K
- Low Volatile Organic Compounds (VOC) materials and increased ventilation rate
- Crushed demo concrete on-site - aggregate used for new work

Renewable Energy

Three examples of Navy and Marine Corps renewable energy projects

Photovoltaic Array
MCAGCC 29 Palms, CA



Wave Energy Technology
MCB Hawaii

Wind Turbines
Guantanamo Bay, Cuba

Our Challenges

- Buy-in, direction & implementation
- Awareness and knowledge
- Organizational changes
- Funding and Programming process
- Self-certification v. 3rd party
- Solicitation, design and construction processes
- Data collection
- Building performance data
- Cost/benefits
- Creating a new “standard”

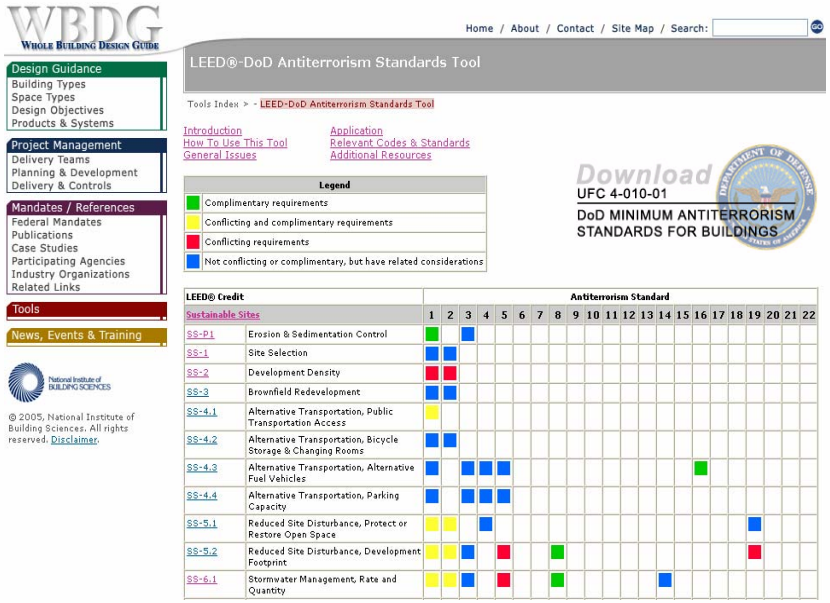
LEED-DoD Antiterrorism Standards Tool

DoD requires its buildings to be secure and sustainable.

Challenge - satisfy design requirements in a balanced, integrated cost-effective solution.

This tool:

- **Analyzes and integrates LEED and UFC 4-010-01, DoD Minimum Antiterrorism Standards for Buildings,**
- **Saves design and construction costs,**
- **Will integrate AT requirements, sustainable strategies/features and aesthetics.**



LEED-DoD Antiterrorism Standards Tool

WBDG
Whole Building Design Guide

Home / About / Contact / Site Map / Search: GO

Design Guidance
- Building Types
- Space Types
- Design Objectives
- Products & Systems

Project Management
- Delivery Teams
- Planning & Development
- Delivery & Controls

Mandates / References
- Federal Mandates
- Publications
- Case Studies
- Participating Agencies
- Industry Organizations
- Related Links

Tools

News, Events & Training

National Institute of Building Sciences

LEED®-DoD Antiterrorism Standards Tool

Tools Index > - LEED-DoD Antiterrorism Standards Tool

Introduction
How To Use This Tool
General Issues
Application
Relevant Codes & Standards
Additional Resources

Legend	
	Complimentary requirements
	Conflicting and complimentary requirements
	Conflicting requirements
	Not conflicting or complimentary, but have related considerations

Download
UFC 4-010-01
DoD MINIMUM ANTITERRORISM STANDARDS FOR BUILDINGS

LEED® Credit		Antiterrorism Standard																					
Sustainable Sites		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
SS-P1	Erosion & Sedimentation Control																						
SS-1	Site Selection																						
SS-2	Development Density																						
SS-3	Brownfield Redevelopment																						
SS-4.1	Alternative Transportation, Public Transportation Access																						
SS-4.2	Alternative Transportation, Bicycle Storage & Changing Rooms																						
SS-4.3	Alternative Transportation, Alternative Fuel Vehicles																						
SS-4.4	Alternative Transportation, Parking Capacity																						
SS-5.1	Reduced Site Disturbance, Protect or Restore Open Space																						
SS-5.2	Reduced Site Disturbance, Development Footprint																						
SS-6.1	Stormwater Management, Rate and Quantity																						

Green Specifications

The scope of this project is to revise the Unified Facilities Guide Specifications (UFGS) that are used for Navy projects to incorporate sustainable development principles.

Value/benefits:

- Reduce design costs
- Provide corporate consistency
- Get sustainable strategies / features in projects

Data Collection & Program Metrics

Why?

- Measure & evaluate progress
- Show value added
- Guide initiatives for improvement

What?

- Number and level of sustainable projects
- Design and constructions costs for sustainable design
- Energy savings (kWh/yr; $/yr)
- ASHRAE reduction (%)
- Water savings (gal/yr; $/yr)

Summary

- **We take Sustainable Development very seriously**
- **NAVFAC has the highest number of LEED certified designers of any of the Services**
- **Sustainable development is a technical evaluation factor in contract awards**
- **We ensure that sustainable development features promised are delivered and functioning at turnover**
  - **The challenge, particularly with Design-Build, is to ensure that all the sustainable features promised ARE delivered**