



Integrating Sustainable Development in the Planning and Design of Navy Facilities

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Naval Facilities Engineering Command



SD Program Accomplishments

- Developed NAVFAC Instruction 9830.1, "Sustainable Development Policy", 09 June 2003
- Developed NAVFAC MCON Programming Letter, 26 Nov 2003
- Awarded A/E contract to develop Unified Facilities Criteria (UFC), Sustainable Development, completion Dec 2004
- Awarded A/E contract to develop Whole Building Design Guide Design Tool analyzing and integrating the LEED Rating System with UFC 4-010-01, DoD Minimum Antiterrorism Standards for Buildings, completion Oct 2004
- Developed NAVFAC Design Build Master, Sep 2003
- Developed NAVFAC SD Upper Management Brief, Oct 2003





SD Program Accomplishments

- Conducted USGBC LEED Advanced Workshops at 5 NAVFAC field offices, May-July, 2004
- Awarded A/E contract to develop SD online training for all business lines
- Awarded A/E contract to meter develop metrics, collect data and create database for 7-9 sets of NAVFAC buildings



Initiatives

- Unified Facilities Guide Specifications – develop/add SD requirements/language
- Unified Facilities Criteria - develop/add SD requirements/language



NAVFACINST 9830.1

- Purpose: Reduce the **total cost of ownership** of shore facilities by implementing sustainable development (SD) concepts and principles.
- Policy: Reduce the **life-cycle cost** of facilities by incorporating SD and **use LEED Green Building Rating System** as a planning and design tool and a metric.
- Applicability: All applicable projects shall **meet the LEED Certified level**, unless justifiable conditions exist that limit the pursuit and accomplishment of the LEED credits necessary for achieving the Certified level.





Sustainable Development Tools



WBDG Design Tool

This tool will analyze and integrate the Leadership in Energy & Environmental Design (LEED) Green Building Rating System with Unified Facilities Criteria (UFC) 4-010-01, DoD Minimum Antiterrorism Standards for Buildings.





Sustainable Development Tools

NAVFAC Design Build Master

Design Guidance - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Refresh Print Mail News RSS Feeds

Address <http://localhost/PTS/WebForm5.aspx> Go Links Norton AntiVirus

NAVY DESIGN-BUILD REQUEST FOR PROPOSAL WEB SITE

HOME DEVELOPMENT HISTORY DIVISION 00 DIVISION 01 PERFORMANCE TECHNICAL SPECIFICATIONS **DESIGN GUIDANCE** DOWNLOAD HOT TOPICS COMMENT

DESIGN GUIDANCE (UFC)
ARCHITECTURAL
 UFC 3-100-10N ARCH
STRUCTURAL
MECHANICAL
ELECTRICAL
CIVIL
ENVIRONMENTAL
FIRE PROTECTION
OTHER GUIDANCE (UFC)

To process download, right click on icon | Select Save Target As

UNIFIED FACILITIES CRITERIA (UFC)

**DESIGN: GENERAL ARCHITECTURAL
AND INTERIOR DESIGN
REQUIREMENTS**

Done Local intranet

start Waste Transfer Design Guidance - Mic... Microsoft PowerPoint ... 7:12 PM



Metering and SD Metrics

Metrics for SD for Navy Facilities

The primary scope of this project is to measure the performance of 7 to 9 building sets (14 to 18 Navy buildings). Each building set will include one traditionally and one sustainably designed building). Building sets will be from NAVFAC's different geographic areas of responsibilities.



