

U.S. Department of Energy

High Performance and Sustainable Buildings Implementation Plan

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ACRONYMS

ASHRAE	American Society of Heating, Refrigeration, and Air Conditioning Engineers
CD	Critical Decision
CEQ	Council on Environmental Quality
CPR	Corporate Program Review
CRD	Contractor Requirements Document
DEAR	DOE Acquisition Regulations
DOE	Department of Energy
EERE	Office of Efficiency and Renewable Energy
EM	Office of Environmental Management
EMS	Environmental Management System
EO	Executive Order
EPA	Environmental Protection Agency
EPACT	Energy Policy Act
ESPC	Energy Savings Performance Contract
FE	Office of Fossil Energy
FEMP	Federal Energy Management Program
FIMS	Facilities Information Management System
GSA	General Services Administration
HPSB	High Performance and Sustainable Buildings
HPSBWG	High Performance and Sustainable Buildings Working Group
HSS	Office of Health, Safety and Security
ISWG	Interagency Sustainability Working Group
LEED	Leadership in Energy and Environmental Design
M&O	Management and Operating
MOU	Memorandum of Understanding
NNSA	National Nuclear Security Administration
OECM	Office of Engineering and Construction Management
OMB	Office of Management and Budget
PL	Public Law
POAM	Plan of Action and Milestones
RPV	Replacement Plant Value
SAO	Senior Agency Official
SC	Office of Science
TEAM	Transformational Energy Action Management
UESC	Utility Energy Savings Contract
USDA	United States Department of Agriculture

1 DOE COMMITMENT TO HPSB

The U.S. Department of Energy (DOE) is committed to designing, building, operating, and maintaining high performance and sustainable buildings (HPSB). The Department has demonstrated its understanding of and compliance with Federal laws, agreements, and orders that address HPSB, and has promulgated internal policies and orders that exceed the Federal requirements.

The Department's commitment to HPSB starts with strong leadership. Secretary Bodman has pushed the Department to institutionalize HPSB and become a Federal leader by example in this area. As this plan will illustrate, the Department continues to rise to the challenge, both at Headquarters and at the field sites, in order to meet and exceed its HPSB goals.

1.1 Federal HPSB Drivers and Commitments

On January 24, 2006, DOE, along with 20 other agencies, signed the Federal Leadership in High Performance and Sustainable Buildings Memorandum of Understanding (MOU) to commit to implementing common strategies for planning, acquiring, siting, designing, building, operating, and maintaining HPSB. The MOU establishes a set of Guiding Principles¹ to: 1) employ integrated design principles; 2) optimize energy performance; 3) protect and conserve water; 4) enhance indoor environmental quality; and 5) reduce environmental impacts of materials. Adherence to the Guiding Principles will help DOE achieve the following MOU goals:

- Reduce the total ownership cost of facilities and the life-cycle cost of facilities' environmental and energy attributes;
- Improve energy efficiency and water conservation and utilize renewable energy;
- Provide safe, healthy, and productive building environments; and
- Promote environmental stewardship through responsible land use and material procurement.

The Guiding Principles yield additional benefits. Integrated design, for example, advances coordination during the design phase, thereby improving the design itself and reducing total project costs. The goals for decreased energy and water consumption create both substantial operating savings and protection of scarce resources. Investment in indoor environmental quality improves air quality and lighting, which increases workers' productivity and reduces absenteeism. Minimizing the environmental impacts of materials increases recycling rates, promotes environmentally preferable materials such as biobased and recycled-content products, and reduces waste going to landfills.

The January 24, 2007 Executive Order (EO) 13423, "*Strengthening Federal Environmental, Energy, and Transportation Management*," hereafter referred to as the EO, emphasized and reinforced the Guiding Principles. The EO requires that each agency head ensure that

¹ Throughout this document, the term "Guiding Principles" refers to the Guiding Principles established in the MOU. The Guiding Principles can be found at http://www.wbdg.org/pdfs/sustainable_mou.pdf.

- (i) New construction and major renovation of Federal buildings comply with the Guiding Principles, and
- (ii) At least 15 percent of the existing Federal capital asset building inventory of the agency as of the end of Fiscal Year 2015 incorporates the sustainable practices in the Guiding Principles.

On March 29, 2007, the White House Council on Environmental Quality (CEQ) issued final *Instructions for Implementing Executive Order 13423*. These requirements state that beginning with the Fiscal Year 2007 funding cycle, when planning the funding and design for construction of buildings that meet the agency-defined capital asset threshold, each agency shall meet or exceed statutory goals and address each of the five Guiding Principles. In addition, all business cases for new building construction or major renovations, developed per Office of Management and Budget (OMB) Circular A-11, Part 7, Section 300 shall incorporate the Guiding Principles to the greatest extent practicable. These requirements apply to construction of new buildings; new, renegotiations, or extensions of leases for federal occupancy or renewal; and major renovation projects.

The Energy Independence and Security Act of 2007 (P.L. 110-140) further reinforced the importance of HPSB by codifying many of the EO goals and by adding new requirements for energy auditing, metering, fossil fuel consumption, and leases at Federal facilities. DOE is currently taking the lead in providing implementation guidance for many sections of this law.

Section 109 of the Energy Policy Act (EPACT) of 2005 (P.L. 109-58) also mandates that all new Federal facilities shall 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 (ASHRAE) Standard 90.1-2004, Energy Standard for Buildings, or the International Energy Code. DOE published the final rulemaking on the 30 percent reduction on December 21, 2007.

1.2 DOE-Specific HPSB Commitments

In August 2007, the DOE Secretary launched the Transformational Energy Action Management (TEAM) Initiative, which lays out a plan for the DOE to meet or exceed the goals outlined in the EO. This initiative is transforming the way DOE manages its energy, water and petroleum use, while simultaneously moving to a more healthy and sustainable workplace. Among other things, the TEAM Initiative is designed to ensure that DOE will continue its role as an HPSB leader within the Federal government, while also lowering life-cycle investment costs across the Agency.

The Secretary reinforced the importance of HPSB within the TEAM Initiative in a February 2008 Memorandum for Heads of Departmental Elements titled “DOE Federal Leadership in High Performance and Sustainable Buildings” (Appendix A). This memorandum emphasized the following:

- *All* new DOE-owned buildings will incorporate the Guiding Principles to the extent practical.

- As of October 1, 2008, all new buildings and major building renovations still in the design stage, with a value exceeding \$5 million, must implement the Guiding Principles through certification of the Leadership in Energy and Environmental Design (LEED) Gold standard. (See <https://www.usgbc.org/ShowFile.aspx?DocumentID=1096> for explanation of LEED gold and other certification levels.)
- DOE Program Offices owning or leasing real property must develop and implement a plan to ensure that 15 percent of their existing buildings are in compliance with the Guiding Principles.
- All procurement specifications and selection criteria for acquiring new leased space are to include a preference for LEED Gold, and all lease extensions and renegotiations are to include provisions incorporating the Guiding Principles to the greatest extent practicable.

1.3 Cross-functional Implementation Plan Development

The HPSB Implementation Plan has been developed to assist in implementing the Guiding Principles within the Department's new construction, major renovations, and leases, with emphasis on meeting and exceeding the goal that 15 percent of the existing building inventory incorporate the sustainable practices in the Guiding Principles by 2015.

The Plan has been developed by the DOE High Performance Sustainable Buildings Working Group (HPSBWG). This intra-agency group is chaired by the DOE Office of Energy Efficiency and Renewable Energy (EERE) and consists of representatives from all real-property-owning and support programs. The HPSBWG, in collaboration with the Federal Energy Management Program (FEMP), reports to EERE and the TEAM Initiative's Senior Executive Steering Committee. Technical experts and staff from across the Department support the HPSBWG.

The vision of the HPSBWG is to help lead the Federal government by promoting, building, and maintaining high performance and sustainable buildings. HPSBWG responsibilities include the following:

- (1) Coordinate DOE policies and establish programmatic framework with respect to HPSB;
- (2) Develop new building programs and existing building strategy for owned and leased buildings;
- (3) Maintain coordination with the Interagency Sustainability Working Group (ISWG) through FEMP; and
- (4) Report to the Senior Agency Official (SAO).

More information on the HPSBWG, including its charter, membership, and its organizational role within TEAM is provided in Appendix B.

2 DOE HPSB DIRECTIVES

As stated in its Strategic Plan, DOE is committed to "build, modernize, and maintain facilities and infrastructure to achieve mission goals and ensure a safe and secure workplace," and to

“invest in the infrastructure to reduce overall facility square footage and improve energy efficiency and sustainability.”² DOE makes these commitments operational through DOE Orders. (DOE Orders can be found at <http://www.directives.doe.gov>.) The following DOE Orders support the Department’s commitment to HPSB:

- DOE Order 430.1B, *Real Property Asset Management*
- DOE Order 413.3A, *Program and Project Management for the Acquisition of Capital Assets*
- DOE Order 430.2B, *Departmental Energy, Renewable Energy, and Transportation Management*
- DOE Order 450.1A, *Environmental Protection Program*.

These Orders, along with the Department’s acquisition regulations, provide the instructions for incorporating the Guiding Principles for all building projects planned, designed, and constructed under agency control. DOE continues to integrate new HPSB requirements into relevant DOE Orders and related guidance documents as necessary. Key HPSB aspects of these Orders and the acquisition regulations are highlighted below.

2.1 DOE Order 430.1B, *Real Property Asset Management*

The overall direction for the Department’s real property management program is contained in DOE Order 430.1B, Real Property Asset Management (RPAM), issued September 24, 2003. The order establishes a corporate, holistic, and performance-based approach to real property life-cycle asset management that links real property asset planning, programming, budgeting, and evaluation to program mission projections and performance outcomes. To accomplish the objective, this Order identifies requirements and establishes reporting mechanisms and responsibilities for real property asset management. A critical document generated in support of RPAM is the Ten Year Site Plan (TYSP).

The TYSP serves a number of purposes including: providing planning and budgeting information to support the budget formulation process; plans for management of maintenance and deferred maintenance; identification of modernization needs; changes in land use plans; tracking of facility management performance measures; and identification of facility and infrastructure issues that affect mission accomplishment. Site level strategies to meet the sustainability goals of E.O. 13423 will be reported within the site TYSPs.

2.2 DOE Order 413.3A, *Program and Project Management for the Acquisition of Capital Assets*

Dated July 28, 2006, this Order requires that the Federal project director explicitly consider and incorporate HPSB principles into each phase of the building construction process. Moreover, it states that construction projects are executed in compliance with OMB Circular A-11, Part 7, Section 300; *Planning, Budgeting, Acquisition, and Management of Federal Capital Assets*.

² US DOE Strategic Plan, 2006, available at <http://www.cfo.doe.gov/strategicplan/docs/execsum.pdf>.

The Order is organized by Critical Decisions (CD), which are major milestones that establish mission need, recommended alternatives, acquisition strategy, performance baseline, and additional essential elements required to ensure that projects meet applicable mission, design, security, and safety requirements. The CDs requiring inclusion of HPSB principles are:

- CD-1: Approve Alternative Selection and Cost Range,
- CD-2: Approve Performance Baseline,
- CD-3: Approve Start of Construction, and
- CD-4: Approve Start of Operations or Project Completion.

