



# Stewardship through Facilities Ecology



Benchmarking  
Green Building Operations in  
U.S. Department of the Interior

Heather Davies Office of Environmental Policy and Compliance

Gay Bindocci National Business Center



# Green Operations?

- How do we evaluate & characterize environmental performance across the “DOI portfolio”?
  - What are the characteristics of sustainable building operation?
  - Which “best practices” guides are definitive?
    - How do we recognize a green facility operation?

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# Benchmarks for Green Buildings

**NEW!**

**E.O. 13327 - Federal Real Property Asset Management**

**NEW!**

**Green Seal Facilities and Operations Standard**

**NEW!**

**DOI Greening Goals Facility Survey**

**NEW!**

**LEED for Existing Buildings**

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# Office of the Federal Environmental Executive

**“The Federal Commitment to Green Building:  
Experiences and Expectations” 2003**

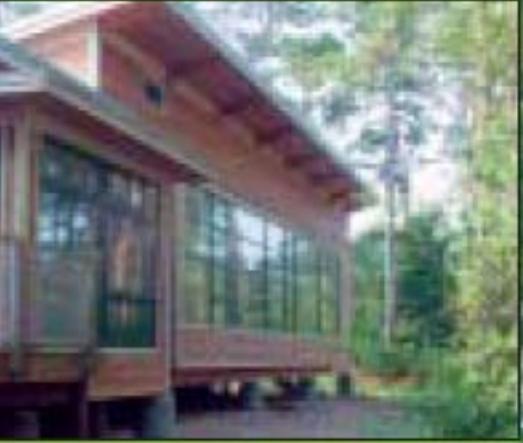
[www.ofee.gov/sb/fgb.html](http://www.ofee.gov/sb/fgb.html)

- **Federal Interagency Sustainability Work Group**
- **Green Building Principals Group**

DOI represented by Mark Koenig, NPS

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ycled, renewable, and non-toxic building materials  
s bamboo floors, cedar walls, and recycled carpet  
de good indoor air quality.



ndoor environment is enhanced further through  
sistent daylight and fresh air ventilation.

# Hebert H. Bateman Educational and Administrative Center, Chincoteague National Wildlife Refuge

## 2004 White House Closing the Circle Award Winner

while also saving  
backlog mainte  
showers, faucet  
urinals, along w  
water treatment  
gallons of water  
geothermal hea  
efficient lighting  
windows, natur  
sunshading, and  
building envelo  
energy use by 5  
typical facility.



The Center uses an innovative constructed wetlands wastewater treatment system. The system includes a primary clarifier

Sonya Capek, NPS

Accepting a 2003 White House Closing the Circle Award



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### Awards

DOI Environmental Achievement Awards

White House Closing the Circle Awards

2003 Awards

## 2003 Department of the Interior Environmental Achievement Award Recipients

- **Individuals**

- [R. Craig Smith](#), BLM, *An Innovative Approach to Abandoned Mine Sites*
- [Mr. Roger ...](#), FWS, *Application Makes a Difference for Green ...*
- [Mr. Mike Bryant](#), FWS, *Former Bridge Negotiations: A Voice for the Environment*
- [Charles M. Russell National Wildlife Refuge](#), FWS, *Environmental Management System Implementation*
- [Denali National Park and Preserve](#), NPS, *It Takes a Team to Be Green*
- [Education Department, Jefferson National Expansion Memorial](#), NPS, *Comprehensive Education on Mississippi River Boats*

- **Cooperators**

- [Signal Mountain Lodge](#), NPS, *The Signal is Green: Third-Party Certification of Environmental Best Practices*
- [Delaware North Companies Parks & Resorts](#), NPS, *Reducing, Reusing, and Recycling Throughout the West*
- [Mammoth Cave National Park and Mammoth Cave Hotel Partnership](#), NPS, *Environmental Leadership through Cooperation and Partnership*

**www.doi.gov/greening/awards**  
**Submit your nomination for 2004/2005!**

- [DOI Environmental Achievement Award Recipients](#)