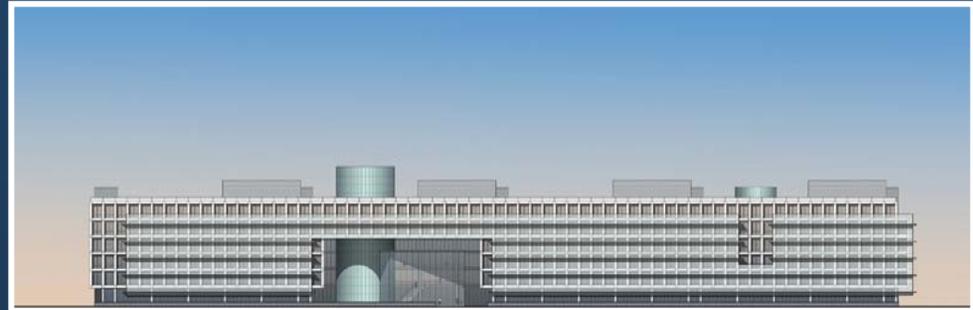
Measurement data will be used to:

- Determine LCC savings, ROI, O & M savings, productivity benefits
- Identify opportunities for building performance improvement
- Develop design guidance on best sustainable design options



SD Facility Accomplishments

The following slides show what NAVFAC has accomplished integrating sustainable development into the design and construction of facilities and what it can continue to do in the future.



CLINIC SITE
NORTH ENTRY ELEVATION





High Performance and Value

Barracks Complex, Vicenza, Italy

- 2 Bldgs./10,800 SM
- 300 Personnel
- ECC = \$25,300,00



CLINIC SITE
NORTH ENTRY ELEVATION

Sustainable Features

- Erosion control
- Site selection
- Reduced heat islands
- Energy Star roof
- Water efficient fixtures
- Indigenous landscaping
- 33% Energy cost reduction
- Local materials
- Recycled materials
- Daylight & views



What did we get for the \$ invested?