The order contains a Contractor Requirements Document (CRD) that requires the following:

- HPSB in project management of capital asset acquisitions involving new construction and major renovations of facilities; and
- HPSB principles must be applied to the siting, design, construction, and commissioning of new facilities and major renovations of existing facilities.

On June 20, 2008, DOE issued DOE Guide 413.3-6, *High Performance and Sustainable Building*. The Guide provides recommendations and options for Federal project directors to consider when implementing HPSB requirements during the capital asset acquisition process. The Guide notes the importance of establishing an integrated project team that includes a LEED-accredited professional (AP) at the earliest stages of project planning for capital asset projects. Although the Guide pertains to DOE Order 413.3A capital asset projects, it also provides useful information on the incorporation of HPSB principles into building-related General Plant Projects and Institutional General Plant Projects at DOE sites. The Guide is applicable to all DOE program offices.

2.3 DOE Order 430.2B, *Departmental Energy, Renewable Energy, and Transportation Management*

Revised on February 29, 2008 to address the energy, water, buildings, and fleets aspects of EO 13423, this Order translates the HPSB goals of the EO into DOE requirements. The Order complements the Secretary's memorandum (issued on the same day and described in Section 1.2) by requiring, as of October 1, 2008, that all new buildings and major buildings renovations at CD-1 or lower with a value exceeding \$5 million implement the Guiding Principles and attain LEED Gold certification. It also requires that, starting in Fiscal Year 2008, all procurement specifications and selection criteria for acquiring new leased space, including build-to-suit lease solicitations, are to include a preference for buildings certified as LEED Gold. The Order also contains a CRD to ensure that Management and Operating (M&O) and major site and facility management contracts comply with the Order.

DOE Order 430.2B directs each site to develop and commit to an Executable Plan that communicates its commitment toward meeting all of the DOE goals outlined in the Order. The Order defines an Executable Plan to mean

an action plan setting forth a binding obligation of the applicable Site or Departmental element that commits appropriate personnel resources, establishes a financing plan that prioritizes the use of life-cycle cost-effective private-sector financing and optimizes the application of appropriations and budgeted funds, and establishes a time line for execution coupled with specific performance measures and deliverables.

In the event that additional personnel, financing, or time is required, Executable Plans must address how the site will achieve compliance with applicable statutory, regulatory, and executive order requirements and deadlines, while also applying good-faith efforts and/or the site-specific goals as agreed to by DOE to meet and exceed the additional requirements of the Order, as reasonably practicable. The Executable Plan will be approved by Senior Facility Management (Laboratory Director or other Senior Position with the authority to commit the facility to implementing the plan) and concurred on by the appropriate DOE Field and/or Headquarters Office. Final Executable Plans are due to the appropriate Program Office with a copy to FEMP's Program Manager by December 31, 2008.

On June 18, 2008, the Department circulated *Instructions for Developing the Executable Plan* to all DOE sites and Program Offices. These *Instructions* contain a section on plans to achieve HPSB, including the following requirements:

- Building inventory
 - Describe plans to assess the current building inventory to determine the extent to which the Guiding Principles are being applied.
 - Use DOE's Existing Building Assessment Tool to assist in this analysis.
 - Include the assessment in the Programs' Ten Year Site Plans and have it serve as a baseline for compliance with the 15 percent sustainability target.
- New Buildings and Major Renovations
 - Describe plans for all new DOE-owned buildings to incorporate the Guiding Principles to the extent practical.
 - Describe plans for all new buildings and major building renovations at CD-1 stage or lower with a value exceeding \$5M to implement the Guiding Principles through certification to the LEED Gold Standard. Progress in meeting this requirement will be tracked by the cognizant Acquisition Executive.
- Existing Owned and Leased Space
 - Describe plans to ensure that 15 percent of enduring buildings are compliant with the Guiding Principles. Implementation of the plan should be documented within your Ten Year Site Plans. Overall progress in meeting this requirement will be tracked within DOE's Facilities Information Management System (FIMS) by identifying, at the building level, the percentage of Guiding Principles met and/or the level of LEED certification attained.
 - Describe plans for all procurement specifications and selection criteria for acquiring new leased space, including build-to-suit lease solicitations, to include a preference for buildings certified to the LEED Gold Standard.

- Describe plans for the renegotiation or extension of existing leases to include, to the extent practicable, lease provisions that support the guiding principles.

2.4 DOE Order 450.1A, *Environmental Protection Program*

The objectives of DOE Order 450.1A, issued on June 4, 2008, are to

- (1) Implement sustainable practices for enhancing environmental, energy, and transportation management performance, as stipulated in section 3(a) of the EO, and
- (2) Achieve the DOE Sustainable Environmental Stewardship goals specified in Attachment 2 of the Order.

DOE O 450.1A requires Departmental elements to implement the EO sustainable practices, including those for high performance construction, lease, operation, and maintenance of buildings, through site environmental management systems (EMSs). The site EMS is the set of processes and practices that enable the site to increase its operating efficiency, continually improve overall environmental performance, and better manage and reduce its environmental impacts. In addition to ensuring compliance with applicable environmental protection requirements, the EMS is the vehicle for achieving the DOE Sustainable Environmental Stewardship Goals specified in DOE O 450.1A and the energy and transportation goals specified in DOE O 430.2B.

The performance-based DOE Sustainable Environmental Stewardship goals advance the sustainable practices of the EO. The goals are to be achieved through site implementation of accompanying sustainable practices, as appropriate, and their integration into site EMSs. Sites may identify additional sustainable practices appropriate to site-specific operations and activities necessary to achieve the stewardship goals. The Sustainable Environmental Stewardship Goals correspond to sustainable practices that pertain to HPSB, including environmentally preferred purchasing, recycling, toxic chemical reduction, and pollution prevention.

2.5 Department of Energy Acquisition Regulations (DEAR)

The DEAR implements and supplements the Federal Acquisition Regulation, which codifies uniform policies for acquisition of supplies and services by executive agencies, and contains clauses for inclusion in contracts. DEAR Parts 923 – “Environment, Conservation, Occupational Safety, and Drug-Free Workplace” and 952 – “Solicitation Provisions and Contract Clauses” are being updated to support HPSB goals.

3 PLAN IMPLEMENTATION

The HPSBWG is coordinating the implementation of the Department's HPSB goals via its HPSB Plan of Action and Milestones (POAM). The POAM lists strategies, action items, outputs, target and actual end dates, progress level, and responsible party for each of the following HPSB goals:

- Establishing HPSB charter and progress,
- Ensuring new construction and major renovations comply with Guiding Principles,
- Ensuring that 15 percent of the existing building inventory complies with Guiding Principles by 2015,
- Providing green building, USGBC LEED, Portfolio Manager, and related training and resource links, and
- Tracking and reporting progress.

The HPSBWG developed the POAM by using information from its previously conducted assessment of DOE's existing and required HPSB policies, reports, and programs. The POAM—and the Implementation Plan—incorporate many elements of that assessment. This chapter summarizes the POAM's key strategies and attendant actions, milestones, and responsible parties, which comprise the Department's HPSB Implementation Plan. It also identifies recent progress toward attaining the HPSB goals.

3.1 New Construction and Major Renovations

To meet the EO goal that new construction and major renovation of DOE buildings comply with the Guiding Principles, DOE has established the following requirements:

- All new buildings will incorporate the Guiding Principles to the extent practical and life cycle cost effective (Secretarial Memorandum dated February 29, 2008, and DOE Order 430.2B).
- As of October 1, 2008, all new buildings and major building renovations still in the design stage (CD-1 or lower), with a value exceeding \$5 million, must implement the Guiding Principles and attain LEED Gold certification (Secretarial Memorandum dated February 29, 2008, and DOE Order 430.2B).

Table 1 highlights specific implementation plan actions for the HPSBWG and shows that actions have been completed (via a DOE Order and secretarial memorandum) for creating a Department-wide HPSB policy for new construction and major renovation.

DOE has, via DOE Order 413.3A, an established set of procedures and requirements for managing its capital asset acquisition process in accordance with the EO implementation instructions requirement that all business cases for new building construction or major renovations developed per OMB Circular A-11, Part 7, Section 300 shall incorporate the Guiding Principles to the greatest extent practicable.

DOE’s process for meeting this requirement typically begins with long-range projections of facility needs in the Ten Year Site Plans, formulation and prioritization of those needs in relation to five-year budget profiles for each program office, and final submittal of funding requests to the Office of the Chief Financial Officer for consideration in the DOE Corporate Program Review (CPR) process. Recommendations to senior management for improving the effectiveness of the process and prioritization relative to incorporating the Guiding Principles and securing the greatest return on investment will be accomplished. DOE will document the extent to which the Guiding Principles are included for Exhibit 300 business cases.

Table 1. New Construction Implementation Plan Actions

Strategy	Action	Milestone	Responsibility	End Date
Create green building policy for new construction and major renovations	<ul style="list-style-type: none"> • Review available green building rating tools • Establish green building level and appropriate rating tool for new buildings with a value greater than \$5 million. 	<ul style="list-style-type: none"> • Secretarial Memorandum signed • DOE Order 430.2B issued • Crosswalk between Guiding Principles and LEED New Construction (NC) worksheet developed 	HPSBWG EERE HPSBWG	2/29/2008
	Establish appropriate Green building policy for new buildings up to \$5 million.	Requirement issued that programs are expected to meet the guiding principles as much as practicable (in newly issued DOE O 430.2B and in Secretarial memorandum)	HPSBWG EERE	2/29/2008
Establish waiver guidance	Issue guidance document that identifies processes and procedures for obtaining waiver from attaining LEED Gold certification	Guidance (to be issued)	HPSBWG	9/30/2008*

* Anticipated completion date

New Construction Profile

To implement new construction HPSB efforts effectively, the HPSBWG sought an understanding of the expected level of new construction activities across the Complex. Information on recent trends in new construction helps the Department plan future new construction HPSB efforts (e.g., training, reporting, outreach). To obtain data on recent new construction, the HPSBWG examined data on new DOE construction projects over the most

recent years for which data were available (2000-2006). Summary points from this examination include the following:

- DOE constructed an average of roughly 9 new buildings over \$5 million in replacement plant value (RPV) per year.
- The National Nuclear Security Administration (NNSA) and the Office of Science (SC) are the two most active programs constructing new buildings.
 - For new buildings greater than \$5 million in RPV, NNSA and SC constructed 78 percent of the total number of buildings. (Over the period, 65 buildings greater than \$5 million in RPV and representing 4,703,787 square feet were constructed). Thirty-six buildings (62 percent of the square footage) were constructed by NNSA, and 15 buildings (23 percent of the square footage) by SC.
 - For new buildings greater than \$20 million in RPV, NNSA and SC constructed 88 percent of the total number of buildings. Over the period, 26 buildings greater than \$30 million in RPV and representing 3,697,319 square feet were constructed). Seventeen buildings (69 percent of the square footage) were constructed by NNSA, and six buildings (21 percent of the square footage) by SC.

