



U.S. General Services Administration

# High Performance and Sustainable Building: *A Federal lay of the land*



*Lance Davis, AIA, LEED AP*  
*GSA PBS*  
*Sustainable Design Expert*

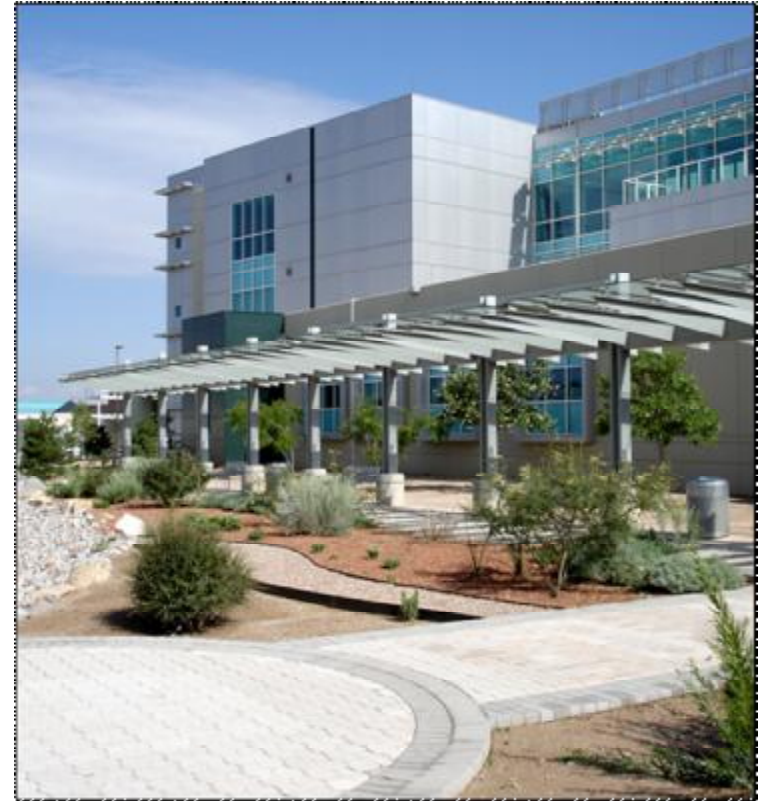
*High Performance Federal Buildings, July 22, 2008*



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# Overview

- Guiding Principles
- The Policy Landscape
- Interagency Sustainability Working Group (ISWG)
- The Feds and LEED
- Tools and Resources
- Focus on Existing Buildings