ECC = \$25,300,000

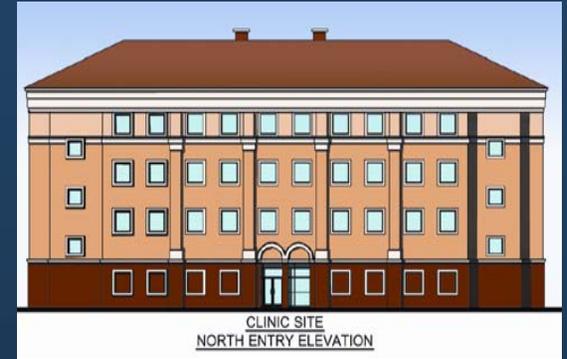
LEED (Design) Costs = \$30,600

SD First Costs (Construction) = 0

Energy Cost Savings = \$52,809/yr

ASHRAE Reduction = 33.25%

LCC Savings = \$845,000



Simple Payback = .6 years

Energy Savings = 602,445 kWh/yr

LEED Rating = USGBC Silver

LEED Credits = 35

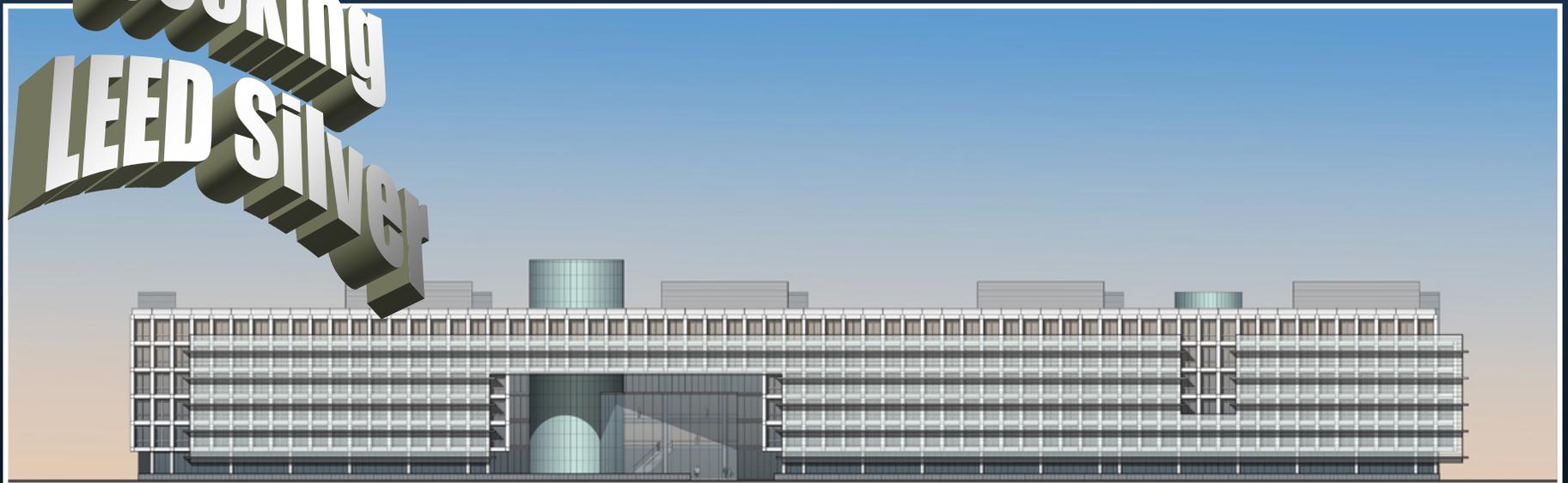


High Performance and Value

Defense Intelligence Analysis Center Addition Bolling Air Force Base, District of Columbia

- 6 storey 450,000 sf office building
 - ECC = \$100, 000, 000 +
- Integrates SD with DoD ATFP Standards

Seeking
LEED Silver





Sustainable Strategies

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.

New Commissioning Manual.

Recycle 80,000 cm excavated soil. Haul locally to Navy picnic area. Save DIA \$400K & Navy \$400K.

Low VOC materials and increased ventilation rate.

Crush demo concrete on-site and use aggregate for new work.

Fly-ash in concrete.

Specify use of local materials.

Incentive Bonus to insure cooperation.