- [DOI White House "Closing the Circle" Awards](#)

2002 Awards

- [DOI Environmental Achievement Awards](#)

- [Interior Department Gets Top Environmental Award at White House "Closing the Circle" Awards Ceremony](#)

- [White House Closing the Circle - Agency Award](#)



## Federal Agencies with Green Building Policies

- US Army
  - SPiRiT rating tool
  - All FY06 project starts to achieve min. silver
  - Residences – Gold
- US Navy
  - Adopts LEED as tool/metric
  - Submission not required
- Air Force
  - Starting w/20% in FY04 and increasing until all FY09 projects are LEED certification capable
- GSA
  - All certified at min.
- NASA, EPA, HUD, DOS, DOE



## E.O. 13327 - Federal Real Property Asset Management (2/04)

- Senior property managers shall
  - “make life-cycle cost estimations associated with the prioritized actions; “
  - “incorporate planning and management requirements ... for environmental management under Executive Order 13148”
- Performance measures to include ...
  - “the environmental costs associated with ownership of property, including the costs of environmental restoration and compliance activities”

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# Certification for Facilities Operations and Maintenance

- Recycling
- California's Guidelines for Electronic Products: Procurement, Use, and End-of-Life
- Renovations use environmentally preferable products
- Training, internal audits
- Pennsylvania Green Building Operations and Maintenance Manual
  - Janitorial services
  - Landscaping
  - Roofing/parking
  - HVAC
  - Energy systems
  - Lighting Systems

[www.greenseal.org/criteria\\_om.pdf](http://www.greenseal.org/criteria_om.pdf)

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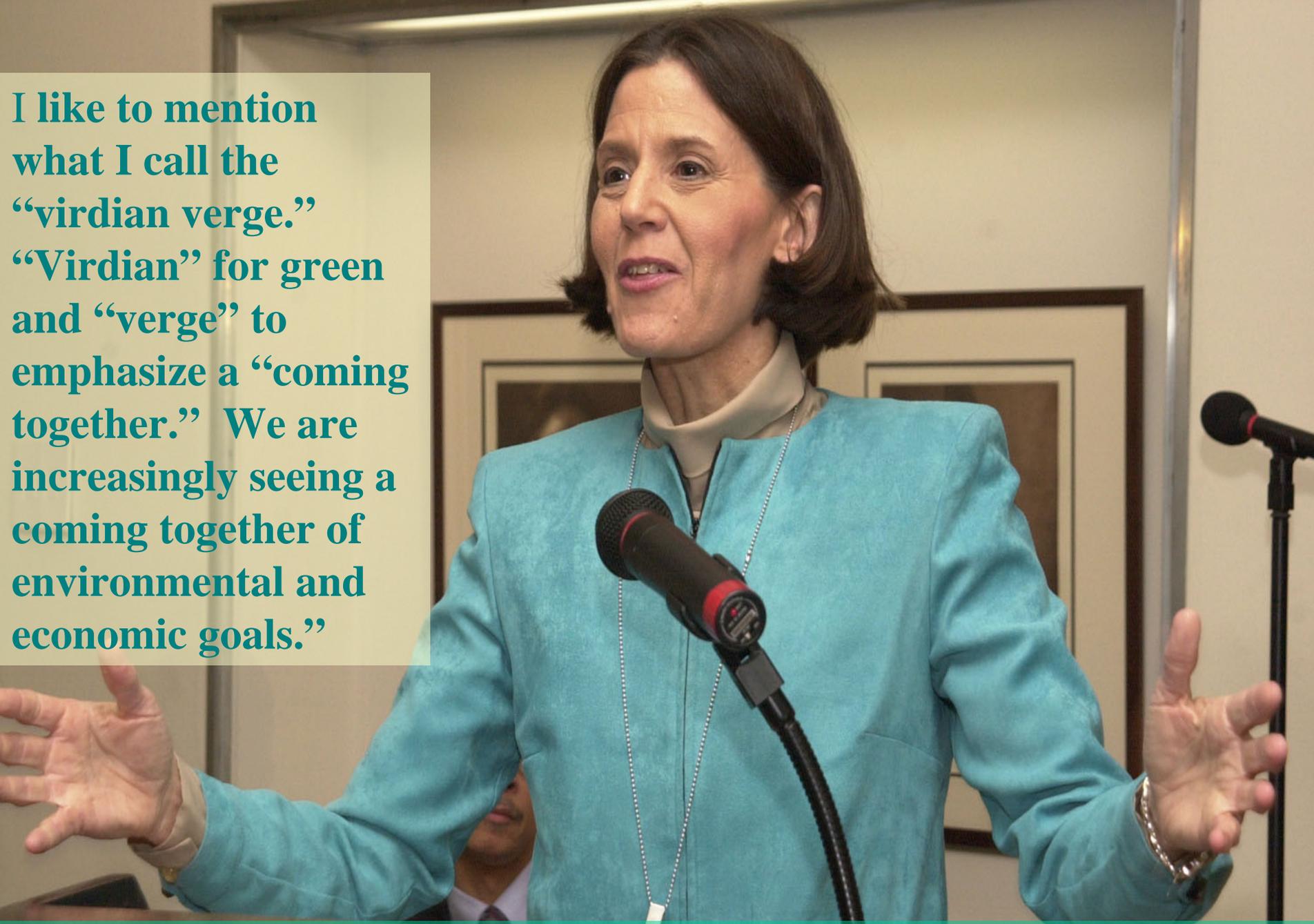
# Annual Performance Plan Green Product Goals

