

# Building Compliance with the Sustainability Goals of E.O. 13423



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## Federal Environmental Symposium

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# Building Compliance

## With the Sustainability Goals of E.O. 13423

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- Compliance: HPSB Guiding Principles
  - New Construction:
    - USGBC LEED<sup>®</sup> New Construction (NC) Gold (or higher) for all new construction projects
  - Existing Building Portfolio:
    - Assessment Tool & Compliance Documentation

# New Construction

- The High Performance and Sustainable Buildings Guiding Principles (HPSB GP) have been matched with the LEED® New Construction (NC) credits.
- The LEED® credits that relate to the HPSB Guiding Principles are highlighted. Achieving all of the HPSB GP related credits will result in a potential LEED® Certified rating.
- Additional credits must be achieved to achieve LEED® GOLD.

**LEED-NC has established credit scoring system and technical criteria**

# New Construction

Guiding Principles:  
27 LEED® Credits  
5 Prerequisites

DOE requires LEED® Gold as minimum

High Performance and Sustainable Buildings Guiding Principles Checklist for New Construction					
Building Name: .....					 
Address: .....					
These fields will populate as corresponding guiding principles and LEED credits are marked				% HPSB Guiding Principles Achieved	100%
				Total LEED Credits (Yes column)	27
Assessment					
Initial					Final
LEED	Sustainable Sites			14 Points	HPSB
YES Maybe No					
Y			Prereq 1 Construction Activity Pollution Prevention	LEED Rqd	<input checked="" type="checkbox"/>
1			Credit 1 Site Selection	1	<input checked="" type="checkbox"/>
			Credit 2 Development Density & Community Connectivity	1	
			Credit 3 Brownfield Redevelopment	1	
			Credit 4.1 Alternative Transportation, Public Transportation Access	1	
			Credit 4.2 Alternative Transportation, Bicycle Storage & Changing Rooms	1	
			Credit 4.3 Alternative Transportation, Low-Emitting & Fuel-Efficient Vehicles	1	
			Credit 4.4 Alternative Transportation, Parking Capacity	1	
			Credit 5.1 Site Development, Protect or Restore Habitat	1	
			Credit 5.2 Site Development, Maximize Open Space	1	
1			Credit 6.1 Stormwater Design, Quantity Control	1	<input checked="" type="checkbox"/>
1			Credit 6.2 Stormwater Design, Quality Control	1	<input checked="" type="checkbox"/>
			Credit 7.1 Heat Island Effect, Non-Roof	1	
			Credit 7.2 Heat Island Effect, Roof	1	
			Credit 8 Light Pollution Reduction	1	
3	0	0	<b>Subtotal</b>		
LEED	Water Efficiency			5 Points	HPSB
YES Maybe No					
1			Credit 1.1 Water Efficient Landscaping, Reduce by 50%	1	<input checked="" type="checkbox"/>
			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	<input checked="" type="checkbox"/>
			Credit 3.2 Water Use Reduction, 30% Reduction	1	
2	0	0	<b>Subtotal</b>		
LEED	Energy & Atmosphere			17 Points	HPSB
YES Maybe No					

# Existing Building Portfolio

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- Incorporate the HPSB Guiding Principles to ensure that at least fifteen percent (15%) of existing DOE capital asset building inventory (by square feet) comply with the Guiding Principles by the end of Fiscal Year 2015.
  - DOE Secretary Memo Directive
  - DOE Order 430.2B Departmental Energy, Utilities, and Transportation Management

# Existing Buildings Checklist and Compliance

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- Created assessment tool to facilitate & document compliance procedure
- DOE has modified the LEED® Existing Building (EB) – project checklist to serve as an assessment tool to match LEED credits to the corresponding Guiding Principles.
- The LEED® project checklist is a “planning and assessment tool” to identify measures for buildings.
- Created Summary Checklist to track Compliance.

# HPSB Assessment

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- Assessment: a combination of a visual inspection and measurements to determine performance levels. The Assessment determines building performance by utilizing a set of standards to identify:
  - Site characteristics
  - Water efficiency
  - Energy savings
  - Materials and Resources, and
  - Indoor Environmental Quality
- Critical to assign responsibility and accountability to this process.
- Assessment is required to document HPSB performance.
- Quality control and quality assurance is important.