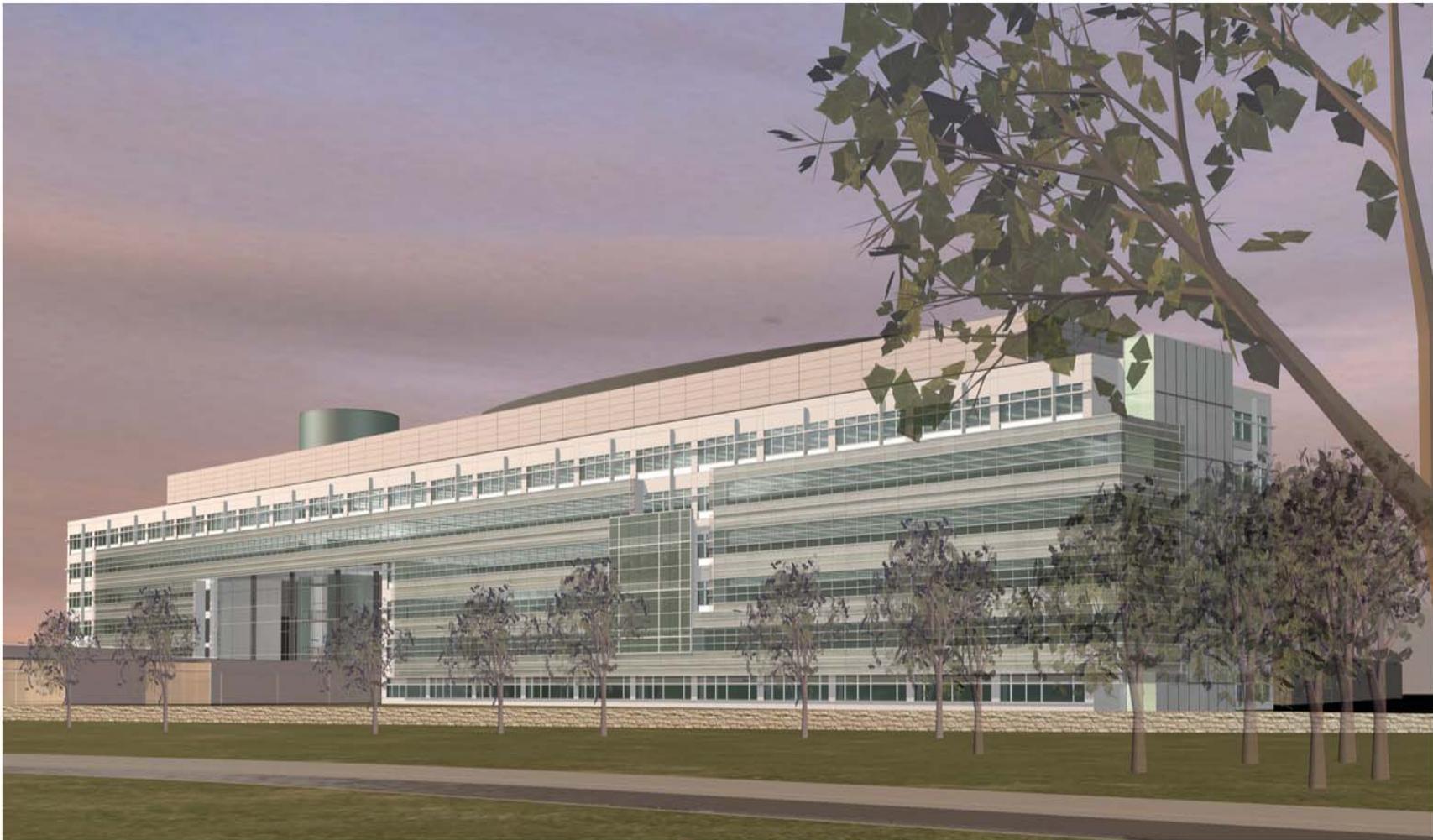


DIAC Addition South Elevation





DIAC Addition South Elevation

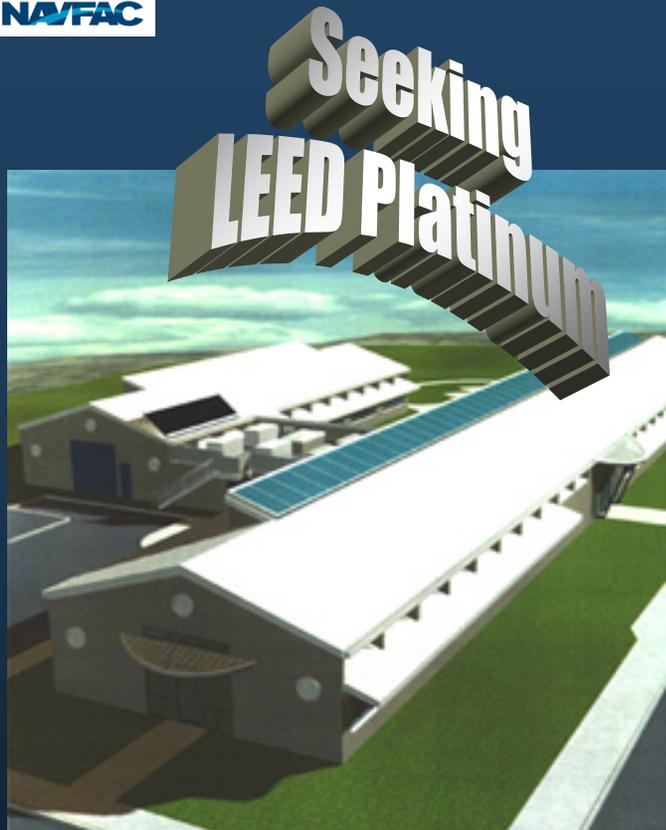


CAMERA ONE

SmithGroup
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High Performance and Value