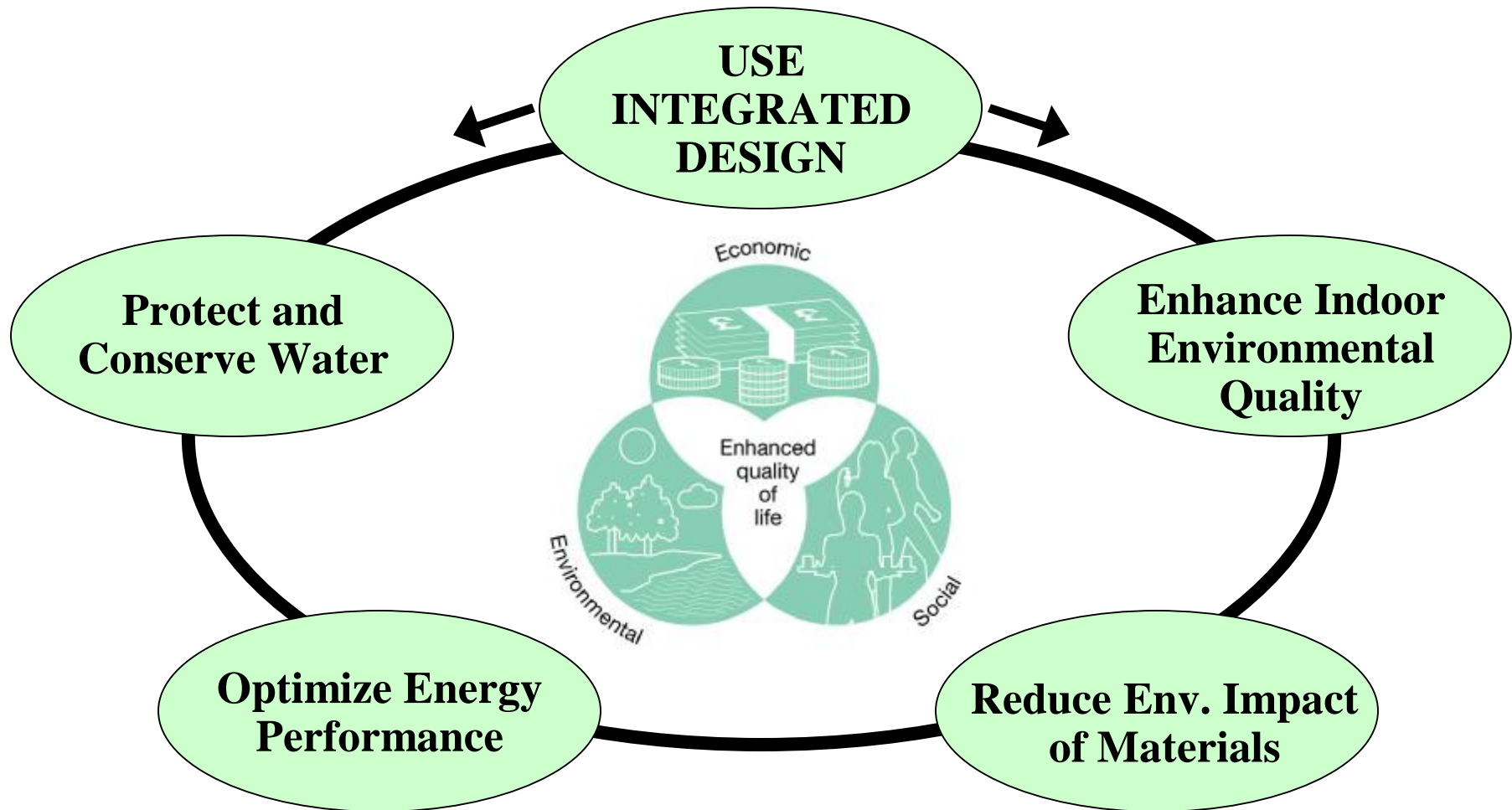


**Sandia National Lab**  
*JCEL Building*



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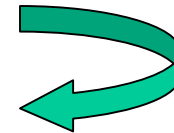
# Sustainable MOU Guiding Principles



**Sustainable buildings balance the triple bottom line by utilizing an integrated approach to design, construction, operation and decommissioning**