Progress

To meet the EO goal that new construction and major renovation of DOE buildings comply with the Guiding Principles, DOE has established the following requirements:

- All new buildings will incorporate the Guiding Principles to the extent practical and life cycle cost effective (Secretarial Memorandum dated February 29, 2008, and DOE Order 430.2B).
- As of October 1, 2008, all new buildings and major building renovations still in the design stage (CD-1 or lower), with a value exceeding \$5 million, must implement the Guiding Principles and attain LEED Gold certification (Secretarial Memorandum dated February 29, 2008, and DOE Order 430.2B).

Along with establishing the necessary HPSB policies for new construction and major renovations, DOE has made considerable progress in the last year toward meeting the EO's new construction goal. Additional accomplishments include the following:

- Creation of a Green building policy for new construction and major renovations. The new DOE O 430.2B established LEED Gold as the Department's formal benchmark for new buildings and major renovations over \$5 million.
- Issuing guidance on implementing the Department's HPSB requirements for the acquisition of capital assets through new construction and major renovations (DOE Guide 413.3A-6, *High Performance Sustainable Buildings*, June 2008).
- Adding LEED registered and certified buildings to building inventory. At the end of FY 2007, DOE had 10 LEED-certified buildings containing a total of 1,030,476 gross square

feet. Of these buildings, one is LEED Platinum, one is LEED Gold, four are LEED Silver, and four are LEED Certified. The buildings are located in Colorado, Illinois, New Mexico, Tennessee, Texas, and Washington. (See Appendix C for more detail.) As of March 2008, DOE had over 20 additional buildings registered, many of which are well on their way to certification. DOE has nine Energy Star certified buildings.

- Developing a crosswalk between the Guiding Principles and the LEED new construction (NC) worksheet.

Planned Actions

Beginning with Fiscal Year 2009, DOE sites and DOE Program Offices will ensure that budget submissions for new buildings and major renovations are adequate to ensure a rating of LEED Gold, where the projects are life-cycle cost effective.

The HPSBWG will issue guidance on the processes and procedures for obtaining waivers from the requirement to attain LEED Gold from the Acquisition Executive in consultation with the SAO, as provided for in DOE Order 430.2B. The HPSBWG expects to issue this guidance by September 30, 2008.

3.2 Existing Buildings

To meet the EO goal that 15 percent of the existing capital asset building inventory include the sustainable practices in the Guiding Principles by 2015, the Secretary has required that all real property-owning and leasing programs must develop and implement a plan to ensure that 15 percent of their building inventory as of 2015 complies with the Guiding Principles. The HPSBWG has identified the following steps for meeting the goal:

- Identify existing building inventory for Guiding Principle evaluations.
- Develop process for evaluation of existing buildings incorporation of Guiding Principles.
- Evaluate existing buildings for inclusion of sustainable practices in Guiding Principles.
- Develop a plan to “green” sufficient buildings to meet the 15 percent goal.

Specific strategies, actions, milestones and completion dates for implementing these steps are summarized in Table 2.

Existing Buildings Profile

DOE’s existing building inventory is comprised of diverse, technically complex, and one-of-a-kind facilities with a value of over \$45 billion. DOE’s existing owned building inventory, as of the end of Fiscal Year 2007, includes 8,951 buildings with 121,707,513 square feet at 50 major sites across the nation, the vast majority of which are government owned and contractor operated and maintained.

U.S. Department of Energy
High Performance and Sustainable Buildings Implementation Plan

Table 2. Implementation Actions for Existing Buildings

Strategy	Action	Milestone	Responsibility	End Date
Create green building policy for existing buildings	Establish Green building rating system and performance level to meet the guiding principles	<ul style="list-style-type: none"> Secretarial Memo and DOE O 430.2B issued requiring that Programs' building inventory comply with Guiding Principles to reach 15% of total square feet by 2015 Matched Guiding Principles with LEED Existing Building criteria. 	EERE HPSBWG	2/29/2008
	Determine which buildings will be part of the existing building inventory	Identified buildings by size, usage code, operating status, and excess indicator	HPSBWG	12/30/2007
Develop implementation strategy and tools	Develop assessment compliance and verification tool	Modified LEED Existing Building (EB) checklist to track conformance to Guiding Principles; Created compliance forms, recommended compliance documents for each Guiding Principle, developed summary accounting sheet.	HPSBWG	2/29/2008
	Identify energy performance options	Further modified LEED EB Checklist and compliance forms to include Portfolio Manager Energy Star rating and Labs21 benchmarking option	HPSBWG	4/23/2008
Implement strategy and tools	Evaluate LEED templates and assessment compliance tools for EB Guiding Principles	Held webinars or conducted site visits with Sandia, Livermore, PNNL, PPPL, ORNL, Argonne, Hanford, NETL, Y-12, & LBNL to introduce and evaluate assessment tools	HPSBWG & Program Offices	5/22/2008
	Conduct Beta tests	Modified Assessment and compliance forms based upon Beta Tests	HPSBWG	5/22/2008
	Finalize assessment compliance and verification tool	Draft forms completed; updating to include comments and recommendations from the Beta Tests	HPSBWG	6/25/2008
	Conduct field assessments	Assessment results entered in FIMS database	Sites and Program Offices	9/30/2008*
Develop plan to green sufficient buildings to meet the 15% goal	Determine approach for greening existing buildings	Issue directive requiring sites to include plans for meeting existing building guiding principles in their executable plans	EERE	2/29/2008
Implement plan to green sufficient buildings to meet the 15% goal	Evaluate assessment data and develop executable plans	Sites develop executable plans, including path forward for achieving 15% by 2015 goal	Sites and Program Offices	12/31/2008*

* Indicates projected completion date.

DOE's Facilities Information Management System, the Department's corporate real property database, is an inventory and management tool to assist with planning and managing all real property assets. The HPSBWG used FIMS to examine the Department's existing building profile and identified the following characteristics, which help target specific buildings and program offices for meeting the HPSB goals for existing buildings:

- Only 13 percent of DOE's existing owned building inventory (1,141 buildings) has an RPV of more than \$5 million (DOE's capital asset threshold), but this 13 percent of buildings makes up 94,010,249 square feet (77 percent) of DOE's total owned square footage. These buildings are located across the complex.
- The NNSA, SC, and the Office of Environmental Management (EM) combine to make up 73 percent of DOE's owned building inventory over \$5 million in RPV, and 57 percent of DOE's total owned square footage.
- The total number of buildings below the \$5 million RPV threshold is 7,810, and the associated square footage of these buildings is 27,697,264. These buildings are distributed across the complex.
- DOE owns 92 percent of its total building square footage, leases 5 percent, and obtains 3 percent from GSA.

While only a few program offices maintain the bulk of the Department's existing and new building inventory, all programs contribute to making HPSB standard practice throughout the Department. Furthermore, while buildings under \$5 million represent only about one-fourth of the DOE's owned square footage, these buildings are required to incorporate HPSB practices where practical and cost-effective.

Progress

DOE has made significant progress in assessing its existing building inventory for compliance with the Guiding Principles. Accomplishments over the past year include the following:

Identified inventory for HPSB assessments. To maximize the efficiency of the Existing Building assessment process, the HPSBWG developed a procedure for prioritizing buildings to be assessed. As a first step, the HPSBWG determined the inventory of buildings of which at least 15% must comply with the Guiding Principles by 2015. This candidate inventory includes all enduring buildings greater than 1,000 square feet that are not shut down or outgranted in their entirety and will not be excessed by 2015. Although some DOE buildings are exempt from meeting energy efficiency requirements under Section 543(c)(3) of the National Energy Conservation Policy Act (NECPA) as amended by the Energy Policy Act of 2005 (EPACT), these buildings are still included in determining the Department's candidate inventory. Table 3 shows the number of owned DOE buildings and the associated square footage that meet these criteria. These numbers will be updated annually as assets are modified.

Table 3. Candidate Owned Building Inventory for HPSB Assessments as of September 30, 2007

Building Category	Buildings	Square Footage
Total DOE Owned Building Inventory	8,951	121,707,513
Subtract Shutdown	-440	-15,339,313
Subtract Excess (by 2015)	-189	-2,533,286
Subtract Less than 1000 sq ft	-3,481	1,183,013
Subtract Outgranted Facilities	-265	-19,252,477
TOTAL	4,576	83,399,424

Developed Existing Buildings Assessment Tool. The HPSBWG has developed an existing building assessment tool for sites to use in evaluating how well each of their buildings meets the Guiding Principles. The tool includes a checklist for evaluating compliance with the Guiding Principles, an identification of roles and responsibilities, and information on reporting results, which are to be captured at building level and aggregated to the site and program levels. The checklist is a modification of the “LEED for Existing Buildings, Operations and Maintenance (LEED EB) Certification Checklist,” which matches LEED credits to their corresponding Guiding Principles. The assessment tool calculates the percentage of Guiding Principles met and/or the level of LEED certification attained and allows site managers to prioritize the buildings to include in the plan to meet the 15 percent goal. By implementing the assessments at the site level, regional factors can be addressed and priorities can be adapted to local conditions. Appendix D describes the assessment tool in more detail. The full Existing Building Assessment Tool is available at https://www.hss.energy.gov/pp/hpsb/DOE_HPSB_Assessment_6-27-08.xls.

Began assessing existing building inventory for compliance with the Guiding Principles. Between February and May 2008, DOE conducted Beta testing of the templates at 10 DOE sites. As a result of these tests, several sites began using the Existing Buildings Assessment Tool to track progress in meeting the 15 percent goal even before it was finalized. After completion of the beta testing, the assessment tool was rolled out in June 2008 for distribution to all DOE sites.

Achieved early progress in meeting the 15 percent goal. At the end of FY 2007, DOE had received LEED certification for six owned buildings, totaling 344,653 sq ft, or 0.41 percent of the Department’s owned candidate inventory. It had also received LEED certification for four leased buildings, totaling 685,823, or 10.53 percent of the Department’s leased candidate building inventory. Overall, DOE has received LEED certification for 1.15 percent of its total candidate building inventory.

Planned Actions

The HPSBWG will provide assistance as necessary as the sites

- Continue assessing their building inventory for compliance with the Guiding Principles, in conjunction with the implementation of their site Executable Plans (see section 2.3), and

- Input results of the building-level assessments to FIMS, which will serve as the central location for tracking Departmental progress in meeting the 15% goal (see section 3.4).

FEMP will coordinate comments and concurrences from the DOE Energy Savings Performance Contracts (ESPC) Review Board for consideration of sustainability goals in ESPC proposals before contract signing. (DOE Order 430.2B requires that HPSB measures be considered in ESPCs and Utility Energy Savings Contracts (UESCs) to their maximum potential.)