# HPSB Assessment

## Project Team

- Site Manager
- Facility Energy Manager
- LEED AP (or equiv)
- Construction or Operations Manager
- Third party

## Pre - Planning

- Determine Appropriate Buildings
- Quick Targeting of existing building performance—LEED EB,
  - Current and past bills, polices, recent audits, ESCO contracts

## Documentation

- Visual inspection, pictures, policies and calculations
- Complete Checklists & Compliance Forms
- Maintain documentation on site

## Annual Assessment

# DOE Assessment Tool (Excel base model)

**HIGH PERFORMANCE and SUSTAINABLE BUILDINGS**

**U.S. DEPARTMENT OF ENERGY**



**NREL's Science & Technology Facility**



**Sandia's MESA Microsystems Fabrication**

# DOE Assessment Tool (Excel base model)

## High Performance and Sustainable Buildings (HPSB)

### Table of Contents

1	<a href="#">Instructions for New Construction</a>	13	<a href="#">Moisture Control</a>
2	<a href="#">HPSB Checklist for New Construction</a>	14	<a href="#">Daylighting</a>
3	<a href="#">Instructions for Existing Buildings</a>	15	<a href="#">Low-Emitting Materials</a>
4	<a href="#">HPSB Checklist for Existing Buildings</a>	16	<a href="#">Protect Indoor Air Quality During Construction</a>
6	<a href="#">Integrated Design</a>	17	<a href="#">Recycled Content</a>
7	<a href="#">Commissioning</a>	18	<a href="#">Biobased Content</a>
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10	<a href="#">Indoor Water</a>	21	<a href="#">Guiding Principles Compliance Summary</a>
11	<a href="#">Outdoor Water</a>	22	<a href="#">Frequently Asked Questions</a>
12	<a href="#">Ventilation Thermal Comfort</a>	23	<a href="#">DOE List of LEED APs</a>

# Compliance Strategy

**Step 1:** Assessors should first utilize the Tab: *Existing Buildings Checklist* to take a quick inventory of where the building stands in terms of meeting overall sustainable building practices.

High Performance and Sustainable Buildings (HPSB)	
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► | Cover / MISSION / **Table of Contents** / Instructions New Construction / New Construction Checklist / Instructions Existing Buildings / | ◀ ▶

# Existing Buildings Checklist

Guiding Principles have been matched with LEED Credits

Allows for Pre - and Final Assessment

High Performance and Sustainable Buildings Guiding Principles					
Checklist for Existing Buildings					
Building Name: _____					 
Address: _____					
This field will populate as guiding principles are completed in the compliance tabs				% HPSB Guiding Principles Achieved*	0%
				Total LEED Credits Achieved (Yes column)	24
Assessment					
Initial					
LEED	Sustainable Sites				12 Points
YES	Maybe	No			
			SSc1	LEED Certified Design and Construction	1
			SSc2	Building Exterior and Hardscape Management Plan	1
			SSc3	Integrated Pest Management, Erosion Control and Landscape Management Plan	1
			SSc4.1	Alternative Commuting Transportation - 10%	1
0			SSc4.2	Alternative Commuting Transportation - 25%	1
			SSc4.3	Alternative Commuting Transportation - 50%	1
			SSc4.4	Alternative Commuting Transportation - 75% or greater	1
			SSc5	Reduced Site Disturbance - Protect or Restore Open Space	1
1			SSc6	Storm Water Management	1
			SSc7.1	Heat Island Reduction - Non-Roof	1
			SSc7.2	Heat Island Reduction Roof	1
			SSc8	Light Pollution Reduction	1
1	0	0	<b>Subtotal</b>		
LEED	Water Efficiency				10 Points
YES	Maybe	No			
			Prereq 1	Minimum Indoor Plumbing Fixture Efficiency	LEED Req
			WEc1.1	Water Performance Measurement - Whole Building Water Meter	1
			WEc1.2	Water Performance Measurement - Subsystem Metering	1
1			WEc2.1	Additional Indoor Plumbing Fixture Efficiency - 10%	1
1			WEc2.2	Additional Indoor Plumbing Fixture Efficiency - 20%	1
			WEc2.3	Additional Indoor Plumbing Fixture Efficiency - 30%	1
1			WEc3.1	Water Eff Landscape - Reduce Potable Water by 50%	1
			WEc3.3	Water Eff Landscape - Reduce Potable Water by 75%	1
			WEc3	Water Eff Landscape - Reduce Potable Water by 100%	1
			WEc4.1.2	Cooling Tower Water Management	2
3	0	0	<b>Subtotal</b>		

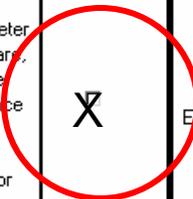
# Compliance Strategy

**Step 2:** In order to be in compliance with the HPSB Guiding Principles, sites shall document compliance by the use the individual tabs (integrated design, commissioning, energy efficiency, etc) to evaluate and validate each guiding principle.