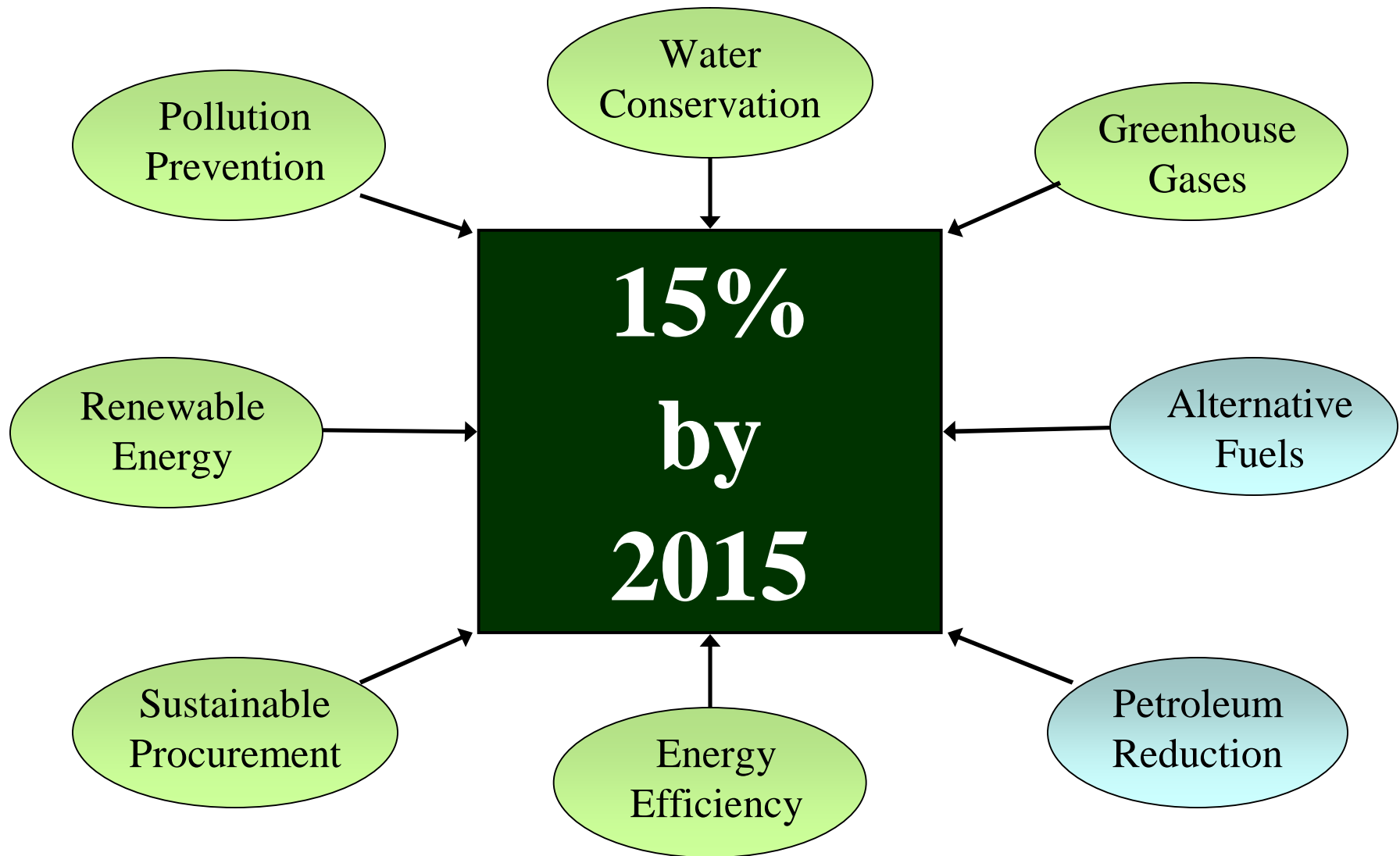
- **OMB A-11 (2002)** – Section 300 Planning, Budgeting, Acquisition, and Management of Capital Assets
- **EPACT, Section 109 (2005)** – 30% below ASHRAE 90.1-2004; Cost effective sustainable design for new and replacement buildings
- **OMB Environmental Scorecard** – Metric #3 on HPSB
  - Real Property Asset Management Scorecard
- **MOU on Federal Leadership in HPSB (2006)**
- **EO 13423 and Implementing Instructions (2007)**
- **Energy Independence and Security Act (2007)**





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# HPSB: The Umbrella of EO 13423





- Due in early July and January with all Scorecard reporting
- Tracks and assesses agency implementation of 15% by 2015 requirement
- “Stand-alone” document or incorporate into the agency Asset Management Plan
- Required components include:
  - clear, quantifiable, achievable, and communicated vision
  - HPSB performance targets for all buildings
  - HPSB assessment of the existing building portfolio
  - cross functional team responsible for decision-making on results-oriented action items





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# Federal HPSB Organization

## Management and Oversight

**Office of Management and Budget (OMB) – Scorecards**

**Office of the Federal Environmental Executive (OFEE) – EO 13423**

## Guidance

**Interagency Sustainability Working Group (ISWG)**

**Office of High Performance Federal Green Buildings (GSA)**

## Implementation

**Agency Working Groups, Offices, ISWG reps**

**Site-level Facility / Energy Managers and HPSB staff**

## Private Sector and Non-Profits

*e.g. USGBC, ASHRAE, etc*

## Office of High Performance Commercial Green Building (DOE)

## Technical Expertise

- Whole Building Design Guide
- Energy Star Buildings / Products
- EPA Green Building Program
- Labs21
- Data Centers
- Building Technologies R&D Subcommittee
- National Institute of Standards and Technology