- Re-refined Oil
- Reclaimed Engine Coolant
- Retread Tires
- Paper Towels
- Bathroom Tissue
- Plastic Trash Bags
- Copy Paper
- Carpeting
- Biobased lubricating and hydraulic oil

[www.doi.gov/greening/procure](http://www.doi.gov/greening/procure)

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I like to mention what I call the “virdian verge.” “Virdian” for green and “verge” to emphasize a “coming together.” We are increasingly seeing a coming together of environmental and economic goals.”



**P. Lynn Scarlett, Ast. Sec. - Policy Management and Budget**

# Green Product Goal Measurement

- **Web-based facility survey (consistent with White House Report requirements)**
- **Bureau program data review/approval step**
- **Product goals target: 100% utilization, improving by at least 30% per year until goal attained**
- **Product goals focus on percentage of compliant facilities**

# 1<sup>st</sup> Screen of DOI Green Goals Facility Web Survey



## Greening the Department of the Interior

- Home
- DOI Sites**
- Auditing & EMS
- Waste & Recycling
- Procurement
- Energy & Water
- Outreach
- Sustainable Practices
- Awards
- Buildings
- Vehicles

### Green Profiles for DOI Sites

#### Welcome DOI Facility Representatives.

You are about to be asked for information regarding green practices that are underway at your DOI site. This data will be used to track against the environmental performance and stewardship goals set forth in the "[Strategic Plan for Greening the Department of the Interior Through Waste Prevention, Recycling and Federal Acquisition](#)" and the [Department's Annual Performance Plan](#).

The information you provide is important. After quality assurance review, it will be made accessible to the public.

The Environmental Performance & Stewardship survey will cover four topics:

- [Solid waste diversion and recycling](#)
- [Green product use](#)
- [Sustainable Practices](#)
- [Investments in Renewable / Energy - Efficient Systems](#)



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## Green Profiles for DOI Sites

### FY 2002 Solid Waste Diversion and Recycling

Waste Diversion and Recycling Data

# 1<sup>st</sup> Screen of for Waste Diversion Data Entry

test test, You will be asked to input data regarding your facility for Fiscal Year 2002 (October 1, 2001 - September 30, 2002). The best data you have will be what is most useful. In some cases, you may have to make estimates based on available information to best answer these questions; this is acceptable. If you have any questions, please contact your Bureau or Offices Greening Interior Partnership Group Members for clarification.