3.3 Leased Buildings

Although leased buildings make up only about 5 percent of DOE's building inventory, the Department is committed to incorporating the Guiding Principles into leases to the maximum extent practical. As with new construction and existing buildings, DOE has included HPSB requirements for leased buildings in its directives. DOE Order 430.2B requires all programs that lease real property to develop and implement a plan, as part of their Executable Plans, to ensure that 15 percent of their enduring buildings, including leased buildings, are compliant with the Guiding Principles. Implementation of the plan must be documented within the programs' Ten Year Site Plans and through the appropriate LEED building credits. Progress in meeting this requirement will be tracked within the Department's FIMS.

DOE Order 430.2B also requires that, starting in Fiscal Year 2008, all procurement specifications and selection criteria for acquiring new leased space, including build-to-suit lease solicitations, are to include a preference for buildings certified as LEED Gold. When entering into renegotiation or extension of existing leases, the Department must include lease provisions that support the Guiding Principles.

As part of DOE's HPSB Implementation Plan, the strategy regarding leased space calls for the HPSBWG to recommend HPSB lease requirements. DOE has revised DOE and GSA standard lease specification to encourage DOE tenant spaces, including those obtained via GSA, to attain LEED certification levels where cost-effective.

3.4 Tracking and Reporting

To monitor its progress in meeting the 15 percent by 2015 goal, the Department is tracking conformance to the Guiding Principles at the individual building level, for both owned and leased properties. The current sustainable square footage (as of the end of Fiscal Year 2007) is made up of those 10 buildings that have received LEED certification. Six of these buildings are owned by DOE and comprise 0.41 percent of the Department's candidate owned inventory (Table 4). This percentage was calculated by dividing the sustainable owned inventory (in sq ft) by the candidate owned inventory (in sq ft). Table 4 shows the suggested format for reporting HPSB status and targets for meeting the 15 percent goal. Existing buildings meeting the Guiding Principles will be incorporated into Table 4 (and into subsequent plan updates) when the Existing Building assessments have been completed and the results have been reported into FIMS. The fiscal year targets may be revised upon analysis of this FIMS reporting.

Table 4 – Sample Format for HPSB Status and Targets

High Performance and Sustainable Buildings (HPSB) Status and Targets											
	Total Inventory		Candidate Inventory (b)		Sustainable Inventory Baseline (c)			Sustainable Inventory Targets (d)			
	Gross SF	Count	Gross SF	Count	Gross SF	Count	Percent (GSF)	Percent (GSF)			
	FY 2007		FY 2007		FY 2007			FY 2008	FY 2009	FY 2010	FY 2015
Owned Buildings	121,707,513	8,951	83,399,424	4,576	344,653	6	0.41%	-	-	-	-
Leased Buildings (a)	6,518,986	259	6,511,646	248	685,823	4	10.53%	-	-	-	-
Total (Owned + Leased)	128,226,499	9,210	89,911,070	4,824	1,030,476	10	1.15%	-	-	-	-

(a) Leased buildings include DOE and Contractor leases (no GSA provided space).

(b) The candidate inventory excludes buildings against which the sustainable requirements do not apply (buildings that are shut down, owned & leased buildings under 1,000 gross square feet and buildings that will be disposed of prior to FY 2015).

(c) Sustainable Inventory Baseline for FY 2007 includes only LEED certified buildings.

(d) Targets are in terms of SF meeting the Guiding Principles as a percentage of SF in the Candidate Inventory. Targets for FY 2009 through FY 2014 will be developed based on individual site implementation plans as reflected in the Ten Year Site Plans to be submitted in FY 2009.

Other ways in which DOE tracks and reports its progress toward meeting its HPSB goals are highlighted below.

- DOE submits HPSB progress information for the OMB Environmental Stewardship Scorecard on a semiannual basis. It also submits its updated Implementation Plan (this document) to OMB on an annual basis.
- Progress on several sustainability goals is reported annually in the publication, *Energy Management and Conservation Program Annual Report*.
- DOE’s HPSB progress is reported in DOE’s Real Property Asset Management Three Year Rolling Timeline. Facility managers are held accountable for providing this data each quarter.
- Progress on meeting the internal HPSB goals established by DOE is tracked using the FIMS. FIMS has been modified to include new HPSB fields that will allow for up-to-date documentation of registered and certified buildings and other buildings meeting the Guiding Principles. DOE has funded the expansion of the FIMS Administration and

Helpdesk to support additional users and new reports. OECM provided training on these new sustainability elements to DOE Site FIMS administrators at the Department's Facilities Information Management System/Real Property Workshop in June 2008. A screen shot of the sustainability elements being tracked in FIMS is shown in Appendix E.

- Under the TEAM Initiative, HPSB progress is being tracked at the site level, which is then rolled up to the program level for reporting.
- OECM has updated its Project Assessment Reporting System (PARS), which provides project status and assessment information to DOE senior managers and stakeholders, to incorporate new data fields for reporting on expected and actual LEED goal achievement. The following new fields can be found under the 'Project ID Table' in PARS and should be populated for all new projects:
 - LEED Certification Goal at CD-2,
 - Actual LEED Certification Attained at CD-4, and
 - LEED Certification Narrative.
- DOE reports success stories and lessons learned into the High Performance Federal Buildings Database. This database, managed by DOE, is a repository of HPSB best practices for sharing among stakeholders across the Federal government. DOE has provided the following case studies to the database:
 - Bonneville Power Administration, Ampere Annex (Vancouver, WA)
 - National Renewable Energy Laboratory, Solar Energy Research Facility (Golden, CO)
 - National Renewable Energy Laboratory, Thermal Test Facility (Golden, CO)
 - National Renewable Energy Laboratory, Wind Site Entrance Building (Golden, CO)
 - National Renewable Energy Laboratory, Science and Technology Facility (Golden, CO)
 - Oak Ridge National Laboratory, East Campus Private Development (Oak Ridge, TN)
- DOE has played a crucial interagency leadership role in requiring sustainability to be tracked within each agency's real property database. Specifically, the Federal Real Property Council has adopted DOE's recommended sustainability elements within the Federal Real Property Profile.
- DOE tracks LEED-certified buildings within the Federal Government, which totaled 82 buildings as of March 2008.

Planned Actions

DOE will continue tracking and reporting its HPSB implementation progress by using all of the mechanisms identified above.

To track progress towards the meeting the 15 percent goal, DOE will use the existing building assessment process described in Section 3.2 to document those existing buildings that meet the Guiding Principles. Assessment results will be reported into FIMS, and future fiscal year targets will be developed upon analysis of the FIMS results.

3.5 Training and Outreach

The EO Implementation Instructions state that environmental management training shall be provided to employees and others, such as contractors, as appropriate, and repeated as necessary to improve awareness. HPSB awareness training, education, and outreach has begun across the DOE complex, at the headquarters and field levels, for personnel whose actions are affected by the EO (e.g., budget personnel, energy managers, site managers, headquarters staff). The HPSBWG is providing ongoing training in HPSB Guiding Principles, LEED certification, benchmarking, best practices, and energy and water evaluations to DOE programs and sites to facilitate the Department's ability to achieve its HPSB-related goals.

Progress

DOE has made significant progress in training and outreach during the past year. Examples of such progress are highlighted below.

LEED Accredited Professional Training. DOE's use of the LEED rating system dictates that Department personnel receive the appropriate training on this system. LEED Accredited Professionals (AP) demonstrate their expert knowledge of HPSB through a professional exam. As the industry's professionals, they facilitate the LEED certification process. LEED APs understand HPSB practices and principles, are familiar with the benefits and strategies of sustainable design, have learned how to use and apply the LEED Green Building Rating System, have insights for incorporating LEED into practice, and know where to find the green building tools and resources to use in projects. As of May 2008, 59 DOE Federal and contractor employees had achieved this professional designation. Appendix F lists current DOE LEED APs by site.

Leadership awards for outstanding HPSB performance. DOE has an established program for recognizing outstanding HPSB performance.

- On June 5, 2008, the DOE Acting Deputy Secretary recognized the winners of the Department's Pollution Prevention (P2) Star Awards. Three awards recognized sustainable building efforts—for the National Renewable Energy Laboratory, Sandia National Laboratory, and Oak Ridge National Laboratory. The National Renewable Energy Laboratory sustainable design entry was also recognized with an Honorable Mention from the White House Closing the Circle Awards.

- DOE has established an Awards Program for FY 2009 to reward exceptional individual and team performance with regard to HPSB.

Training tools and resources. Many ongoing HPSB programs and activities within DOE have been made available to DOE sites, the entire Federal government, and the public at large. Appendix G identifies several current tools and resources supported by DOE.

Presentations by HPSBWG members. HPSBWG members have made presentations on the Department's approach to HPSB implementation, including existing buildings assessment objectives, goals, and tools to internal and interagency groups such as the Federal Real Property Association Annual Meeting (May 2008) and Office of the Federal Environmental Executive's East and West Environmental Symposia (June 2008).

Tailored curriculum for DOE issues. The HPSBWG held a tailored training workshop in the summer of 2008 that included information on EO 13423, the Guiding Principles, and the TEAM initiative. This workshop will be repeated as needed during Fiscal Year 2009.

Planned Actions

Planned training and outreach actions are highlighted below.

DOE HPSB Training Module. DOE plans to develop and provide a green building training webinar that incorporates LEED, the Guiding Principles, DOE's approach to meeting EO goals, and available tools and resources.

LEED training. The HPSBWG plans to contract with the USGBC to hold LEED training workshops beginning in Fiscal Year 2009, especially for those sites lacking a LEED AP. The workshops will be for Facility Managers, Building Managers, Real Estate, and others at the site level who plan to become LEED APs.

OECM LEED New Construction Training. OECM plans to offer a class on LEED for New Construction and is working with its training contractor, FEMP, and the USGBC to tailor an off-the-shelf class to DOE needs. The goal is to conduct this training in early Fiscal Year 2009. This training course will be an elective in the Department's Project Management Career Development Program.

Establish a DOE HPSB website. The HPSBWG has established an internal website dedicated to the Department's HPSB initiatives. This website includes all relevant policies, requirements, tools, and resources for use by the entire DOE complex.

Lessons-learned. The HPSBWG will develop and disseminate HPSB lessons learned throughout DOE. The lessons learned will be made available on the DOE HPSB website.

4 CONCLUSION

DOE has taken a comprehensive approach to meeting statutory requirements for incorporating the HPSB Guiding Principles into new construction, major renovations, leases, and existing buildings. Through its continual progress in institutionalizing HPSB within the Department, DOE is on track to:

- *Meet and exceed EO 13423 requirements.* Significant progress on meeting all of the EO requirements can occur by implementing the HPSB Guiding Principles.
- *Transform the market with energy efficient and renewable energy technologies.* Science and technology, the Department's primary tools in the pursuit of its mission, will drive the development and transfer of technologies that will continue to transform the HPSB market. By implementing the Guiding Principles, DOE will be contributing significantly toward this market transformation.
- *Establish DOE as a leader with regard to HPSB.* Establishing a minimum of LEED Gold certification for new construction and major renovation for projects with costs exceeding \$5 million immediately establishes DOE as setting the standard for HPSB within the Federal government. Likewise, through its comprehensive approach and tool development, DOE is leading the way in addressing one of our greatest HPSB challenges: transforming our existing buildings into sustainable buildings.