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# Interagency Sustainability Working Group (ISWG)

- **Authority**
  - Working Group under the Interagency Energy Management Task Force since 2001
- **280 members (~65 core) from across the Federal government and industry**
- **Bi-monthly meetings**
- **Purpose:**
  - Serves as forum for information exchange
  - Advocates for sustainable building practices in new construction and existing buildings
  - Eliminates barriers to sustainable design in the Federal sector by developing policy, technical guidance and other resources



Tour at USGBC Headquarters  
*Washington, DC*



ISWG Bi-Monthly Meeting

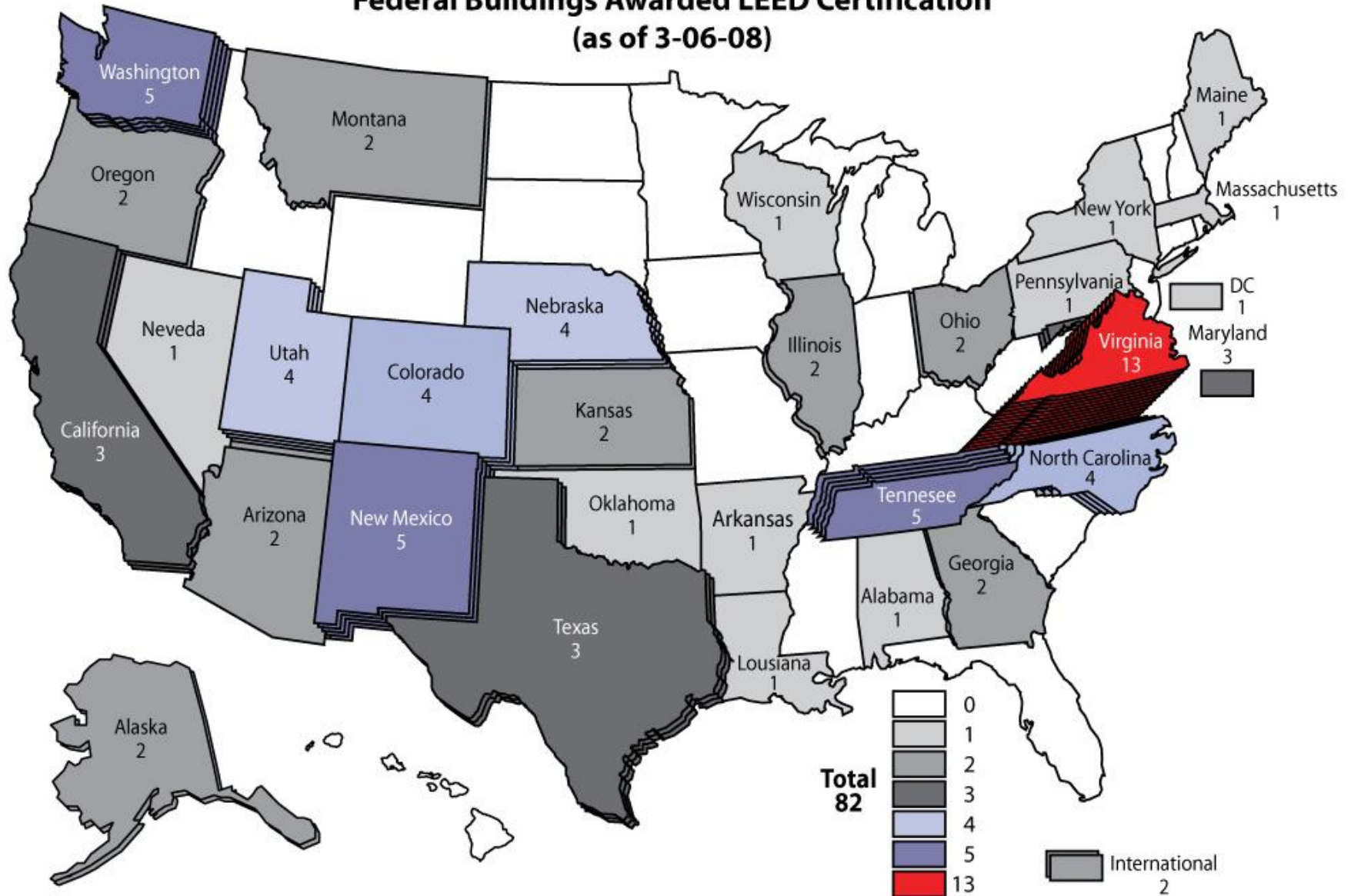




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# 82 Federal LEED Buildings!