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► \ Cover / MISSION \ **Table of Contents** / Instructions New Construction / New Construction Checklist / Instructions Existing Buildings / i | ◀

**High Performance Sustainable Buildings**  
**Explanation of Principle and Required Documentation for Existing Buildings**

HPSB Principle	How to Comply	Documents On File?	Related LEED Credit for U.S. Department of Energy
<p><b>Intent:</b> Demonstrate energy optimization performance. Establish a whole building performance target that takes into account the intended use, occupancy, operations, plug loads, other energy demands, and design to earn the ENERGY STAR targets for new construction and major renovation where applicable. For new construction, reduce the energy cost budget by 30 percent compared to the baseline building performance rating per the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., (ASHRAE) and the Illuminating Engineering Society of North America (IESNA) Standard 90.1-2004, Energy Standard for Buildings Except Low-Rise Residential. For major renovations, reduce the energy cost budget by 20 percent below pre-renovations 2003 baseline.</p>	<p>Document compliance with energy performance targets achieved through meter data, bills, energy usage modeling software, or data from Energy Service Performance Providers. Documentation and performance requirements are explained below. Or register with ENERGY STAR's Portfolio Manger and achieve a rating score of 75 or greater and print out the Statement of Energy Performance.</p>		<p>EAc1.1-15; Energy Optimization:</p>

*Documentation Options for Intent:*

**Option A. Energy Usage Reduction**

Reduce measured building energy use by 30% compared to measured building energy use in 2003, design (not including designated mission, non-building intensive use).

**Option B. Energy Usage Reduction**

Reduce energy use by 20% compared to the current ASHRAE 90.1 baseline building design (not including designated mission, non-building energy intensive usage).

**Option C. Energy Star Rating**

For buildings ratable by ENERGY STAR's Portfolio Manger tool, achieve an energy performance rating of at least **75**. If unable to document through Portfolio Manger benchmark use LABS21 database to demonstrate a 25% improvement above average.

**\*\*Confirmation\*\***

**Building ID:** .....

**Signed By:** ..... **Date:** .....

**Title:** .....

**Related Mandates**

The Energy Independence and Security Act of 2007 (EISA)

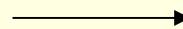
The Energy Policy Act of 2005 (EPACT)

**Resources**

[http://www.wbdg.org/references/mou\\_ee.php](http://www.wbdg.org/references/mou_ee.php)

<http://www.wbdg.org/pdfs/10cfr435.pdf>

<http://www.wbdg.org/ccb/BEGS/dec435.pdf>



Guiding Principle V. Reduce Environmental Impact of Materials: **Biobased Content**

**High Performance Sustainable Buildings**  
**Explanation of Principle and Required Documentation for Existing Buildings**

HPSB Principle	How to Comply	Documents On File?	Related LEED Credit for U.S. Department of Energy
<p><b>Intent:</b> For USDA-designated products, use products meeting or exceeding USDA's biobased content recommendations. For other products, use biobased products made from rapidly renewable resources and certified sustainable wood products.</p>	<p>Establish Model Contract and Specification Language for the purchase of USDA-designated products, use products meeting or exceeding USDA's biobased content recommendations. For other products, use biobased products made from rapidly renewable resources and certified sustainable wood products.</p>	<p><input type="checkbox"/></p>	<p>MR Prerequisite 1: Sustainable Purchasing Policy (sustainable purchases of at least 40% of total purchases on cost basis)</p> <p>MR Credit 1.1 Sustainable Purchasing, Ongoing Consumables</p> <p>MR Credit 2.2 Sustainable Purchasing, Durable goods, Furniture</p>

**\*\*Confirmation\*\***

Building ID: .....

Signed By: .....

Title :

And adhere to the following Federal Acquisition Regs:  
 -FAR 52.223-1 and 2 Biobased products Preference Provision and Clause

- [http://www.wbdg.org/references/mou\\_bc.php](http://www.wbdg.org/references/mou_bc.php)
- <http://www.biopreferred.gov/Default.aspx?SMSESSION=NO>
- <http://www.biopreferred.gov/Catalog.aspx>

**Construction Specification:**  
**Materials and Resources:**  
**Recycled Content.** Percentage of building materials (by cost) that contain post consumer and/or post-industrial recycled content.  
**Locally Manufactured.** Percentage of building materials (by cost) manufactured regionally within a 500-mile radius.  
**Locally Harvested.** Percentage of building materials (by cost) harvested and extracted within a 500 mile radius.  
**Rapidly Renewable.** Percentage of building materials (by cost) that are rapidly renewable  
**Resource Reuse.** Percentage of building materials (by cost) that are salvaged, refurbished or reused  
 Rapidly renewable materials can be planted and harvested in less than a 10 year cycle. Examples include bamboo flooring, cotton batt insulation, poplar OSB (oriented strand board) and linoleum (i.e., marmoleum) flooring. Include table as an appendix; list all products purchased for the building and those that are rapidly renewable to determine the % of rapidly renewable building materials. The LEED™ reference template may be used.

IAQ During Construction / Recycled Content / **Biobased Content**

**Contract and/or Bid specification**

# Existing Buildings Checklist

## Step 2:

The total percent of the HPSB Guiding Principles achieved is tabulated when the Compliance Tabs for each GP is checked (integrated design, commissioning, energy efficiency, etc).