[Department of the Interior Waste Prevention and Recycling Goals](#)

### Commodities Recycled:

Indicate which of these commodities your facility recycled during FY2002:

Name of Facility:

- |   |   |
|---|---|
| <input type="checkbox"/> White Paper            | <input type="checkbox"/> Batteries(Ni/Cad;lead etc.)                      |
| <input type="checkbox"/> Mixed Paper            | <input type="checkbox"/> Used Oil   |
| <input type="checkbox"/> Newspaper              | <input type="checkbox"/> Antifreeze                                       |
| <input type="checkbox"/> Cardboard              | <input type="checkbox"/> Truck Tires                                      |
| <input type="checkbox"/> Aluminum               | <input type="checkbox"/> Car Tires  |
| <input type="checkbox"/> Plastic (#1PET/#2HDPE) | <input type="checkbox"/> Green waste (Weight/Volume prior to composting)  |
| <input type="checkbox"/> Glass                  | <input type="checkbox"/> Horse Manure (Weight/Volume prior to composting) |
| <input type="checkbox"/> Steel Cans             | <input type="checkbox"/> Carpet   |
| <input type="checkbox"/> Pallets                | <input type="checkbox"/> Computers,Electronics                            |

### Green Profiles for DOI Sites

Please input the actual or estimated weight of the total amount of each commodity recycled during FY 2002 from your facility. There are some volume to weight conversions programmed into the system.  
[EPA published standard volume to weight conversion factors](#)

## Recycling Data Entry – automatic unit conversion

#### White Paper

Amount Recycled:

#### Plastic (#1PET/#2HDPE)

Amount Recycled:

#### Toner Cartridges

Amount Recycled:

#### Used Oil

Amount Recycled:

#### Car Tires

Amount Recycled:

#### Carpet

Amount Recycled:



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## Green Profiles for DOI Sites

### Waste Diversion

The formula for calculating waste diversion is:

$$\frac{\text{Recycled materials(lbs)}}{\text{Recycled materials + Trash}}$$

Based on the information, your facility's waste diversion rate for FY 2002 is: **47 %**.

**Congratulations, you have met or exceeded the Department's goal of 40% waste diversion.**

**Keep up the good work.**

**The goal for 2005 is 45%**

**Your state's diversion goal is 25 %.\* You have met or exceeded your State's waste diversion goal.**

**Information on your facility's Solid Waste Diversion and Recycling has been added.**

**Please [click here](#) to add more data to Solid Waste Diversion and Recycling.**

**[Return](#) to DOI facility Environmental Performance & stewardship main page.**

\* Note: Recent changes to State waste diversion goals may not be accurately reflected here.

## Green Product Use

In the [Strategic Plan for Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition](#), there are identified [Green Procurement and Property Management Goals](#). These goals are restated in the Department's Annual Performance Plan. The goals specified focus on 9 green products. These are not the only green products available or of interest to DOI facilities.

By law, all DOI facilities must purchase products with recycled content in accordance with the Comprehensive Procurement Guideline (40 C.F.R 247) which specifies 54 different product categories, unless there is justification for waiving this requirement. These 9 products are the focus for goal setting and tracking. Tracking the use of these products is being used to generally raise awareness within the DOI community regarding environmentally preferable products and as an indicator of basic facility participation in these efforts.

Please indicate if the following products were used at your facility or in your equipment during FY 2002.  
(For more information about using any of these products, please click on the product name).