The road to success with HPSB starts with committed leadership. Institutionalizing HPSB within DOE and becoming a Federal leader requires a number of policy and implementation actions that are being or have been implemented. Collaboration and cooperation among Federal and contractor personnel at Headquarters and the field sites is essential for meeting sustainability goals, which are growing in importance.

**APPENDIX A: Memorandum from Secretary Bodman on DOE Federal
Leadership in High Performance and Sustainable Buildings**


U.S. Department of Energy
High Performance and Sustainable Buildings Implementation Plan



The Secretary of Energy
Washington, D.C. 20585

February 29, 2008

MEMORANDUM FOR HEADS OF DEPARTMENTAL ELEMENTS

FROM: SAMUEL W. BODMAN 

SUBJECT: DOE Federal Leadership in High Performance and Sustainable Buildings

In my memorandum of August 21, 2007, I indicated that the Department of Energy (DOE), under the Transformation Energy Action Management (TEAM) Initiative, would exceed the goals established in Executive Order 13423, "Strengthening Federal Environmental, Energy, and Transportation Management (72 FR 3919; January 24, 2007)." In particular, my expectation is that DOE build and maintain energy efficient, environmentally sensitive buildings that provide a comfortable and productive working environment. To advise DOE on meeting this goal, the High Performance Sustainable Buildings Working Group (HPSBWG) was chartered with representatives from each of DOE real property owning programs.

The HPSBWG has recommended that DOE apply the Leadership in Energy and Environmental Design (LEED) criteria established by the United States Green Buildings Council as the benchmark for sustainability and energy efficiency in our new and existing buildings. Currently, LEED offers a viable process to achieve the high performance sustainable buildings objectives of Executive Order 13423 for both new construction and existing buildings. I concur with this recommendation and request that you implement the guiding principles of Executive Order 13423 and LEED as follows:

1. New Buildings and Major Renovations: All new DOE-owned buildings will incorporate the guiding principles of Executive Order 13423 to the extent practical. Further, as of October 1, 2008, all new buildings and major building renovations at Critical Decision-One stage or lower with a value exceeding \$5M must implement the guiding principles of the Executive Order through certification to the LEED *Gold* Standard. The LEED *Gold* Standard certification requirement can only be waived upon a decision by the Acquisition Executive, made in consultation with the Senior Energy Official. Progress in meeting this requirement will be tracked by the cognizant Acquisition Executive.

"Major building renovation" is defined as a construction activity with a value exceeding an existing building that results in (1) replacement value of the real property record, (2) a change of the building usage code, or (3) replacement of building systems that impact building operation or extend the building's useful life.



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2. Existing Owned and Leased Space: All real property owning and leasing programs must develop and implement a plan to ensure that 15 percent of their enduring buildings are in compliance with the guiding principles of Executive Order 13423. Implementation of the plan must be documented within the programs' Ten-Year Site Plans and through the appropriate LEED building credits. Progress in meeting this requirement will be tracked within DOE's Facilities Information Management System.

During fiscal year (FY) 2008, all procurement specifications and selection criteria for acquiring new leased space, including build-to-suit lease solicitations, are to include a preference for buildings certified to the LEED *Gold* Standard. Also, the renegotiation or extension of existing leases are to include, to the extent practical, lease provisions that support the guiding principles of Executive Order 13423; for example, enhanced energy and water conservation, environmentally preferable product purchasing, and post-consumer material recycling practices.

During FY 2008, all programs will assess their building inventory to determine the extent to which the high performance sustainable building guiding principles of the Executive Order are being applied. This assessment will be included in the Programs' Ten-Year Site Plans and serve as a baseline for compliance with the 15 percent sustainability target. The scope of the building inventory will be later defined by the HPSBWG.

Additional information, guidance on data collection, reporting and assistance will be provided by the HPSBWG to the TEAM Initiative Steering Committee on an on-going basis. I expect DOE to set an example for all Federal agencies in achieving High Performance and Sustainable Buildings. Please take this opportunity to establish a leadership role in maximizing our use of DOE technical expertise and the use of energy efficiency and renewable energy technologies.

U.S. Department of Energy
High Performance and Sustainable Buildings Implementation Plan

All Departmental Elements -- used when addressing correspondence to first-level organizations at Headquarters and the Field:

Secretary

Deputy Secretary

Under Secretary

Assistant Secretary for Energy Efficiency and Renewable Energy

Assistant Secretary for Electricity Delivery and Energy Reliability

Assistant Secretary for Environmental Management

Assistant Secretary for Fossil Energy

Assistant Secretary for Nuclear Energy

Director, Office of Civilian Radioactive Waste Management

Director, Office of Legacy Management

Under Secretary for Science

Director, Office of Science

Under Secretary for Nuclear Security/Administrator, National Nuclear Security Administration

Assistant Secretary for Congressional and Intergovernmental Affairs

Assistant Secretary for Policy and International Affairs

Administrator, Energy Information Administration

Chief Financial Officer

Chief Health, Safety and Security Officer

Chief Human Capital Officer

Chief Information Officer

General Counsel

Inspector General

Director, Office of Economic Impact and Diversity

Director, Office of Health, Safety and Security

Director, Office of Hearings and Appeals

Director, Office of Human Capital Management

Director, Office of Management

Director, Office of Public Affairs

Power Marketing Administrations Liaison Office

Bonneville Power Administration

Senior Intelligence Officer, Office of Intelligence and Counterintelligence

OPERATIONS OFFICES

Chicago Operations Office

Idaho Operations Office

Oak Ridge Operations Office

Richland Operations Office

Savannah River Operations Office

LABORATORIES

Ames Laboratory

Argonne National Laboratory

Bettis Atomic Power Laboratory

Brookhaven National Laboratory

Environmental Measurement Laboratory

Fermi National Accelerator Laboratory

Idaho National Laboratory

Knolls Atomic Power Laboratory

U.S. Department of Energy
High Performance and Sustainable Buildings Implementation Plan

Lawrence Berkeley National Laboratory
Lawrence Livermore National Laboratory
Los Alamos National Laboratory
National Energy Technology Laboratory
National Renewable Energy Laboratory
New Brunswick Laboratory
Oak Ridge National Laboratory
Pacific Northwest National Laboratory
Princeton Plasma Physics Laboratory
Radiological & Environmental Sciences Laboratory
Remote Analytical Laboratory
Sandia National Laboratories, New Mexico and California
Savannah River Ecology Laboratory
Savannah River National Laboratory
Stanford Linear Accelerator Center
Thomas Jefferson National Accelerator Facility (Jefferson Lab)

FIELD OFFICES

Carlsbad Field Office
Golden Field Office
Ohio Field Office
Paducah Field Office
Portsmouth Field Office
Rocky Flats Field Office

SITE OFFICES

Ames Site Office
Argonne Site Office
Berkeley Site Office
Brookhaven Site Office
Fermi Site Office
Hanford Site Office
Kansas City Site Office
Livermore Site Office
Los Alamos Site Office
Nevada Site Office
NNSA Service Center
Office of River Protection
Pacific Northwest Site Office
Pantex Site Office
Pittsburgh Naval Reactors Office
Princeton Site Office
Rocky Flats Environmental Technology Site
Sandia Site Office
Savannah River Site Office
Schenectady Naval Reactors Office
Stanford Site Office
Y-12

POWER ADMINISTRATIONS

Bonneville Power Administration
Southeastern Power Administration
Southwestern Power Administration
Western Area Power Administration

APPENDIX B: Charter, DOE High Performance and Sustainable Buildings Working Group Charter, Membership, and Role within TEAM

Department of Energy's Transformational Energy Action Management (TEAM) Initiative High Performance Sustainable Buildings Working Group Charter and Operation

Vision:

Lead the Federal government by example in promoting and utilizing high performance sustainable buildings.

Mission:

The purpose of the High Performance Sustainable Buildings Working Group (HPSBWG) is to support the Department in implementation of the TEAM Initiative supporting Executive Order 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*. The Executive Order requires the Department of Energy to ensure that new construction and major renovations of agency buildings comply with or *exceed* statutory requirements and address each of the five guiding principles set forth in the Federal Leadership in High Performance and Sustainable Buildings Memorandum of Understanding (MOU) for planning, acquiring, siting, designing, locating, constructing, maintaining, and operating its facilities. The MOU establishes a common set of guiding principles to: 1) employ integrated design principles; 2) optimize energy performance; 3) protect and conserve water 4) enhance indoor air quality; and 5) reduce environmental impacts of materials.

The HPSBWG responsibilities include the following goals and tasks:

- Action 1: Coordinate DOE policies and Establish Programmatic Framework;
- Action 2: Develop New Building Programs and Existing Building Strategy;
- Action 3: Maintain coordination with the Interagency Sustainable Working Group (ISWG) through the Federal Energy Management Program (FEMP); and
- Action 4: Report to the designated Senior Agency Official (SAO)

Members:

- Department's Designated Senior Agency Official (SAO).
- Chair: Energy and Efficiency and Renewable Energy Office (EERE)
- Members:
 - All real property owning Programs, including: the National Nuclear Security Administration (NNSA), the Office of Environmental Management (EM), the Office of Science (SC), the Office of Fossil Energy (FE), the Office of Nuclear Energy (NE), and the Office of Energy Efficiency and Renewable Energy (EERE).
 - Support Offices including: the Office of Engineering and Construction Management (OECM), General Council (GC), and the Office of Health Safety and Security (HSS).

- Each primary organization office and/or program office shall designate a lead representative as a voting member.

Operation:

- Meetings will be held weekly unless otherwise specified.
- The HPSBWG may create subcommittees to perform topical research and formulate recommendations for specific action items.

Decision Making:

- The HPSBWG will obtain consensus on balanced recommendations that reflect the best interests of the Department of Energy and organizational units.
- A minimum of two real property owning Programs and NNSA representatives shall be present to establish a “voting” quorum.
- If consensus can not be reached the issues will be referred to the SAO for decision.

Outcomes:

- Successfully complete the HPSBWG Mission by implementing the agreed to Plan of Action and Milestones.

Measures of Success:

- The HPSBWG shall review its progress as it relates to the HPSBWG Plan of Action and Milestone (POA&M).
- Complete all Actions and Milestones within the timeframes as specified in the POA&M.

Updates and Termination:

- The HPSBWG Charter will be updated as necessary.
- The HPSBWG Charter will expire once all the Plan of Action and Milestone goals have been achieved or at the discretion of the SAO.