**Federal Buildings Awarded LEED Certification  
(as of 3-06-08)**





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# Agencies & Building Types

## Agency Totals

• DOD	15
• DOE	13
• DOI	9
• GSA	8
• EPA	7
• DOC	3
• HHS	3
• NASA	3
• SSA	3
• DHS	3
• USDA	3
• DOJ	2
• DOT	2
• DOS	2
• DOL	1
• DVA	1

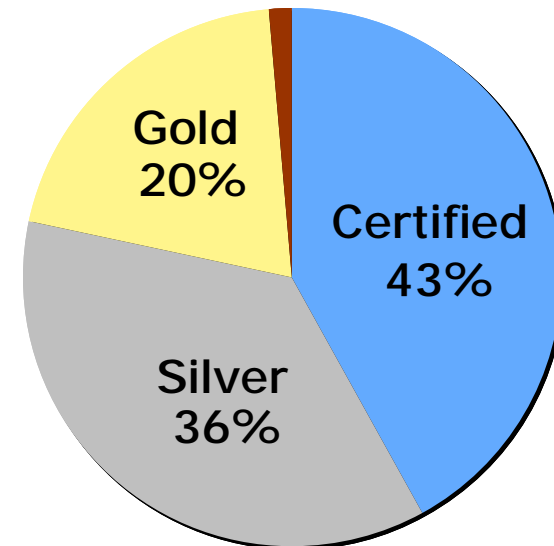
## Building Types

• Office	37
• Laboratory	13
• Dormitory	5
• Warehouse	4
• Courthouse	4
• School	4
• Recreation	3
• Visitor Center	2
• Medical Center	1
• Transit Station	1
• Prison	1
• Rescue Station	1
• Restaurant	1

## Rating Systems

• New Construction	77
• <b>Existing Buildings</b>	<b>2</b>
• Commercial Interiors	2
• Core & Shell	1

## Certification Level



\* GSA managed 18 additional projects with other federal agencies

\*\* 5 buildings are listed as confidential

\*\*\* 23 certified buildings non-Federally owned (mostly build-to-suit lease)



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# Rating Systems and Agency Policies for NC (draft)

<b>Agency</b>	<b>LEED Goal</b>	<b>Goal Notes</b>
<b>DOE</b>	<b>Gold</b>	<b>Required for NC/MR &gt; \$5M; LEED Gold preference for leases</b>
<b>EPA</b>	<b>Gold</b>	<b>Required for NC &gt; 20,000 sqft</b>
<b>NASA</b>	<b>Silver</b>	<b>Silver is required, strive for Gold</b>
<b>Defense – Army</b>	<b>Silver</b>	<b>Vertical construction required; LEED for Homes adopted</b>
<b>Commerce – NWS</b>	<b>Silver</b>	<b>“Shall strive for minimum of LEED Silver”</b>
<b>USDA – Forest Service</b>	<b>Silver</b>	<b>Required for offices, visitor centers, research facilities &gt;2500 sqft</b>
<b>USDA</b>	<b>Silver</b>	<b>Design for LEED Silver</b>
<b>GSA</b>	<b>Certified</b>	<b>Required for NC/MR, Silver recommended (some regions require)</b>
<b>State</b>	<b>Certified</b>	<b>Required now</b>
<b>Defense – Navy</b>	<b>Certified</b>	<b>Required now, potentially Silver in near future</b>
<b>HHS</b>	<b>Certified</b>	<b>LEED or Green Globes for projects &gt; \$3M</b>
<b>Defense - Pentagon</b>	<b>Certified</b>	<b>Long-term goal of LEED rating for entire Pentagon</b>
<b>Smithsonian</b>	<b>Certified</b>	<b>NC/MR to aim for a minimum of LEED certification</b>
<b>Defense - Air Force</b>	<b>Certified</b>	<b>Required by FY '09, self-certified</b>
<b>Interior</b>	<b>-</b>	<b>Incorporating LEED criteria for NC and EB, not required</b>