Name of Facility:

- Re-refined engine lubricating oil (in DOI managed fleet vehicles)
- Retread tires
- Reclaimed engine coolant
- Recycled content bathroom tissue (minimum 20% postconsumer recycled content)
- Recycled content paper towels (minimum 40% postconsumer recycled content)
- Recycled content copy paper (minimum 30% postconsumer recycled content)
- Recycled content plastic trash bags (minimum 10% postconsumer recycled content)
- Recycled content carpet (face fiber or backing) or factory-refurbishable carpet (for new installations)

### Data Entry for Nine Green Product Use Goals

## Green Profiles for DOI Sites

Please indicate the reason why your facility is not using these products:

**Biobased, biodegradable lubricating and hydraulic oil in equipment where spillage to the environment might occur (e.g. chain saws, marine outboards, lawn mowers, snow mobiles and small equipment):**

- The item is not available within a reasonable amount of time
- The cost is prohibitive
- The quality does not meet necessary standards
- We didn't buy products from this category during the last fiscal year
- Not aware of how to buy this product
- Other

Enter Reasons for Non-compliance

**Recycled content bathroom tissue (minimum 20% postconsumer recycled content)**

% postconsumer recycled content:

Is the tissue also manufactured without the use of chlorine for deinking and bleaching:

**Recycled content paper towels (minimum 40% postconsumer recycled content)**

% postconsumer recycled content:

Is the tissue also manufactured without the use of chlorine for deinking and bleaching:

**Recycled content copy paper (minimum 30% postconsumer recycled content)**

% postconsumer recycled content:

Is the tissue also manufactured without the use of chlorine for deinking and bleaching:

Submit



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## Green Profiles for DOI Sites

### Other green products in use at your facility

We would like to know about other green products being used at your facility. Did you use environmentally preferable products in any of the following categories during fiscal year 2002?

For detailed information about any products, Please click on the link.

[Recycled content products](#)

[Biobased content products](#)

[Energy efficient products](#)

[Water conserving products](#)

[Other environmentally preferable products](#)

**Opportunity to enter additional data about other green product usage... optional**



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## Green Profiles for DOI Sites

### Contact Information

Please enter the contact information for the person most familiar with this product's use at your facility.

**Biobased content products**

**Bar Chain Oils**

Name:

Phone:

Email:

Submit

Contact info for specific green product use... optional

## Green Profiles for DOI Sites

### Sustainable Practices at DOI Facilities

There are innovative sustainability practices that are employed at many of our DOI facilities. We would like to showcase these practices as much as possible to share these successes with other DOI personnel, other federal agencies and the public. In this way, we hope to speed the process of innovation within DOI and elsewhere and broaden the adoption of these best practices to promote pollution prevention and efficient resource utilization.

In the space below, you will be allowed to describe a number of sustainable practices in place at your facility. For each discrete practice, you will be asked to enter a "title" for the practice, a brief narrative describing the practice and its benefits, and contact information. You will also be allowed to add digital photographs and document files to further detail this practice.

You may enter information about as many discrete sustainable practices as you like. After you are done entering information about your first practice, you have the option to go back and enter another.

Title of sustainable practice:

Description:

Optional...Share info on sustainable practices

Files to Attach:

Browse...

Any other Files to Attach:

Browse...

Submit

Clear



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## Green Profiles for DOI Sites

### Investments in Renewable / Energy - Efficient Systems

In order to track investments being made at DOI facilities in renewable energy or energy efficient systems, the following survey is being implemented to obtain general information on investments of \$25,000 or more on energy efficiency measures and technologies in maintenance and new construction projects for the past year, current year, budget year, planning year and one additional outyear budget.

**Has your facility made (or plans to make) investments in renewable or resource-efficient systems in any of the following categories?**

- [Energy Supply \(renewable/alternative\)](#)
- [Building Envelopes](#)
- [Energy Management System](#)
- [Heating and Cooling \(HVAC Systems\)](#)
- [Lighting](#)
- [Water Efficiency](#)
- [Water Heating](#)

Opportunity to enter additional data on investments in renewable and energy efficient systems... options



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## Green Profiles for DOI Sites

### Select a State

Access Green Profiles for DOI sites... to be set up click on state, just like recreation.gov...