High Performance and Sustainable Buildings Guiding Principles					
Checklist for Existing Buildings					
Building Name:			 		
Address:					
This field will populate as guiding principles are completed in the compliance tabs			% HPSB Guiding Principles Achieved* <b>85%</b>		
			Total LEED Credits Achieved (Yes column) <b>24</b>		
Assessment					
Initial					
LEED	Sustainable Sites			12 Points	
YES	Maybe	No			
			SSc1	LEED Certified Design and Construction	1
			SSc2	Building Exterior and Hardscape Management Plan	1
			SSc3	Integrated Pest Management, Erosion Control and Landscape Management Plan	1
			SSc4.1	Alternative Commuting Transportation - 10%	1
0			SSc4.2	Alternative Commuting Transportation - 25%	1
			SSc4.3	Alternative Commuting Transportation - 50%	1
			SSc4.4	Alternative Commuting Transportation - 75% or greater	1
			SSc5	Reduced Site Disturbance - Protect or Restore Open Space	1
1			SSc6	Storm Water Management	1
			SSc7.1	Heat Island Reduction - Non-Roof	1
			SSc7.2	Heat Island Reduction Roof	1
			SSc8	Light Pollution Reduction	1
1	0	0	<b>Subtotal</b>		
LEED	Water Efficiency			10 Points	
YES	Maybe	No			
			Prereq 1	Minimum Indoor Plumbing Fixture Efficiency	LEED Rqd
			WEc1.1	Water Performance Measurement - Whole Building Water Meter	1
			WEc1.2	Water Performance Measurement - Subsystem Metering	1
1			WEc2.1	Additional Indoor Plumbing Fixture Efficiency - 10%	1
1			WEc2.2	Additional Indoor Plumbing Fixture Efficiency - 20%	1
			WEc2.3	Additional Indoor Plumbing Fixture Efficiency - 30%	1
1			WEc3.1	Water Eff Landscape - Reduce Potable Water by 50%	1
			WEc3.3	Water Eff Landscape - Reduce Potable Water by 75%	1
			WEc3	Water Eff Landscape - Reduce Potable Water by 100%	1
			WEc4.1,2	Cooling Tower Water Management	2
3	0	0	<b>Subtotal</b>		

# HPSB Assessment Summary Table

Compliance Forms  
Also tabulate a  
GP Existing Building  
Assessment Summary  
Table.

Provides area for  
comments/notes on  
meeting Guiding  
Principles.

High Performance Sustainable Buildings Existing Buildings Assessment Verification - Summary Table			
HPSB Principle	Action Required	% HPSB GPs Achieve	notes/comments
<b>1. Employ Integrated Design Principles</b>		<b>0.0%</b>	
Integrated design	LEED Accredited Professional/Inter-sustainable team	<input type="checkbox"/>	
Commissioning	Commissioning: Investigation & Analysis.	<input type="checkbox"/>	
	Commissioning: Implementation	<input type="checkbox"/>	
<b>2. Optimize Energy Performance</b>			
Energy Efficiency	Energy Optimization	<input type="checkbox"/>	
Measurement and Verification	Energy Star's Portfolio Manager or Labs 21, or equivalent	<input type="checkbox"/>	
	Building level utility meters	<input type="checkbox"/>	
	Data entered into High Performance database	<input type="checkbox"/>	
<b>3. Protect and Conserve Water</b>			
Indoor Water	Indoor Plumbing Fixture Efficiency, 20 %	<input type="checkbox"/>	
Outdoor Water	Water Efficient Landscaping, Reduce by 50%	<input type="checkbox"/>	
	Storm-water management	<input type="checkbox"/>	
<b>4. Enhance Indoor Environmental Quality</b>			
Ventilation and Thermal Comfort	Ashrae Standard 55 & 62.1	<input type="checkbox"/>	
Moisture Control	Moisture Control Strategy	<input type="checkbox"/>	
Daylighting	Lighting Control for 50% of building occupants	<input type="checkbox"/>	
	2% daylight factor in 75% of all spaces	<input type="checkbox"/>	
Low-Emitting Materials	Materials and products with low volatile organic compounds	<input type="checkbox"/>	

# Existing Building Assessment

Assessment Tool provides easy access to FAQs and a list of DOE LEED APs

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Navigation bar: Cover / MISSION / Table of Contents / Instructions New Construction / New Construction Checklist / Instructions Existing Buildings

# Data Reporting

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- Assessment results captured at the building level & aggregated to site and program results.
- Assessment data (calculations, spreadsheets and similar information) shall be maintained by the site along with all supporting documentation.
- Results inputted in the Department's Facilities Information Management System (FIMS).



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Thank You