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# Whole Building Design Guide

- Interagency cooperation managed by NIBS
- Design Guidance focused on Federal facilities
- Federal Green Construction Guide for Specifiers
- *FREE* Continuing Education
  - 1) Integrated Design
  - 2) Whole Building Approach to Labs
  - 3) Planning for Secure Buildings
  - 4) Optimizing O&M
- Feb 2008: about 33,500 hits and 57,000 downloads *per day*

**WBDG** The Gateway to Up-To-Date Information on Integrated 'Whole Building' Design Techniques and Technologies  
...over 230,000 users and 1.6 million downloads a month

About / C

Design Guidance Project Management Operations & Maintenance Documents & References

### The Whole Building Design Approach

The goal of 'Whole Building' Design is to create a successful high-performance building. To achieve that goal, we must apply the integrated design approach and the integrated team approach to the project during the planning and programming phases. [Read more](#)

**WBDG Focus**  
**New National BIM Standard Released**  
The NBIMS Executive Committee has released Na BIM Standard Version 1 - Part 1: Overview, Princip Methodologies for public use. This document, which includes contributions by more than thirty subject-experts in the capital facilities industry, incorporate industry comments and now contains new and exp information about the NBIMS production and use p [Read more](#)

### Services

 Construction Criteria Base

### Popular Links

- [Construction Waste Management Database](#)
- [Building Envelope Design Guide](#)
- [Executive Order 13423 Technical Guidance](#)
- [Federal Green Construction Guide for Specifiers](#)
- [Unified Facilities Criteria](#)
- [Unified Facilities Guide Specifications \(UFGS\)](#)

### New and Updated Pages

[Mechanical Insulation Design Guide](#)  
The National Institute of Building Sciences (NIBS) Mechanical Insulation Committee (NMIC) has deve Mechanical Insulation Design Guide (MIDG) to pro comprehensive source of information on the perform and standardization of mechanical insulation in bu

### News and Events

**BIM Storm Hits LA**  
On January 31, 133 design professionals from 11 o online design charrette in which another 700 people

**New Version of the United States National CAD Stan**  
AIA, CSI and NIBS unveil version 4.0 with greater e improvements. [Read more](#)

### Periodicals

[www.wbdg.org](http://www.wbdg.org)





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# DOE Sustainable Building Databases

## FEMP's High Performance Federal Buildings Database: *43 Federal Case Studies*

## BT's High Performance Buildings Database: *99 Total Case Studies*

Address: <http://www.eere.energy.gov/femp/highperformance/>

U.S. Department of Energy  
Energy Efficiency and Renewable Energy  
Bringing you a prosperous future where energy is clean, abundant, reliable, and affordable

**FEMP**

**Federal Energy Management Program**

About the Program | Program Areas | Information | Resources | Financing Mechanisms | Technologies | Services | Home

### High Performance Federal Buildings

Using the Database

- Search by Project Name
- Search by Owner
- Search by Location
- Search by Building Type & Size
- List All Projects
- Detailed Search

Many federal facilities have succeeded in creating high performance buildings that save energy and reduce the environmental impact on our lives. We have captured a sampling of these successes in this High Performance Federal Buildings Database, a database showcasing examples of sustainable building projects in the federal government. Use the database to examine project details or to explore some construction or retrofit ideas for your facility.

FEMP is sponsoring this federal portal to the High Performance Buildings Database. FEMP also supports the [Interagency Sustainability Working Group](#). This database contributes to the working group's purpose of exchanging information about federal agency sustainable design activities as demonstrated in these high performance federal building projects. The High Performance Buildings Database is research sponsored by the U.S. Department of Energy; it seeks to improve building performance measuring methods by collecting data on various factors that affect a building's performance, such as energy, materials, and land use. The database includes information from buildings around the world, ranging from homes and commercial interiors to large buildings and even whole campuses and neighborhoods. These may be certified "green" projects, or simply projects that have one or more notable environmental features. The information has been reviewed for consistency and presentation, but in most cases, the details have not been independently verified.