Sustainable Practices at DOI Sites

DOI Authorized Users Submit Data Here



# What do you think?

- Could the survey mechanism work?
- Too many or too little data queries?
- Want to help test it?
  - Email [heather\\_davies@ios.doi.gov](mailto:heather_davies@ios.doi.gov) to volunteer to beta test system

2002 signing of MOU on  
Green Building on Pilot Use of  
LEEDs between  
Department of the Interior,  
General Services  
Administration and the  
U.S. Green Building Council





## DOI Commitments in Green Building MOU

- DOI will endeavor to apply LEED rating systems to a number of its facilities across the country and apply to participate in the LEED Pilot Programs.
- DOI will explore the application of LEED to these facilities, to identify how the LEED rating systems can be improved, and to work to maximize the LEED ratings for these buildings, as practical.

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# DOI Projects Registered with USGBC (2/04)

<b>Bldg. 572 Historic Rehab</b>	Presidio Trust	San Francisco
<b>BLM Rawlins Field Office</b>	BLM	Rawlins
<b>Chinle School Dormitory</b>	BIA	Many Farms
<b>Escalante Science Center</b>	BLM	Escalante
<b>First Mesa Elementary School</b>	BIA	Polacca
<b>Jamaica Bay Wildlife Refuge: Visitor Contact Station</b>	NPS	Broad Channel
<b>Lewis &amp; Clark Visitor Center</b>	NPS	Nebraska City
<b>Mammoth Cave Visitor Center Renovation</b>	NPS	Mammoth Cave
<b>Ojibwa Millennium School</b>	Ojibwa Indian School, Inc.	Belcourt
<b>Paradise Visitor Center, Mt. Ranier Park</b>	NPS	Longmire
<b>South Rim Maintenance &amp; Warehouse Facility</b>	NPS	Grand Canyon
<b>U.S. DOI Headquarters Modernization</b>	DOI	Washington
<b>Visitor's Center for Chickasaw National Recreation</b>	NPS	Sulphur
<b>Xanterra Parks &amp; Resorts' Mazama Village Restaurant</b>	Xanterra Parks & Resorts	Crater Lake
<b>Xanterra Parks &amp; Resorts/National Park Service Concessioner Employee Housing</b>	Xanterra Parks & Resorts	Gardiner



**Baca/Dlo'ay azhi Community School**  
**LEED Project # 1419**  
 LEED Version 2 Certification Level: Certified  
 January 15, 2004

**26 Points Achieved** **Possible Points: 69**

Certified 26 to 32 points Silver 33 to 38 points Gold 39 to 51 points Platinum 52 or more points

**8 Sustainable Sites** **Possible Points: 14**

Y	Prereq	Credit	Description	Points
Y	Prereq 1		Erosion & Sedimentation Control	
1	Credit 1		Site Selection	1
	Credit 2		Urban Redevelopment	1
	Credit 3		Brownfield Redevelopment	1
	Credit 4.1		Alternative Transportation, Public Transportation Access	1
1	Credit 4.2		Alternative Transportation, Bicycle Storage & Changing Rooms	1
1	Credit 4.3		Alternative Transportation, Alternative Fuel Refueling Stations	1
1	Credit 4.4		Alternative Transportation, Parking Capacity	1
1	Credit 5.1		Reduced Site Disturbance, Protect or Restore Open Space	1
1	Credit 5.2		Reduced Site Disturbance, Development Footprint	1
1	Credit 6.1		Stormwater Management, Rate and Quantity	1
1	Credit 6.2		Stormwater Management, Treatment	1
1	Credit 7.1		Landscape & Exterior Design to Reduce Heat Islands, Non-Roof	1
1	Credit 7.2		Landscape & Exterior Design to Reduce Heat Islands, Roof	1
	Credit 8		Light Pollution Reduction	1

**4 Water Efficiency** **Possible Points: 5**

Y	Prereq	Credit	Description	Points
1	Credit 1.1		Water Efficient Landscaping, Reduce by 50%	1
1	Credit 1.2		Water Efficient Landscaping, No Potable Use or No Irrigation	1
	Credit 2		Innovative Wastewater Technologies	1
1	Credit 3.1		Water Use Reduction, 20% Reduction	1
1	Credit 3.2		Water Use Reduction, 30% Reduction	1