U.S. Department of Energy
High Performance and Sustainable Buildings Implementation Plan

HPSBWG Chair and Office Lead Members

<i>Last Name</i>	<i>First Name</i>	<i>Role</i>	<i>Organization</i>	<i>E-mail</i>
Arcidiacono	Jessica	NNSA Lead	National Nuclear Security Administration	jessica.arcidiacono@nnsa.doe.gov
Barnes	Don	NE Lead	Nuclear Energy – Facilities Management	Donald.barnes@nuclear.energy.gov
Calamita	Chris	GC Lead	General Counsel	christopher.calamita@hq.doe.gov
Clark	Kevin	FE Lead	Office of Fossil Energy	Kevin.clark@hq.doe.gov
Collazo	Yvette	EM Lead	Office of D&D and Facility Engineering	Yvette.collazo@hg.doe.gov
Gray	Matt	FEMP Lead	EERE – FEMP	matthew.gray@ee.doe.gov
O’Konski	Peter	OECM Lead	Management – OECM	peter.o'konski@hq.doe.gov
Robinson	Thomas	Co-Chair	EERE – Information and Business Management	thomas.robinson@hq.doe.gov
Smith	Robert	EIA Lead	Energy Information Agency (EIA)	Robert.Smith@eia.doe.gov
Sze	Daniel	Co-Chair	EERE – Information and Business Management	daniel.sze@hq.doe.gov
Traceski	Thomas	HSS Lead	Office of Health, Safety and Security (HSS)	thomas.traceski@eh.doe.gov
Yates	John	SC Lead	Office of Science	john.yates@science.doe.gov

U.S. Department of Energy
High Performance and Sustainable Buildings Implementation Plan

APPENDIX C: DOE LEED[®] Certified Projects as September 30, 2007

DOE Site	Project Title	State	LEED Rating System	Project Type	Gross S.F.	Registration Date	Certification
Oak Ridge National Laboratory	Research Support Center	TN	LEED NC	Multi-Use	53,000	10-Dec-02	Certified 10-Nov-05
Oak Ridge National Laboratory	East Campus Modernization (leased)	TN	LEED NC	Commercial Office	376,000	13-Jun-02	Certified 08-Apr-04
Argonne National Laboratory	Central Supply Facility	IL	LEED NC	Industrial	53,000	06-Mar-02	Certified Silver 21-Nov-02
Sandia National Laboratory	Joint Computational Engineering Laboratory	NM	LEED NC	Multi-Use	66,140	17-Feb-03	Certified Silver 20-Nov-06
Bonneville Power Administration	Ampere Annex	WA	LEED NC	Multi-Use	3,000	21-Mar-03	Certified Silver 02-Apr-04
National Renewable Energy Laboratory	Science and Technology Facility	CO	LEED NC	Laboratory	64,000	21-Feb-02	Certified Platinum 13-Mar-07
Oak Ridge National Laboratory	Multiprogram Research Facility (leased)	TN	LEED NC	Campus (corp/school)	218,279	17-Mar-05	Certified Gold 29-Mar-07
Pantex	Weapons Evaluation Test Laboratory (leased)	TX	LEED NC	Laboratory	31,500	31-Jan-02	Certified 02-Apr-07
Sandia National Laboratory	MESA MicroFab	NM	LEED NC	Other	105,513	26-Sep-02	Certified 17-Sep-07
Oak Ridge National Laboratory	Joint Institute For Computational Sciences	TN	LEED NC	Assembly	60,044	22-Nov-02	Certified Silver 27-May-05

APPENDIX D: Existing Buildings Assessment Guide

Note: This appendix provides a summary of the Department of Energy High Performance Sustainable Building Assessment Tool. The assessment tool is available at https://www.hss.energy.gov/pp/hpsb/DOE_HPSB_Assessment_6-25-08.xls

I. INTRODUCTION

Pursuant to DOE Order 430.2B the Department of Energy Real Property Owning Programs shall support the application of HPSB Guiding Principles in 15% of the existing building portfolio. Building assessments should be conducted to implement the Guiding Principles in existing buildings. An assessment is the entire process by which buildings in the portfolio are identified to meet the 15% requirement and by which actions are taken to meet the goal and document compliance. The assessment includes five steps: assembling the project team, the initial assessment to identifying suitable buildings, the final assessment to comply and document, reassessment as needed, and reporting. Each step is explained herein.

The Department of Energy (DOE) has created a HPSB Assessment and Compliance Tool to assess the existing building inventory for compliance with HPSB Guiding Principles. The Tool consists of a HPSB Guiding Principles Checklist for Existing Buildings (Figure 1), HPSB Guiding Principles Assessment Compliance Forms (Figure 2), and a HPSB Guiding Principles Compliance Summary Form.

The HPSB Assessment and Compliance Tool is adapted from the US Green Building Council's LEED® for Existing Buildings, Operation and Maintenance (LEED EB) rating system. LEED promotes a whole-building approach to sustainability by recognizing performance in five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality. Program Secretarial Offices are encouraged to exceed the requirements of the Guiding Principles by obtaining additional LEED accreditation. However, DOE does not require its existing buildings to obtain LEED Certification. If a site chooses to do so, additional credits above and beyond the Guiding Principles must be achieved. LEED EB Certification requires a minimum of 34 credits. Additional documentation and a separate process apply for official LEED Certification.

II. THE EXISTING BUILDING ASSESSMENT

Only buildings (for this purpose, the term building includes real property trailers) should be assessed. The universe of buildings includes all buildings owned and leased by the Department of Energy. However, certain buildings are exempt from the assessment requirement. These include:

- Any buildings that are under 1,000 gross square feet.
- Any buildings that are shut down.

- Buildings that are out-granted in their entirety to an entity outside the Department who is wholly responsible for all costs as long as the out grant exists beyond FY2015.
- Any buildings for which disposition is planned to occur before the end of Fiscal Year 2015.

Step 1: Project Team

The first step in the building assessment should be to assemble a Project Team. The Project Team under the direction of the Site Manager or their designee should include one or more of the following to conduct an existing building assessment:

- A licensed professional engineer or architect,
- A USGBC LEED Accredited Professional (AP) or access to LEED AP within the Department of Energy (per DOE compliance methodology, See Integrated Design Assessment Compliance Form),
- A Construction, Facilities, Infrastructure or Maintenance Manager,
- A Procurement specialist knowledgeable in construction and building procurement,
- A FIMS/CAS specialist,
- A third party contractor experienced in sustainable, green building practices and energy performance, or
- An Energy Service Company (ESCO) or other third party contractor familiar with the site facilities.

The key to successfully assessing the existing building portfolio is to assemble a Project Team with experience that is familiar with the systems and operations of the identified buildings. A knowledgeable team can quickly determine which buildings may or may not meet the Guiding Principles by 2015. To maximize the knowledge base, the Project Team may involve other operational staff and administrators from the start to provide input and to help gather important documents and information. The Project Team should look for opportunities to coordinate data collection that may provide information about multiple sites. Some documents and resources that are useful for completing the assessments, especially during the formal assessment phase, are:

- Past and current building and grounds plans/blueprints
- Past and current energy/water bills; metered buildings
- Energy Star rating – Portfolio Manager Benchmark
- Sustainability plans or policies in effect
- Waste/recycling service provider contracts and bills
- Operation and maintenance manuals for heating and cooling systems
- Inventory lists
- Purchasing procedures
- DOE orders and guidance documents
- Federal inventories of property assets
- Policy manuals

- Energy and utility usage annual reports

Step 2: Initial Assessment/Planning & Identifying Building Sites

Once assembled, the Project Team should conduct an initial assessment to target buildings that have the greatest likelihood of meeting the Guiding Principles, using the Checklist for Existing Buildings. An initial assessment is an abbreviated evaluation of a building's potential for meeting the Guiding Principles which may involve a visual inspection of the building and document reviews. While all buildings should be considered in the initial assessment, it is not expected that all buildings will meet all of the Guiding Principles during this step. The purpose of the initial assessment is to identify the buildings most suitable for achieving compliance with the Guiding Principles by 2015 for 15% of the existing building portfolio. As a secondary result of this process, buildings that do not have immediate potential for meeting the Guiding Principles are also identified.

Examples of sites that may rank as a higher priority for the next step, formal assessment, include but are not limited to buildings that:

- Have LEED ® certification,
- Have an ESCO contract in place,
- Already have energy efficiency projects underway,
- Buildings that have had or are slated to receive energy and/or water efficiency upgrades to improve performance, and/or
- Buildings that have had or are slated to receive lighting or daylighting upgrades.

For each building, the Project Team can use the Checklist for Existing Buildings to mark off the Guiding Principles that are already in place or near completion. At the discretion of the Program Secretarial Office, the Project Team can also mark existing and potential LEED® credits at this time. The Guiding Principles are highlighted in yellow from among the other LEED® credits listed. To the left of each credit there are three columns. The Yes column is used to identify all Guiding Principles or LEED credits that are achieved or are targeted to be achieved. The Maybe column is used to identify the Guiding Principles or LEED credits that are potentially achievable. These are credits where more research may be required. The No column is for Guiding Principles or credits that cannot be achieved or that are non-applicable. If a building's suitability for meeting any of the Guiding Principles is in question, the Project Team can refer to the Assessment Compliance Forms for a detailed explanation of the intent of each Guiding Principle.

Next, the Project Team may compare each building's Checklist to determine which buildings have a greater probability of meeting all of the Guiding Principles. The Project Team may continue with the initial assessment until they have identified buildings that in aggregate total approximately 15% or more of the existing building portfolio (by GSF). Having a catalog of buildings in excess of 15% gives the Project Team flexibility during the formal assessment phase, in the event that one or more identified buildings cannot meet 100% of the Guiding

Principles. In this case, the Project Team can select a different building from the list to fill the gap.

Finally, the Project Team may prioritize the list of suitable buildings and create a schedule for conducting formal assessments and documenting compliance.

Step 3: Formal Assessment, Compliance and Documentation

The formal assessment is a more detailed evaluation of each building identified in the initial assessment. It may involve a visual inspection of the building, document reviews and measurements to determine performance levels. The formal assessment can be accomplished by using the Assessment Compliance Forms (integrated design, commissioning, energy efficiency, etc.) included in the Assessment and Compliance Tool. The Compliance Forms explain the intent and documentation requirements for each Guiding Principle. The Compliance Forms also provide related mandates and resources available to help throughout the process. For each building, the Project Team may use the Compliance Forms to evaluate and document each Guiding Principle already in place and to consider the feasibility of implementing the ones that are not. For each building where Guiding Principles are not met, the Project Team may develop a schedule for implementing the necessary upgrades.

When a particular Guiding Principle is complete and the required documentation is collected, clicking the corresponding check box on any of the Assessment Compliance Forms will automatically update the relevant field on both the Existing Buildings Checklist and the Compliance Summary Checklist. The Checklist will then reflect the total of Guiding Principles achieved and, if marked separately by the Project Team, a total of all potential LEED® points. The Compliance Summary Checklist is a summary of the Guiding Principles achieved. It gives an opportunity to provide comments or notes and provides a quick view to easily review compliance overtime. In the event that a Guiding Principle cannot be met, the Summary Checklist provides an opportunity to explain the reason why.