To find projects of interest, use any of the search options listed on the left or select [list all projects](#) to see the entire list. Each project description includes a photo.

[www.eere.energy.gov/femp/highperformance](http://www.eere.energy.gov/femp/highperformance)

Address: [www.eere.energy.gov/buildings/highperformance/](http://www.eere.energy.gov/buildings/highperformance/)

U.S. Department of Energy  
Office of Energy Efficiency and Renewable Energy  
Bringing you a prosperous future where energy is clean, abundant, reliable, and affordable

### High Performance Buildings

An Initiative of the U.S. Department of Energy Building Technologies Program

**Related Topics**

- [Buildings Database](#)
- [Performance Metrics](#)
- [See Residential building information](#)
- [Building industry's technology roadmap](#)
- [Green Building Challenge](#)
- [Laboratory implementation](#)

**About High Performance Buildings**

- Design Approach: Whole-building design, costs, and benefits
- Toolbox: Design guidelines, software, and resources
- Technologies: Methods, materials, and equipment

**About the High Performance Initiative**

- Goals and Objectives: Overview of the initiative
- How to Participate: Criteria, application, and contact information
- Research Projects: Case Studies, Performance Metrics, and High-Performance Buildings Database

**News & Events**

Jun 2003: National Building Museum Presents

The U.S. Department of Energy is proud to sponsor "Big and Green," an exhibit at the National Building...

[News & Events](#)

[www.eere.energy.gov/buildings/database/](http://www.eere.energy.gov/buildings/database/)



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# HPSB Database Example

## High Performance Federal Buildings

◀ Federal Projects Home

Using the Database

Search by Project Name

Search by Owner

Search by Location









Search by Building  
Type & Size

List All Projects

Detailed Search

### Selected Projects

Your 43 currently selected project(s) are shown in the table below. ([click here](#) for help).

	Picture	Name ▲	Owner	Location	Building Type	Floor Area (ft²)	Annual Purchased Energy (kBtu/ft²)
<input type="checkbox"/>		<a href="#">Alfred A. Arraj U.S. Courthouse</a>	General Services Administration	Denver, CO	Public order & safety	319,000	101
<input type="checkbox"/>		<a href="#">Annie Creek Restaurant and Gift Shop</a>	Xanterra Parks and Resorts	Crater Lake, OR	Restaurant; Retail	10,400	785
<input type="checkbox"/>		<a href="#">Assateague Island National Seashore</a>	National Park Service	Chincoteague, VA	Recreation; Interpretive Center; Park		
<input type="checkbox"/>		<a href="#">Assateague Mobile Bathhouse Project</a>	National Park Service	Chincoteague, VA	Park; Other		
<input type="checkbox"/>		<a href="#">BPA Ampere Annex</a>	Bonneville Power Administration (BPA)	Vancouver, WA	Commercial office; Industrial	3,000	
<input type="checkbox"/>		<a href="#">Baca/Dlo'ay azhi Community School</a>	Bureau of Indian Affairs	Prewitt, NM	K-12 education	78,900	33
<input type="checkbox"/>		<a href="#">Bremerton BEQ Building 1044</a>	Naval Base Kitsap-Bremerton	Bremerton, WA	Multi-unit residential	99,800	46.2
<input type="checkbox"/>		<a href="#">CDC Headquarters</a>	Centers for Disease Control and Prevention	Atlanta, GA	Commercial office; Public order & safety	355,000	22.3





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## Focus on Existing Buildings

New Construction /  
Major Renovations

**Existing  
Buildings**

Sites, Campuses,  
Bases, etc

1. Sustainable Building Guiding Principles for EB (in development)
2. Incorporating HPSB into Real Property Asset Management and Environmental Management Systems
3. Assessment tools for EB and Training (e.g. LEED EB workshops)
4. Addressing additional first cost for some HPSB Guiding Principles



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# Contact Info

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**[www.wbdg.org/sustainableEO](http://www.wbdg.org/sustainableEO)**