**3 Energy & Atmosphere** **Possible Points: 17**

Y	Prereq	Credit	Description	Points
Y	Prereq 1		Fundamental Building Systems Commissioning	
Y	Prereq 2		Minimum Energy Performance	
Y	Prereq 3		CFC Reduction in HVAC&R Equipment	
2	Credit 1.1		Optimize Energy Performance, 20% New / 10% Existing	2
	Credit 1.2		Optimize Energy Performance, 30% New / 20% Existing	2
	Credit 1.3		Optimize Energy Performance, 40% New / 30% Existing	2
	Credit 1.4		Optimize Energy Performance, 50% New / 40% Existing	2
	Credit 1.5		Optimize Energy Performance, 60% New / 50% Existing	2
	Credit 2.1		Renewable Energy, 5%	1
	Credit 2.2		Renewable Energy, 10%	1
	Credit 2.3		Renewable Energy, 20%	1
	Credit 3		Additional Commissioning	1
	Credit 4		Ozone Depletion	1
	Credit 5		Measurement & Verification	1
1	Credit 6		Green Power	1

**2 Materials & Resources** **Possible Points: 13**

Y	Prereq	Credit	Description	Points
Y	Prereq 1		Storage & Collection of Recyclables	
	Credit 1.1		Building Reuse, Maintain 75% of Existing Shell	1
	Credit 1.2		Building Reuse, Maintain 100% of Existing Shell	1
	Credit 1.3		Building Reuse, Maintain 100% Shell & 50% Non-Shell	1
	Credit 2.1		Construction Waste Management, Divert 50%	1
	Credit 2.2		Construction Waste Management, Divert 75%	1
	Credit 3.1		Resource Reuse, Specify 5%	1
	Credit 3.2		Resource Reuse, Specify 10%	1
1	Credit 4.1		Recycled Content	1
	Credit 4.2		Recycled Content	1
1	Credit 5.1		Local/Regional Materials, 20% Manufactured Locally	1
	Credit 5.2		Local/Regional Materials, of 20% Above, 50% Harvested Locally	1
	Credit 6		Rapidly Renewable Materials	1
	Credit 7		Certified Wood	1

**4 Indoor Environmental Quality** **Possible Points: 15**

Y	Prereq	Credit	Description	Points
Y	Prereq 1		Minimum IAQ Performance	
Y	Prereq 2		Environmental Tobacco Smoke (ETS) Control	
	Credit 1		Carbon Dioxide (CO <sub>2</sub> ) Monitoring	1
	Credit 2		Increase Ventilation Effectiveness	1
1	Credit 3.1		Construction IAQ Management Plan, During Construction	1
1	Credit 3.2		Construction IAQ Management Plan, Before Occupancy	1
	Credit 4.1		Low-Emitting Materials, Adhesives & Sealants	1
	Credit 4.2		Low-Emitting Materials, Paints	1
	Credit 4.3		Low-Emitting Materials, Carpet	1
	Credit 4.4		Low-Emitting Materials, Composite Wood	1
1	Credit 5		Indoor Chemical & Pollutant Source Control	1
1	Credit 6.1		Controllability of Systems, Perimeter	1
1	Credit 6.2		Controllability of Systems, Non-Perimeter	1
	Credit 7.1		Thermal Comfort, Comply with ASHRAE 55-1992	1
	Credit 7.2		Thermal Comfort, Permanent Monitoring System	1
	Credit 8.1		Daylight & Views, Daylight 75% of Spaces	1
	Credit 8.2		Daylight & Views, Views for 90% of Spaces	1

**5 Innovation & Design Process** **Possible Points: 5**

Y	Credit	Description	Points
1	Credit 1.1	Innovation in Design: Sustainability Education	1
1	Credit 1.2	Innovation in Design: Green Housekeeping	1
1	Credit 1.3	Innovation in Design: Exemplary Performance MRC5	1
1	Credit 1.4	Innovation in Design: Exemplary Performance SS07.1	1
1	Credit 2	LEED™ Accredited Professional	1

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