All documents listed on the Assessment Compliance Forms should be kept at the site level to verify compliance in the event of an audit. Documents such as contracts, purchasing specifications, construction plans and DOE directives may pertain to more than one building site. If so, separate files may not be required but it is recommended that a master file be maintained by the Real Property Owning Program. For example, a storm water management plan may impact multiple buildings on one site. In this case individual storm water plans are not needed. However, it is recommended that the plan should identify the site boundaries that it impacts.

When 100% of the Guiding Principles have been met and documented for a building, the formal assessment is complete and individual building compliance is achieved. The process can be followed until 15% of the building portfolio has met the requirements of the Guiding Principles. However, the formal assessment process is not static. Compliance may take several years and periodic building reassessment may be needed.

Step 4: Periodic Reassessment

A building assessment may occur as needed to re-evaluate a building's status until the Guiding Principles are met. For example, the initial or formal assessment may reveal that a building meets 50% of the Guiding Principles. The Project Team identifies the building for inclusion in its plan to meet the 15 % HPSB requirement and re-evaluates the building in the future to account for planned or completed upgrades that overtime will bring the percentage up to 100 by 2015. To stay on track, the Project Team may choose to establish a schedule for future reassessments. Changes to a building's operations or major buildings systems may be triggers for reassessing a building's progress.

Step 5: Reporting

Compliance with the Guiding Principles will be reported in FIMS. FIMS can record data at the building level and data that is aggregated at the site and program levels. FIMS can track data overtime, meaning that data entry can begin after the initial assessment and continue through project completion. FIMS data fields will capture estimated completion dates, the percentage of Guiding Principles met/and or the level of LEED certification attained. FIMS will upload data to the Federal Real Property Profile as necessary to satisfy the requirements of the Federal Real Property Council.

Pursuant to DOE Order 430.2B all programs that own or lease real property must develop and implement a plan, as part of the Executable Plan, to ensure that 15% of existing buildings are compliant with the Guiding Principles of Executive Order 13423. Implementation of the plan must be documented within the programs' Ten Year Site Plans.

III. RESPONSIBILITY

Department of Energy Real Property Owning Programs shall support the application of HPSB Guiding Principles in 15% of the existing building inventory. Site Managers and Project Team members, under the direction of the Real Property Owning Program, are responsible for conducting building assessments and should maintain the required documentation listed on the Assessment Compliance Forms to verify compliance with the Guiding Principles.

IV. DETERMINING COMPLIANCE

All efforts shall be made to meet the Guiding Principles. Existing buildings contribute to the 15% goal under the following circumstances:

- Buildings that can demonstrate compliance with each of the five Guiding Principles.
- A certification process was initiated prior to October 1, 2008, and the building is LEED certified at any level.
- Buildings that receive USGBC LEED for Existing Buildings, Operations & Maintenance (LEED EB) Gold certification and above.

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- Buildings that achieve USGBC LEED for New Construction (LEED NC) Gold certification and above.
- Buildings that achieve USGBC LEED Commercial Interiors' (CI) Gold certification and above.

If a Guiding Principle is not met under any of the circumstances listed above, it must be documented and reported to the agency for inclusion in the Implementation Plan.

V. ASSESSMENT OVERVIEW

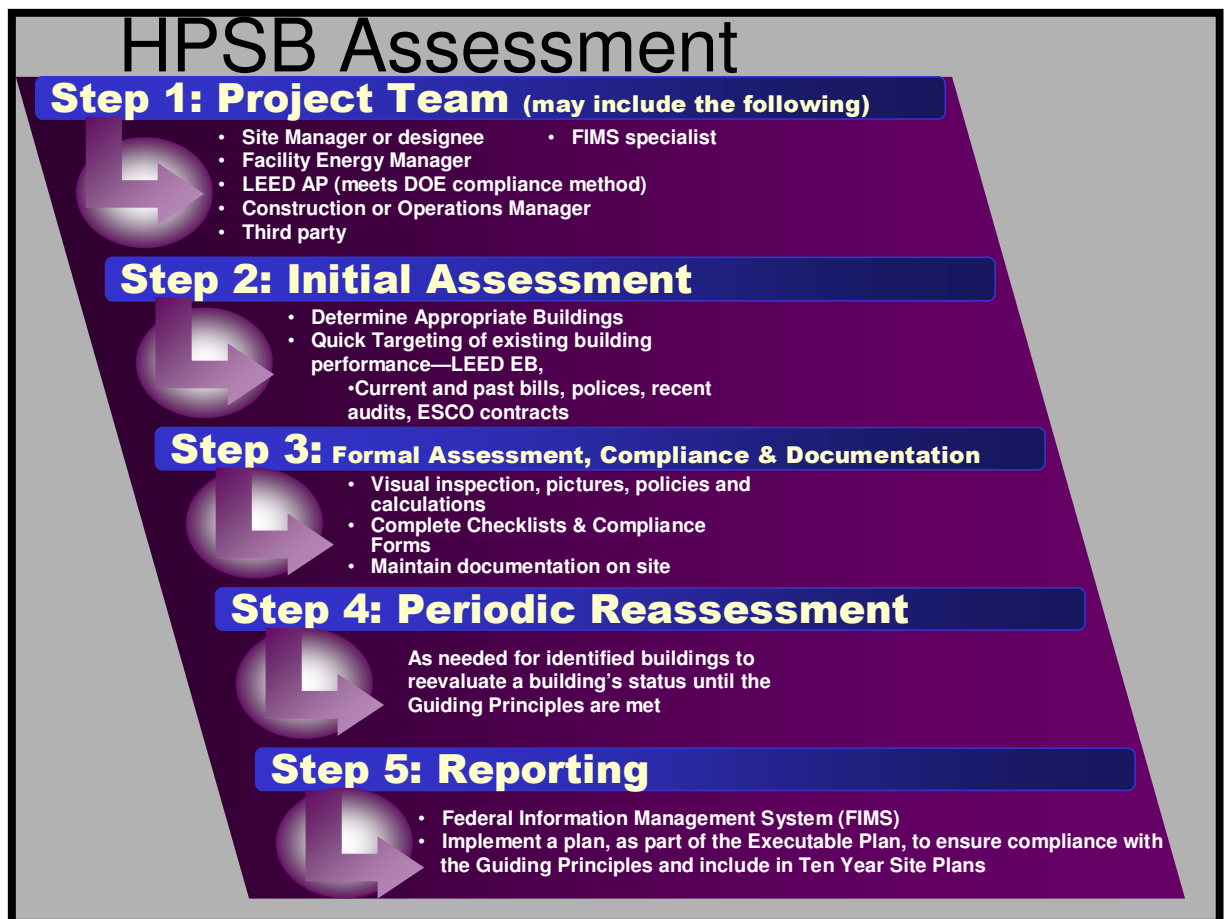




Figure 1. Section of the HPSB Guiding Principle Checklist for Existing Buildings

**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	<div style="display: flex; justify-content: space-between;"> % HPSB Guiding Principles Achieved* 0% </div>	0%	
	Total LEED Credits Achieved (Yes column)	0	
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
	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
	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
0	0	0	Subtotal
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
	WEc2.1	Additional Indoor Plumbing Fixture Efficiency - 10%	1
	WEc2.2	Additional Indoor Plumbing Fixture Efficiency - 20%	1
	WEc2.3	Additional Indoor Plumbing Fixture Efficiency - 30%	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
	WEc4.1/4.2	Cooling Tower Water Management	2
0	0	0	Subtotal
LEED	Energy & Atmosphere	30 Points	
YES	Maybe	No	
	Prereq 1	Energy Efficiency Best Management Practices	LEED Rqd
	Prereq 2	Minimum Energy Performance	LEED Rqd
	Prereq 3	Ozone Protection	LEED Rqd
	EAc1.1-15	Optz Energy - EStar:67/69/71/73/75/77/79/81/83/85/87/89/91/93/95	1 to 15
	EAc2.1	Existing Building Commissioning: Investigation & Analysis	2

Figure 2. Sample HPSB Guiding Principle Assessment Compliance Form

Guiding Principle IV. Enhance Indoor Environmental Quality: **Ventilation and Thermal Comfort**

**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
Intent: Meet the current ASHRAE Standard 55-2004, Thermal Environmental Conditions for Human Occupancy, including continuous humidity control within established ranges per climate zone, and ASHRAE Standard 62.1-2004, Ventilation for Acceptable Indoor Air Quality.	Document compliance with ASHRAE Standards: <ul style="list-style-type: none"> • 55-2004 • 62.1-2004 	<input type="checkbox"/>	EQ Prereq 1: Outside Air and Exhaust EQc2.3 Occupant Comfort Thermal Comfort Monitoring
Confirmation			
Building ID:			
Signed By:		Date:	
Title:			
Related Mandates			
41 CFR § 102-74.195: 41 CFR § 102-74.185(b)			
Resources			
http://www.vbdg.org/references/mou_vtcomfort.php www.epa.gov/iaq/largebuildings/l-beam/index.html http://www.ashrae.org/			

APPENDIX E: Screen Shot of Sustainability Fields in Facilities Information Management System

FIMS - Property - Building - Sustainability - Microsoft Internet Explorer provided by DOECOE

File Edit View Favorites Tools Help

Address: <http://ociot0174:8080/newfims/common/controller.jsp?navtype=t&m=1&s=8&t=291&extradata=propertyType=8|propertyseqno=123571|propertyOwnedIngrant=0>

FIMS Property Administration Reports

Building OSF Land Trailer

Sustainability Property (ID - Name) 372 - ECT Offices Owned/ Ingrant DOE Owned Save

Assessment Status: [Dropdown]

Section A - Existing Building Not Assessed

Planned Assessment Date: [Dropdown] [Dropdown] (Enter fiscal quarter and fiscal year, i.e. Q1 2010)

Section B - Building Assessed

LEED Rating System: [Dropdown]

LEED-Existing Building (EB)

LEED Points: [Input]

Guiding Principle Points - % Achieved: [Input] %

LEED Certification Level Attained: [Dropdown]

LEED-New Building (NC)

Certification Status: [Dropdown]

LEED Certification Received: [Dropdown]

Guiding Principle Points - % Achieved: [Input] %

Expected Certification Date: [Dropdown] [Dropdown] (Enter fiscal quarter and fiscal year, i.e. Q1 2010)

Section C - Exempted from Assessment **Section D - Not Worth Assessing**

Reason for Exemption: [Dropdown] Reason for Non-Assess: [Dropdown]

United States Department of Energy - FIMSWeb Version 1.21 For more information [Contact Us](#) View [FIMS Rules of Behavior](#) View [Privacy Statement](#)