**AIA/COTE
2002 Top Ten
Green Project**

BUILDING 850

Port Hueneme, CA

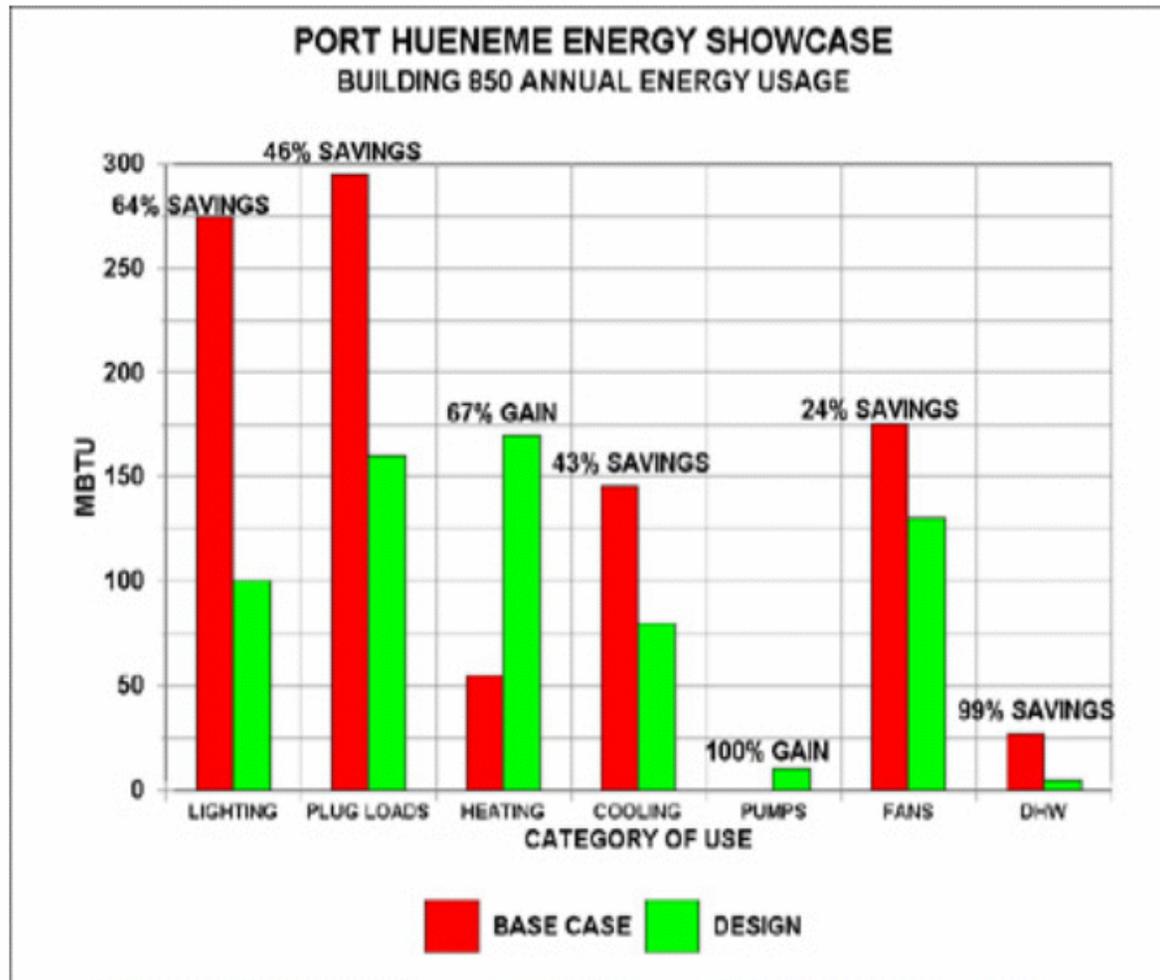
- 10, 000 sf renovation & 7,000 sf addition
- Public Works Department admin building

Sustainable Features

- Prototype natural gas heat pump A/C
- 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