APPENDIX F: DOE LEED® Accredited Professionals

Name	City	State	DOE Affiliation
Alber, Russell	Naperville	IL	Fermi National Accelerator Laboratory
Anglin, Rob	Livermore	CA	Lawrence Livermore National Laboratory
Bodelson, Michael	Santa Fe	NM	Los Alamos National Laboratory
Carlisle, Nancy	Golden	CO	National Renewable Energy Laboratory
Daulton, Jennifer	Idaho Falls	ID	Idaho National Laboratory
Diamond, Richard	Berkeley	CA	Lawrence Berkeley National Laboratory
Dixon, Steven	Lombard	IL	Fermi National Accelerator Laboratory
Dyer, Beverly	Washington	DC	Department Of Energy Headquarters
Eenberg, Steve	Berkeley	CA	Lawrence Berkeley National Laboratory
Farrar-Nagy, Sara	Golden	CO	National Renewable Energy Laboratory
Flett, Gregory	Upton	NY	Brookhaven National Laboratory
Fossum, Ernest	Idaho Falls	ID	Idaho National Laboratory
Fowler, Kim	Richland	WA	Battelle - Pacific Northwest National Laboratory
Gowri, Krishnan	Richland	WA	Battelle Northwest
Gray, Matthew	Washington	DC	Department Of Energy Headquarters - FEMP
Greenberg, Steve	Berkeley	CA	Lawrence Berkeley National Laboratory
Gregg, Michael	Oak Ridge	TN	UT-Battelle
Hayter, Sheila	Golden	CO	National Renewable Energy Laboratory
Holaday, S. Rene	Los Alamos	NM	Los Alamos National Laboratory
Humble, David	Albuquerque	NM	Sandia National Laboratories
Iadach, Michael	Los Alamos	NM	Los Alamos National Laboratory
Indelicato, Anthony	Lawrenceville	NJ	U. S. Department Of Energy
Kandt, Alicen	Boulder	CO	National Renewable Energy Laboratory
King, Karin	Livermore	CA	Lawrence Livermore National Laboratory
Kirk, Gregory	Richland	WA	Pacific Northwest National Laboratory
Kumar, Satish	Washington	DC	Lawrence Berkeley National Laboratory
Lacey, Jeffery	Idaho Falls	ID	Idaho National Laboratory
Ladach, Michael	Los Alamos	NM	Los Alamos National Laboratory
Liu, Bing	Richland	WA	Battelle - Pacific Northwest National Laboratory
Maltin, Marla	Los Alamos	NM	Los Alamos National Laboratory
Mathew, Paul	Washington	DC	Lawrence Berkeley National Laboratory
McGeachen, Thomas	Princeton	NJ	Princeton Plasma Physics Laboratory
Mizner, Jack	Albuquerque	NM	Sandia National Laboratories
Morse, John	Golden	CO	National Renewable Energy Laboratory
Morton, Jennifer	Idaho Falls	ID	Idaho National Laboratory
Murphy, Erin	Albuquerque	NM	Sandia National Laboratories
Norek, George	Argonne	IL	Argonne National Laboratory
O'brien, Cheryl	Idaho Falls	ID	Idaho National Laboratory

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Name	City	State	DOE Affiliation
Payne, Christopher	Washington	DC	Lawrence Berkeley National Laboratory
Peters, R. Cecil	Oak Ridge	TN	UT-Battelle
Pittman, Jeff	Richland	WA	Pacific Northwest National Laboratory
Pless, Shanti	Golden	CO	National Renewable Energy Laboratory
Richman, Eric	Richland	WA	Battelle - Pacific Northwest National Lab
Robichaud, Robert	Boulder	CO	National Renewable Energy Laboratory
Rosenberg, Michael	Eugene	OR	Pacific Northwest National Laboratory
Seiter, Doug	Golden	CO	Golden Project Management Center
Solana, Amy	Portland	OR	Pacific Northwest National Laboratory
Tanner, Stephanie	Washington	DC	National Renewable Energy Laboratory
Terrill, Alison	Livermore	CA	Lawrence Livermore National Laboratory
Thomas, Warren	Oak Ridge	TN	UT-Battelle
Trychta, Keith	Argonne	IL	Argonne National Laboratory
Van Geet, Otto	Golden	CO	National Renewable Energy Laboratory
VanZandbergen, Gary	Batavia	IL	Fermi National Accelerator Laboratory
Walton, Rodney	Batavia	IL	Fermi National Accelerator Laboratory
Watkins, Gary	Richland	WA	Battelle - Pacific Northwest National Laboratory
Watson, Ian	Livermore	CA	Lawrence Livermore National Laboratory
Wiegand, Peter	Oak Ridge	TN	UT-Battelle
Wilcher, Kirby	Oak Ridge	TN	UT-Battelle
Yuan, Wenbo	Livermore	CA	Lawrence Livermore National Laboratory

APPENDIX G: DOE HPSB Tools and Resources

DOE has developed or heavily supported many helpful tools and resources about HPSB, which are publicly available to all Federal facility managers and other personnel. The resources listed below—originating from DOE, the Federal sector, and industry—include publications, Web sites, policies, and databases.

GENERAL HPSB RESOURCES

FEMP's Sustainable Design and Operations Home Page:

<http://www1.eere.energy.gov/femp/sustainable/>

DOE's Federal Energy Management Program (FEMP) functions in a critical dual-role capacity, acting as one of the HPSB leaders internally within the Department as well as externally providing technical assistance to other Federal agencies

FEMP's Interagency Sustainability Working Group (ISWG):

http://www1.eere.energy.gov/femp/sustainable/sustainable_workinggroup.html

The ISWG serves as a forum for information exchange within the federal government on sustainable building activities and removes barriers to the adoption of sustainable design and operations in the federal sector. The ISWG is charged by the EO 13423 Steering Committee to provide interagency assistance for implementing the EO sustainable building requirements. The working group is composed of members from more than twenty Federal departments and agencies, and also includes members from academia and the private sector. In 2007, FEMP was granted a *Sowing the Seeds* Closing the Circle award for chairing the ISWG and developing “high performance buildings through innovative policy.”

FEMP's High Performance Federal Buildings Database:

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

FEMP sponsors the High Performance Federal Buildings Database, a sampling of sustainable buildings projects in the Federal government and has developed building cost and performance metrics data collection protocols for Federal agencies. As of June 2008, the database contains 43 case studies of high performing Federal buildings.

Whole Building Design Guide's Technical Guidance for EO 13423:

<http://www.wbdg.org/sustainableEO/>

As directed in EO 13423, the Interagency Sustainability Working Group has developed this technical guidance to assist agencies in meeting EO goals and statutory requirements. This technical guidance includes clarification of requirements; related mandates; additional recommendations and considerations; and resources for implementation, including model contract and specification language per the *Federal Green Construction Guide for Specifiers*.

EERE's Building Technologies Program Buildings Database:

<http://www.eere.energy.gov/buildings/database/>

The database collects 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.

FedCenter – Green Building:

<http://www.fedcenter.gov/programs/greenbuildings/>

<http://www.fedcenter.gov/programs/sustainability/>

The Sustainability and Green Buildings Program Areas include the latest guidance, examples, and information resources to aid Federal facilities in developing and maintaining sustainable facilities and helping to develop and promote sustainable practices within their environmental programs or activities.

Energy Star®:

<http://www.energystar.gov>

Energy Star is a joint program of the U.S. EPA and DOE. The Energy Star certification program focuses on energy performance of products and buildings. More than 21,000 buildings have been rated using EPA's Portfolio Manager, which analyzes the whole-building energy use in comparison with similar facilities in a national building database. Buildings that achieve a rating of 75 or higher save \$0.50 sq/ft compared to average performing buildings and operate 35% more efficiently than average buildings. DOE has nine Energy Star certified buildings.

Labs for the 21st Century:

<http://www.labs21century.gov/>

Labs for the 21st Century (Labs21) is a voluntary program sponsored by DOE and EPA dedicated to improving the environmental performance of U.S. laboratories. The goal of the program is to encourage the development of sustainable, high performance, and low-energy laboratories nationwide. Labs21 provides a range of training and educational opportunities throughout the year on sustainable laboratory design and operation. In addition, tool kits and best practices guides support the design, construction, and operation of high-performance laboratories. The Implementation Guidance for Executive Order 13423 encourages agencies to use Labs21.

DEPARTMENT OF ENERGY RESOURCES

DOE Pollution Prevention (P2):

<http://www.hss.energy.gov/pp/index.html>

The Office of Health, Safety and Security (HSS), Office of Nuclear Safety and Environment is responsible for DOE P2 policy development, guidance, and reporting activities. This website

contains policy and guidance documents, announces P2 news and events, and provides a convenient on-line reporting system for DOE sites and program offices.

LANL Engineering Standards Manual – Sustainable Design Requirements for Facilities:
<http://engstandards.lanl.gov/engrman/14sd/html/14susdsg.html>

LANL's Engineering Standards Manual includes a chapter on sustainable design that addresses siting, circulation, and landscape design.

LANL Sustainable Design Guide:
http://www.eere.energy.gov/buildings/highperformance/lanl_sustainable_guide.html

The LANL Sustainable Design Guide offers a specific planning and design process for creating and meeting their site sustainability goals, including energy reduction, indoor environmental quality, water quality, and site preservation. Within the document, general goals are stated, specific recommendations are provided, and technical information regarding selected design strategies is also provided.

OECM Real Property Asset Management:
<http://oecm.energy.gov/Default.aspx?tabid=333>

The Office of Engineering and Construction Management is the lead office in implementing Executive Order 13327 on Federal Real Property Asset Management. The site includes DOE's Asset Management Plan, the Three-Year Rolling Timeline, and Best Practices.

PNNL Complex-Wide Sustainable Design Program:
<http://www.pnl.gov/doesustainabledesign/>

The Pacific Northwest National Laboratory (PNNL) has included a variety of sustainable-design-related contract language in past contracts, such as improved energy performance designed to exceed the requirements of the Washington State Energy Code by 40%. PNNL has a sustainable design procedure that requires each project to have a project management plan with details on implementation and documentation of sustainable design criteria, an internal design review process, and an independent review process.

Sustainability at Sandia:
<http://www-irm.sandia.gov/esh/ems>

A Sandia National Laboratory (SNL) program, referred to as *Sustainability at Sandia*, showcases how Sandia management is committed to being a leader in sustainable, whole building design. Over the next several years, Sandia National Laboratories/New Mexico (SNL/NM) will be completing major construction, renovation and demolition projects. For each of these projects, the Architectural, Engineering and Construction firms contracted to do this work will use SNL/NM Standard Construction Specifications and the SNL/NM Design Manual as the basis for design and construction. To ensure that the Guiding Principles are fully integrated into these

projects, SNL/NM has implemented a systematic program for review and revision of the Standard Construction Specifications and Design Manual.

Sustainable NREL:

http://www.nrel.gov/sustainable_nrel/

NREL's goal is to produce a well-designed and functional building representing a national benchmark for cost-competitive, high-performance design and construction incorporating commercial-ready renewable and energy efficiency technologies. NREL created the annual Sustainable NREL Master Plan. This plan identifies ways to help NREL become more sustainable in all its operations, in synergy with the Laboratory's mission. The plan is based on site-wide performance objectives, supporting goals, specific implementation objectives, and an overall management plan.

The state-of-the-art Science & Technology Facility (S&TF) located at NREL is its most recent success. This 71,000-sq. ft., \$22.7-million facility is the first Federal building to receive a Platinum rating, the highest in the LEED Green Building rating system. Only two other labs have achieved the LEED Platinum designation.