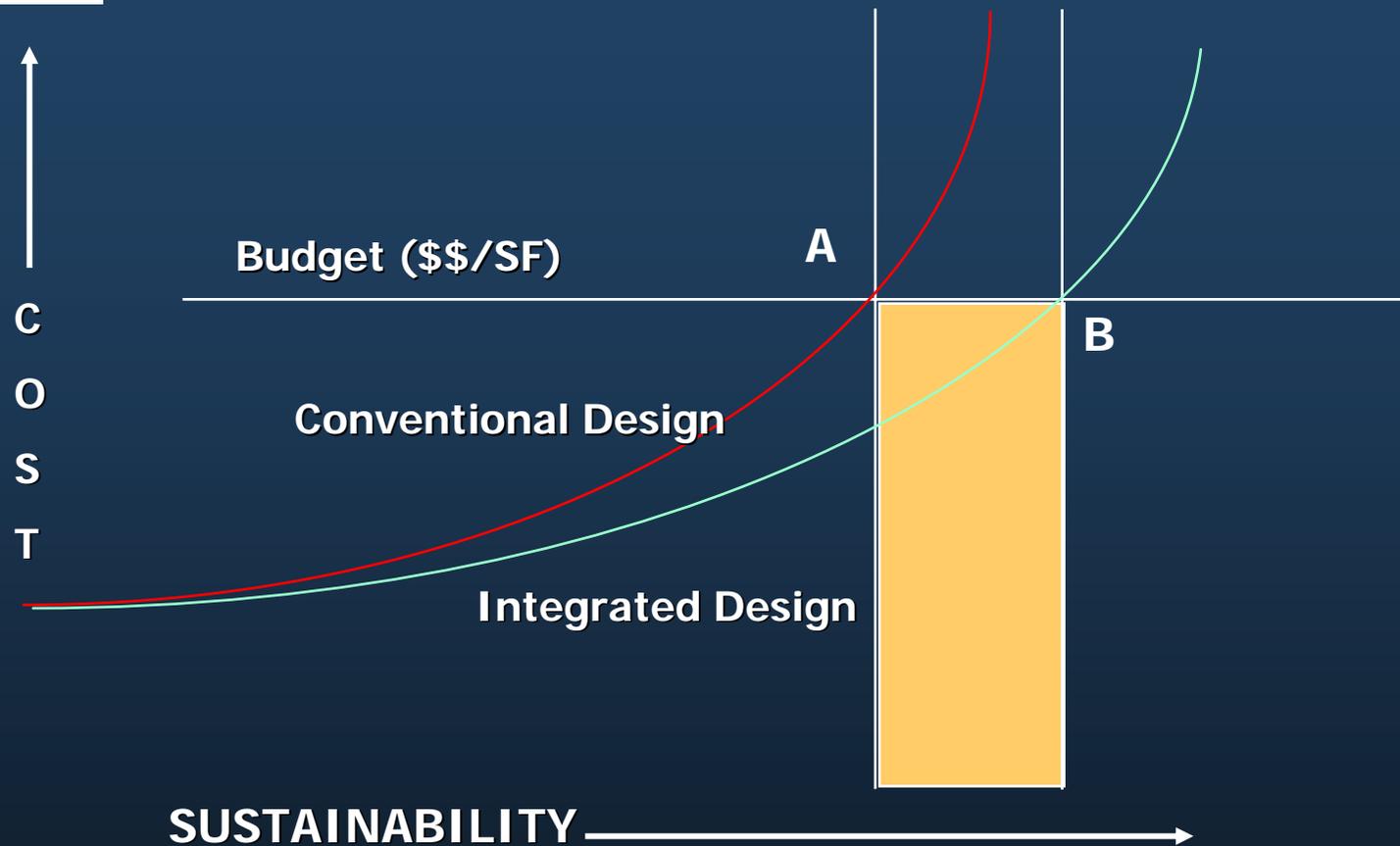


NAVY'S ENERGY DEMONSTRATION FACILITY





Integrated Design



Integrated design is the key to making effective life cycle design decisions that manage cost and deliver **BEST VALUE**.





Questions & Comments

Point of Contacts

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